# EIA Scoping Report

*on behalf of:*

**Hollins Strategic Land, Maldune Ltd and Belbeck Investments Ltd**

**Land East of Walmersley Road, Bury**

**June 2026**

*Prepared by*

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# 1. INTRODUCTION

1.1 This Scoping Report has been prepared to query and define the scope, content and structure of an Environmental Impact Assessment (EIA) should it be required to support an outline planning application for a mixed-use development comprising up to 350 dwellings (including 50% affordable housing), employment/commercial floorspace, a local retail centre, mobility hub, public open space and associated infrastructure on land east of Walmersley Road, Bury. A Site Location Plan is included at **Appendix 1**. The indicative Masterplan is included at **Appendix 2**.

1.2 A Parameters Plan accompanies the Planning Application. The Parameters Plan will form part of any future approved documents and as such will be subject to a planning condition requiring the subsequent Reserved Matters Application to be in conformity with that plan. In this way the extents of the proposed development areas and public open space areas (including retained trees, etc) will be clearly defined.

1.3 The Parameters Plan is included at **Appendix 3**.

1.4 A Screening Opinion was issued by Bury Council on 5 May 2026 concluding that the proposed development constitutes EIA development under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 – a copy of the screening opinion is included at **Appendix 4**. The Council's conclusion was based principally upon the scale of development, the potential urbanising effect[1] of the proposals, the historic landfill use of part of the site and the potential for effects associated with transport, noise and air quality.

1.5 Since the Screening Opinion was issued, the applicant has considered the opinion alongside the technical investigations completed for the Site in connection with the outline planning application that has been submitted to the Council and is currently awaiting validation. The applicant is of the view that all technical reports conclude the proposed development is unlikely to have significant effects on the environment, as such, there should not be a requirement for EIA in these circumstances. Any impacts associated with the proposed development are capable of being assessed and where

[1] In terms of significant urbanising effects, Planning Practice Guidance refers to proposals of more than 1,000 dwellings which is well above the development proposed.

necessary mitigation can be provided as part of the usual planning process – without the need for Assessment under EIA Regulations.

1.6 Government guidance on EIA confirms that:

- EIA should not be a barrier to growth and will only apply to a very small proportion of Schedule 2 development projects considered within the town and country planning regime.
- EIA should only apply to those projects which are likely to have significant effects on the environment.
- If required, the scope of assessment should be limited to those aspects of the environment that are likely to be significantly affected.

1.7 Planning Practice Guidance confirms that screening decisions are based upon the information available at the time the decision is made and that further information may subsequently become available [Paragraph: 021 Reference ID: 4-021-20170728]. The Applicant therefore considers that it is appropriate for the Council to reconsider the original Screening Opinion having regard to the further technical evidence now available.

1.8 The Applicant considers that additional technical information is now available which was unlikely to have been fully considered by the Council when the Screening Opinion was adopted. The Applicant respectfully requests that the Council reviews whether the proposal continues to constitute EIA development considering the additional technical evidence now available and, if appropriate, withdraws or revises and limits the Screening Opinion accordingly.

1.9 The Applicant considers that the recycling of top soil and/or waste, contamination, pollution, nuisance, risk to human health, climate change, noise, air quality, transport and highways, ecology, habitats impact (incl trees and woodlands), Biodiversity Net Gain, Public Rights of Way, and heritage matters can all be managed as part of the ordinary course of an outline planning application process, with appropriate planning conditions and planning obligations imposed on any grant of planning permission.

1.10 In the Applicant's wide experience of promoting planning applications and achieving outline planning permissions for similar scales of development (e.g. at Staveley for 400

dwellings and at Shepshed for 270 dwellings) they were not screened positively for EIA. The Secretary of State screening direction at Shepshed (on a site next to the M1 motorway) included the following conclusion:

…*"The application site neighbours transport networks but there is insufficient evidence that significant effects are likely to occur. A Transport Statement, Noise Impact Assessment and Air Quality Assessment have already been submitted with the planning application and it is considered that these assessments will be taken into consideration as part of normal working practices at the time the planning application is processed by the LPA."*

**Review of Screening Opinion**

| Screening Issue Identified by Bury | Further Information Now Available |
|---|---|
| **Air Quality** | **No likely significant effects identified. Refer to Air Quality Assessment at Appendix 7.** |
| **Noise** | **No likely significant effects identified – standard mitigation such as suitable glazing, ventilation strategy and garden fencing would ensure external amenity space and internal noise criteria can be achieved.**<br>**Refer to Noise Impact Assessment at Appendix 8.** |
| **Transport** | **Highways related environmental impacts will result in negligible to minor impacts with no significant adverse residual effects.**<br>**Refer to Transport Assessment at Appendix 6.** |
| **Historic Landfill** | **The historic landfill in the former Gin Hall reservoir lies outside of the application boundary.**<br>**The Council's Environmental Protection has confirmed that no land at or adjacent to the site has been determined as Contaminated Land under Part 2A of the Environmental Protection Act 1990.**<br>**Additional intrusive ground investigations will be required to support any Reserved Matters Planning Application; however, Phase 2 Site Investigations can be secured by an appropriate planning condition (the trigger for this condition** |

| Screening Issue Identified by Bury | Further Information Now Available |
|---|---|
| | **would be prior to commencement of development).**<br>**A Phase 1 Geo Environmental Assessment is included at Appendix 5.** |
| **Urbanising Effect** | **Landscape mitigation is embedded within the illustrative Masterplan and the Parameters Plan. Landscaping details can be secured by planning condition, the detail of which would need to accompany any future Reserved Matters Planning Application.**<br>**Site suitability (including Green Belt matters) are fully considered in the Planning Statement and Landscape & Visual Statement in Appendix 9 and 10 respectively.** |

**Table 1.1 Screening Opinion Review**

1.11 The technical assessments referred to above have been prepared and accompany this request and are provided for the Council's consideration at **Appendices 5-12.**

1.12 Notwithstanding the above, and without prejudice to the Applicant's position that the development is unlikely to have significant effects on the environment requiring Environmental Impact Assessment, this report seeks a Scoping Opinion under Regulation 15 of the EIA Regulations. The purpose of the request is to agree a proportionate scope for any Environmental Statement that may ultimately accompany the planning application should the Council not consider reviewing their Screening Opinion in the context of the new evidence now available. It would be open to the Council to issue a new Screening Opinion which concludes that the planning application does not now represent EIA development.

**Site Context**

1.13 The application site extends to approximately 19.9 hectares and is located on land east of Walmersley Road, Bury. The site is bounded by existing residential development and the A56 to the west, open land and existing residential development to the south and by the M66 motorway and existing residential development to the north and east. Walmersley Brook passes through the site and several existing landscape features, including woodland and mature vegetation, are present.

1.14 The Applicant undertook pre-application consultation with the Council, with council consultees including traffic, drainage, environmental health (contaminated land, pollution control and commercial), Public Rights of Way, waste management, conservation, strategic planning and infrastructure, National Highways, Transport for Greater Manchester, Greater Manchester Ecology Unit and Greater Manchester Archaeological Advisory Service.

1.15 The Council's written pre-application advice dated 14 November 2025 confirmed that the application site is not a sensitive area and there are no sensitive areas within close proximity of the site; the site is confirmed to be in a sustainable location; and the site does not impact assets referred to in National Planning Policy Framework footnote 7.

**Proposed Development**

1.16 The outline planning application proposes development comprising up to 350 dwellings (including 50% affordable housing), employment/commercial floorspace, a local retail centre, mobility hub, public open space and associated infrastructure. Approval is sought for access only, with all other matters reserved. "Standard" residential and commercial development is proposed.

# 2. SCOPE OF THE ENVIRONMENTAL STATEMENT

2.1. The Council's Screening Opinion identifies a limited number of matters which it considers have the potential to give rise to significant environmental effects, although no additional detail has been provided by the Council to evidence that significant effects on the environment are likely to occur as a consequence of the proposed development which trigger the requirement for EIA. To ensure a proportionate approach consistent with Regulation 18 of the EIA Regulations, the Applicant proposes that the Environmental Statement, if required, focuses only on those topics where the Council has provided clear and robust evidence that significant effects on the environment are likely to occur.

**Topics to be considered for Scoping Out**

**Land Contamination and Ground Conditions**

2.2. The Council's Screening Opinion places significant weight on the historic landfill use of part of the site and references potential contamination pathways associated with historic waste deposits but does not provide any clear and robust evidence that such pathways do in fact exist.

2.3. It should also be noted that the tipped former Gin Hall reservoir is not located within the application site. The planning and regulatory regime at the time of the landfilling of the former reservoir will have sought to avoid spatial impacts on existing nearby residents, neighbouring land and the local environment generally.

2.4. The Applicant has employed experienced professional consulting engineers who confirm that typically ground conditions are ordinarily scoped out from EIA given other controls that are in place under other regulatory mechanisms. For the potential presence of contamination in and around the historic landfills such matters are routinely and appropriately addressed through the established planning and regulatory framework outside of EIA, including the submission of ground investigations, risk assessment, remediation (if required) and verification works in accordance with the phased Land Contamination Risk Management (LC:RM) approach. This is ultimately under the oversight of the Local Authority Environmental Protection and the Environment Agency in respect to land quality aspects and the regulatory side. EIA

requires consideration of the likelihood of significant environmental effects after taking account of mitigation and established regulatory controls, but as stated above contamination risks associated with brownfield or former landfill sites are commonly and effectively addressed through the standard planning and environmental regulatory framework without requiring an Environmental Statement.

2.5. Practically on site, and if/where required, ground gas protection systems can be incorporated into structures which is a typical and widely adopted remediation technique; this would include gas resistant membranes and ventilated sub floor voids specifically designed to reduce concentrations of gases to acceptable levels, if they are migrating from offsite areas and on site sources.

2.6. There are also other options such as gas cut off trenches and/or membranes/liners along boundaries and vent stacks to provide preferential pathways for ground gas to migrate direct to the atmosphere instead of into the built development.

2.7. In terms of any other types of contamination, for external areas engineered capping systems can be incorporated to break the pathways to site end users, again this is a typical and widely adopted remediation technique across thousands of developed brownfield sites in the UK.

2.8. Essentially, there are numerous remediation techniques that could be employed, if required, to help make the site suitable for the intended uses. In the usual way, detailed ground investigation data will in due course be needed to inform what specific remediation would be needed, if any, and a full options appraisal would be carried out as part of a proposed Remediation Strategy which would be submitted for approval by the Council as part of the Reserved Matters Application and to be carried out prior to the commencement of the development itself.

2.9. A regards groundwater impaction, if any, there is often potential that through risk assessment it can be demonstrated that no further action is required even if there are elevated concentrations of contaminants in groundwater. For wider groundwater remediation there are many tens of various techniques that can be employed entirely dependent on the type of contamination present, if any.

2.10. The Applicant considers that Land Contamination and Ground Conditions can be scoped out for EIA purposes, particularly in light of the fact that the Council's screening opinion incorrectly stated that land at or adjacent to the site has been determined as Contaminated Land under Part 2A of the Environmental Protection Act 1990. No such determination has been made, and this has been confirmed by the Council's Environmental Protection – **see Appendix 13**.

2.11. Example planning conditions that could be attached to outline planning permission are included at **Appendix 14**.

2.12. If the Council however requires an ES to include a Chapter on Land Contamination and Ground Conditions then an historic review of the site will be presented by reference to the Phase I Geo-Environmental Assessment Report together with the above discussion as to how baseline conditions, potential contamination risks and remediation requirements will be addressed in the usual way through the planning and environmental regulatory frameworks.

**Land Use and Settlement Pattern**

2.13. The Council's Screening Opinion identifies concerns regarding the urbanising effect of the development and the scale of change proposed. The Applicant considers that by definition, built development on any greenfield site will have an urbanising effect. Land use change and settlement pattern have been appropriately assessed and addressed in the Landscape and Visual Statement submitted with the planning application. The LVS concludes that while there will be an impact on the character of the site itself, the nature of the site is such that the retention of existing vegetation in key areas will mitigate any urban development and constrain the built footprint to smaller parcels set amongst a strong planted backdrop. New landscaping and planting will be proposed at Reserved Matters Application stage to augment what is to be retained. More generic Green Belt matters have been addressed in the accompanying Planning Statement and do not requirement assessment under EIA regulations. If required, a Chapter in the ES would draw on evidence from the Landscape and Visual Statement to demonstrate how any impacts would be mitigated.

**Topics Scoped Out**

**Ecology & Biodiversity**

2.14. An Ecological Survey and Assessment and a Preliminary Assessment of Biodiversity Net Gain have been submitted with the planning application and demonstrate that ecological effects can be appropriately mitigated through embedded design measures and biodiversity enhancement proposals. These documents are included at **Appendix 11**. Greater Manchester Ecology Unit has confirmed that they are not aware of any specific ecological constraints associated with the site.

**Transport & Accessibility**

2.15. The submitted Transport Assessment in **Appendix 6** demonstrates the proposals will not have a material impact or give rise to any highways related issues. Any highways related environmental impacts are likely to result in negligible to minor impacts, with no significant adverse residual effects. In addition, there is no evidence to suggest that the highway network has an unduly poor safety record and there are no reasons why the proposals would have an adverse effect on road safety or the number of accidents on the local highway network. All highways' matters can be adequately addressed by standard planning application reporting and where necessary Planning Conditions / s278 Agreement.

**Air Quality**

2.16. The submitted Air Quality Assessment demonstrates that the development would not give rise to likely significant environmental effects. All potential impacts identified can be managed as part of the application process.

2.17. No national or internationally agreed environmental standards are currently being approached or exceeded. Air quality impact has been assessed as negligible and hence its contribution to cumulative impacts would not be significant. The Air Quality Assessment is provided at **Appendix 7**.

**Noise**

2.18. Noise assessment work undertaken to date concludes that assuming the required mitigation is implemented, the impact on residential amenity would be minimal and a low / negligible impact factor when assessed in a cumulative approach. The report quantifies the impact of noise, particularly from the M66 motorway, and provides a

mitigation strategy to achieve all of the relevant targets from the appropriate standards to ensure suitable residential amenity and it is further noted that the required mitigation is not seen to be particularly onerous and in fact very typical of a site next to major transport infrastructure. The impact of noise from increased traffic from within the development would arguably be negligible compared to the existing noise from local transport infrastructure.

2.19. Noise effects have been addressed as set out in the submitted Noise Assessment at **Appendix 8**.

**Heritage and Archaeology**

2.20. Technical assessment indicates that the development would not result in significant effects on designated or non-designated heritage assets and would have a neutral impact on the setting of the heritage assets. A Heritage Assessment forms part of the planning application submission. The Heritage Assessment is included at **Appendix 12.**

**Summary**

2.21. The Applicant considers that the above scope reflects a proportionate and targeted approach to EIA consistent with the requirements of Regulation 15 and the principle that Environmental Statements, if required, should focus on likely significant environmental effects rather than matters capable of being adequately addressed through standalone technical assessments to be considered during the outline planning application determination process and the associated regulatory regimes. Should the Council have a differing view, the Applicant requests clear and robust evidence from the Council detailing the matters that should be considered as part of the ES along with clear reasoning as to why such matters cannot be assessed as part of the usual standalone assessments as part of the planning application processes.

# 3. Approach to the Environmental Statement

**Approach & Methodology**

3.1. Without prejudice to the Applicant's position regarding the lack of evidenced need for an Environmental Statement (ES), if an ES has to be prepared then it will adopt a proportionate approach focused on the topics identified above.

3.2. The assessment will be based on established methodologies appropriate to each technical discipline, supported by a programme of baseline survey work, desk-based research and modelling. For each topic, the ES will describe the baseline conditions, the approach to assessment, how potential effects during both construction and operation will be predicted, and the measures which could be proposed to mitigate those effects. Cumulative and in-combination effects will also be assessed (where required) to ensure the development is considered within its wider environmental context.

**Structure of the Environmental Statement**

3.3. The ES will be prepared in a clear and accessible format, structured as follows:

- **Introduction and Background** – establishing the purpose of the ES and summarising the relevant legislative and policy framework.
- **Description of the Site and Development Proposals** – providing details of the site and the scheme.
- **Consideration of Alternatives** – explaining the extent to which reasonable alternatives have been examined.
- **EIA Methodology** – setting out the assessment methods, significance criteria, consultation undertaken and cumulative assessment approach.
- **Topic-Based Assessments (if required)** – individual chapters addressing the scoped-in technical disciplines, namely:
    - Ground Conditions & Contamination
    - Land Use and Settlement Pattern
- **Assessment of Cumulative Effects** – considering combined and interactive impacts across topics and alongside other local developments where there is a genuine linkage.

- **Schedule of Mitigation and Monitoring** – consolidating the measures proposed and explaining how these will be secured.

- **Conclusions** – drawing together the key findings of the ES.

In parallel, a **Non-Technical Summary (NTS)** will be prepared. This will set out the main findings of the EIA in plain language, supported by figures and diagrams (where appropriate), ensuring accessibility to the public and non-specialist stakeholders.

**Consideration of Effects and Conclusion**

3.4. The ES will provide a robust assessment of the likely significant effects of the development, considering direct, indirect, temporary, permanent and cumulative impacts. Where significant adverse effects are identified, appropriate mitigation will be proposed to avoid, reduce or offset those impacts. The ES will also highlight opportunities for environmental enhancement, including biodiversity net gain, landscape improvements and sustainable transport initiatives.

3.5. Residual effects will be reported transparently to enable the local planning authority and consultees to understand the overall implications of the scheme. Whilst it is recognised that some adverse effects will remain, particularly the permanent change in land use, this will be balanced by a range of benefits, including the delivery of much-needed housing including 50% affordable housing, employment opportunities, creation of high-quality green infrastructure, biodiversity enhancements and improved recreational opportunities.

3.6. Overall, the EIA will demonstrate that the proposed development has been subject to a rigorous and transparent process of environmental appraisal appropriate at outline planning application stage where all matters save for access are reserved for subsequent approval. It will confirm that the scheme can be delivered in a manner which appropriately manages and mitigates environmental effects, whilst securing positive social, economic and environmental outcomes.

3.7. Notwithstanding the above, the Applicant contends that the Council has not to date provided clear and robust evidence that significant effects on the environment are likely to occur as a consequence of the proposed development, either by way of an EIA Screening Matrix or consultee responses. The Secretary of State decision (summarised at paragraph 1.10 of this report) is quite clear that where there is

insufficient evidence that significant effects are likely to occur, there is no justification for screening a proposal EIA development – this approach is entirely consistent with EIA Regulations. With the benefit of the technical and other evidence now provided by the Applicant, the Council is invited to consider undertaking a new screening which may conclude that the proposed development should not be subject to an Environmental Impact Assessment.

3.8. Without prejudice to any future planning submission and setting aside any matters relating to the principle of development, it is considered that, with the implementation of appropriate mitigation measures and through careful consideration of design and layout at the planning application stage, any potential effects arising from the proposed development would not be significant. Furthermore, any impacts would be confined to the Site and its immediate vicinity. Consequently, it is considered that the nature, scale and extent of the likely effects would not be of a type or magnitude that would warrant classification as EIA development.

3.9. The Applicant therefore respectfully requests that the Council considers and confirms the scope proposed within this report unless, following a review of the Screening Opinion and considering the additional technical evidence now available, the Council reaches a different screening opinion to that previously issued.

# APPENDIX 1 – SITE LOCATION PLAN

Bast House
Bast House Farm Cottage
Bast House Farm
Sinks
Sinks
Ward Bdy
Well
Path (um)
High Hope
Well
FW
FW
Issues
Oak
Lord Raglan
WALMERSLEY OLD ROAD
CP
Boro Const Bdy
Met Dist Bdy
218.8m
Issues
Shelter
A 56
Pond
Issues
Issues
Mount Pleasant
169.3m
BASS LANE
Bassfield Farm
M 66
Reservoir
ESS
214.6m
Mill House
Bassfield
Track
Letter Box
Nangreaves
Trough
Fb
Pond
A 56
171.0m
Track
Mast (Telecommunication)
Pipeline
M 66
WALMERSLEY ROAD
El Sub Sta
WALMERSLEY OLD ROAD
200.3m
Watermeetings Brook
FB
Path (um)
Issues
Spring
Sinks
CG
Longcroft Cottages
Longcroft Barn
Longcroft House
Mast (telecommunication)
M66
Walmersley Brook
A.D.Steps
Baldingstone House
Ivy Cottage
Robins Bank
The Barn
167.6m
Works
198.0m
BENTLEY LANE
Blarny Bird
ROWLANDS ROAD
Oak View
Nabbs Farm
Shelter
148.1m
WALMERSLEY ROAD
Gin Hall
Path (um)
FB
162.3m
Main
El Sub Sta
FALSHAW DRIVE
Shelter
Issues
Recreation Ground
Sports Court
Play Area
Stream
El Sub Sta
New Inn
Pub
134.5m
STRATHAM AVENUE
LEAMINGTON AVENUE
BURNLEY ROAD
BROOKFIELD ROAD
WALMERSLEY ROAD
RIBBLE DRIVE
RIBBLE DRIVE
RIBBLE DRIVE
CARR BANK
El Sub Sta
166 PH
WALMERSLEY OLD ROAD
SPEN CLOSE
CLIFFORD DRIVE
GREENMOUNT CLOSE
SHUTTLEWORTH GROVE
CLIFFORD DRIVE
MILLCROFT MEWS
BURFIELD ROAD
143.9m

**NOTES:**

SCALE: Do not scale from this drawing.

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| No. | Date | By | Revision Notes |
|---|---|---|---|

**PROJECT STATUS:**

S2 (SUITABLE FOR INFORMATION)

**the urbanists**

| | |
|---|---|
| Client | Hollins Strategic Land |
| Project | Land East of Walmersley Road, Bury |
| Title | Site Location Plan |

| Project ID | Organiser | Volume | Level | Type | Role | Dwg | Suit. | Rev. |
|---|---|---|---|---|---|---|---|---|
| 2492 | URB | XX | XX | DR | UD | 010 | S0 | - |

Drawn HW Date 01/12/2025 Checked JD Scale 1:1250 @A1

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# APPENDIX 2 – INDICATIVE MASTERPLAN

Mast
(Telecommunication)

Proposed Public Open Space
(subject to Change of Use application)

Application Site
Site Associated with the Application Site
Primary Access Point
Secondary Access Point
Existing Access Point / Proposed Bridleway Access
Residential Developable Area
Local Centre Including Residential
Employment Zone
Mobility Hub
Focal Dwelling
Key Frontage
Potential Locations for Formal Play
Potential Locations for SuDS
Primary Street
Narrowing of Primary Street
Access Route to Mobility Hub, Local Centre and Employment
Potential Recreational Routes
Potential Bridleway Route
Existing PRoW (Public Rights of Way)
Proposed Area of Public Open Space
(Subject to Change of Use application)

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| No. | Date | By | Revision Notes |
|---|---|---|---|
| A | 23/12/2025 | HW | Amends tp play locations |
| B | 26/03/2026 | JF | Redline amendments |

**PROJECT STATUS:**

S4 (SUITABLE FOR APPROVAL)

the urbanists

Client Hollins Strategic Land

Project Land East of Walmersley Road, Bury

Title Illustrative Masterplan

| Project ID | Organiser | Volume | Level | Type | Role | Dwg | Suit. | Rev. |
|---|---|---|---|---|---|---|---|---|
| 2492 | URB | XX | XX | DR | UD | 011 | S0 | B |

Drawn HW Date 01/12/2025 Checked JD Scale 1:1000 @A1

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# APPENDIX 3 – PARAMETERS PLAN

Development Area

Open Space

**NOTES:**

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| No. | Date | By | Revision Notes |
|---|---|---|---|
| A | 01/04/2026 | | |

**PROJECT STATUS:**

S4 (SUITABLE FOR APPROVAL)

the urbanists

| | |
|---|---|
| Client | Hollins Strategic Land |
| Project | Land East of Walmersley Road, Bury |
| Title | Parameter Plan |

| Project ID | Organiser | Volume | Level | Type | Role | Dwg | Suit. | Rev. |
|---|---|---|---|---|---|---|---|---|
| 2492 | URB | XX | XX | DR | UD | 016 | S4 | A |

Drawn HW Date 15/01/2026 Checked JD Scale 1:1000 @A1

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# APPENDIX 4 – BURY EIA SCREENING OPINION

**Town and Country Planning**
**(Environmental Impact Assessment) Regulations 2017**
**Screening Opinion Under Regulation 5**

| | |
|---|---|
| **Planning Ref. No:-** | **73108** |
| **Site Location:** | Land east of Walmersley Road, Bury, BL9 5JX |
| **Proposed Development:** | Town and Country Planning (Environmental Impact Assessment) Regulations 2017:<br>Screening Opinion Request for Outline Planning Permission for mixed use<br>development for up to 350 dwellings (including 40% affordable), employment/<br>commercial, local retail centre, mobility hub, public open space and associated<br>infrastructure. Access is applied for in detail, all other matters are reserved for<br>future determination. |

Q1. Is the development of a type described in Schedule 1 of the 2017 Regulations?

No

Q2. Is the development described in Column 1 of Schedule 2 of the 2017 Regulations?

Yes

10 (b) The site would comprise an infrastructure project of urban development involving more than 150 dwellings and comprising an overall development area which exceeds 5 hectares.

Q3. Is the development to be located within a sensitive area?

No

The site is not located within a 'sensitive area' as defined by Regulation 2(1) of the EIA Regulations.

The site is not designated as a Site of Special Scientific Interest and European site, a national park, the Broads or Area of Outstanding Natural Beauty. It is not a World Heritage site or a scheduled monument site as described within paragraph 32 of the NPPG.

The applicant states that an Ecological Impact appraisal including Protected Species Surveys has been completed and would be submitted with an application. It is stated that the survey work and reports will set out measures which would be adopted to protect or replace existing trees.

Q4. - Does it meet any of the relevant thresholds and/or criteria in column 2 of Schedule 2?

Yes

The Planning Practice Guidance (PPG) provides guidance on EIA screening and how to assess whether a development is likely to give rise to significant environmental effects based on the criteria set out in schedule 3 of the Regulations.

PPG also provides a set of indicative thresholds and criteria which gives an indication of the types of impact that are more likely to be significant for particular types of development. This will inform whether an EIA is required.

The proposed development of up to 350 dwellings would be above the threshold of 150 dwellings and the site area of 19.9 hectares would be above the threshold of 5 hectares.

The development proposes a mixed use development of up to 350 dwellings new accesses, employment and commercial units of up to 2500 sqm, retail centre of up to 249 sqm and provision of open space and green infrastructure on a site of 19.9 hectares.

The site is bounded by the M66 motorway to the north and east, which could generate noise impacts and therefore influence the layout. Walmersley Road and residential development is to the south and west. The current state of the site is one of green space and open land, vegetated and treed with a significant area within the eastern part of the site TPO'd.

One of the criteria to assess whether an EIA would be required is whether the new development would be greater in scale than the previous use, or the types of impact are of a markedly different nature or there is a high level of contamination.

The site is vacant and development free and as such a mixed use for 350 houses, commercial development to deliver up to 2500sqm, retail floorspace and associated infrastructure within a 19.9 hectare site would add significant different and diverse uses to what currently exists on site.

The site is also located on land and an area which at the upper end of Walmersley Road could be considered semi-rural. It is therefore considered the development could bring about significant urbanising effects in this location, including increase in traffic, emissions, noise and air quality, and particularly located close to the M66 motorway.

Q5. - Taking Account of the selection criteria in Schedule 3, is the proposal likely to have significant effects on the environment?

Yes

The site's previous uses include being used as a landfill site and there may well be some significant risks of pathways, including a brook through the site of transmission of deposited and licensed waste.
The site is identified as Part 2A land of the Environmental Protection Act 1990 and a site of significant concerns.
Given the scale of the development, the site, and extent and juxtaposition of surrounding development and previous land use, it is the opinion of the Council that the development proposed would require the submission of an Environmental Statement under the EIA Regulations 2017.

Significant Environmental effects are likely - (Positive opinion)

**Signed:** *J Townsend* **Date:** 05/05/2026

# APPENDIX 5 – PHASE 1 GEO-ENVIRONMENTAL ASSESSMENT REPORT (BROWNFIELD SOLUTIONS)

BROWNFIELD SOLUTIONS LTD

GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

# HOLLINS STRATEGIC LAND

## Land to the East of Walmersley Road, Bury

Phase I Geo-Environmental Assessment Report

CMC/C4175/15029/Rev A

April 2026

## PROJECT QUALITY CONTROL DATA SHEET

| | | | |
|---|---|---|---|
| **Site Name:** | Land to the East of Walmersley Road, Bury | | |
| **Document Name:** | Phase I Geo-Environmental Assessment Report | | |
| **Reference:** | CMC/C4175/15029/Rev A | | |
| **Status:** | - | 18/12/2025 | For Submission |
| | A | 01/04/2026 | Update to proposed development description |
| | | | |

| **Issued By:** | **Client:** | |
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| C4175/01 | D | Site Location Plan |
| C4175/02 | D | Site Features Plan |
| C4175/03 | A | Historic Features Plan |

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| Appendix A | BSL Methodology and Guidance |
| Appendix B | Historical Maps |
| Appendix C | Geo-Environmental Data Report |
| Appendix D | BGS Exploratory Hole Records |
| Appendix E | Mining Report |
| Appendix F | UXO Screening Map |

# 1.0 INTRODUCTION

## 1.1 Context

This report describes a desk-based Phase I Geo-Environmental Assessment Report carried out by Brownfield Solutions Limited (BSL) for Hollins Strategic Land on a site off Walmersley Road, Bury and has been completed in general accordance with the following guidance:

- Environment Agency guidance - Land Contamination: Risk Management (LCRM).
- BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites.
- BS5930: 2015+A1:2020 Code of Practice for Ground Investigations.
- BS EN 1997-1:2004+A1:2013 Eurocode 7. Geotechnical design. General rules plus UK National Annex.
- BS EN 1997-2:2007 Eurocode 7 Geotechnical design. Ground investigation and testing plus UK National Annex.
- NHBC Standards. Chapter 4.1: Land Quality - Managing Ground Conditions.

Definitions of terms and acronyms used within this report is presented in Section 8.0.

## 1.2 Proposed Development

The proposed development will comprise of a mixed residential and commercial scheme as detailed in the illustrative masterplan appended to this report.

An outline planning application has been submitted with all matters reserved other than access, for a mixed use development of up to 350 dwellings (Use Class C3), up to 2,500 sq mts employment/commercial uses (Use Classes E(c), E(d), E(e), E(f), E(g)(ii) and E(g)(iii)), a local centre comprising up to 249 sq mts of retail floorspace (Use Class E(a)), mobility hub, public open space and associated infrastructure.

The red line boundary for the land to which this report pertains is also shown on the appended Site Location Plan, drawing No. 2492-URB-00-XX-DR-UD-010.

## 1.3 Previous Reports

This report should be read in conjunction with the E3P Preliminary Geo-Environmental Site Assessment (Ref 10-112-c1) issued in April 2014.

## 1.4 Objectives and Scope

The objectives of this assessment were to determine the environmental setting and ground conditions of the site, highlighting potential areas of concern that may govern the redevelopment.

The scope of works comprises a Phase I Assessment and site walk-over, with a review of the site, surroundings, historical uses and environmental setting in order to develop a preliminary Conceptual Site Model (CSM).

This report is intended to meet the requirements of a Preliminary Investigation as defined in BS10175:2011+A2:2017 and has been produced in general accordance with the recommendations for a Tier 1 Preliminary Risk Assessment as described in LCRM guidance.

## 1.5 Limitations

This Phase 1 Geo-Environmental Assessment Report has been prepared in accordance with the relevant legislative framework, guidance and risk assessment methodology as outlined in Appendix A.

The findings and opinions conveyed via this assessment are based on information obtained from a number of sources as detailed within this report, BSL have assumed this information is correct and reliable. Nevertheless, BSL cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

BSL have used reasonable skill, care and diligence in the production of this report. There may be other conditions prevailing on the site which are outside the scope of work and have not been highlighted by this assessment and therefore have not been taken into account by this report. Responsibility cannot be accepted for such site conditions not revealed by the assessment.

This report has been prepared for the sole use and reliance of the Client, Hollins Strategic Land. No other third party may rely upon or reproduce the contents of this report without the written permission of Brownfield Solutions Ltd (BSL); a charge may be levied against such approval. If any unauthorised third party comes into possession of this report, then they rely on it at their own risk and BSL do not owe them any Duty of Care. This report may not be relied upon by the client or submitted to a third party for their reliance for the purposes of valuation, mortgage, insurance and regulatory approval, until all invoices have been settled in full.

Any recommendations made in this report should be confirmed with the Regulatory Authorities prior to implementation to ensure compliance.

This assessment has been based on the proposed planning layouts provided. Any subsequent change to the planning layout may have an impact on the validity of recommendations made within this report. Furthermore, new information, changed practices or new legislation may necessitate revised interpretation of the report after the date of its submission.

The site plans enclosed in this report should not be scaled off. Any site boundary line depicted on plans does not imply legal ownership of land.

Notwithstanding site observations concerning the presence or otherwise of archaeological issues, asbestos-containing materials (ACM) or invasive weeds (e.g. Japanese knotweed), this report does not constitute a formal survey of these potential issues and specialist advice should be sought.

# 2.0 THE SITE

## 2.1 Location

The site is located east of the A56 Walmersley Road, Bury, BL9 5LJ. It is situated approximately 3.1 km north of Bury Town Centre, centred on National Grid Reference 380412, 414718 as shown on the Site Location Plan, Drawing No. C4175/01/Rev D.

## 2.2 Site Description

A site reconnaissance survey was carried out at the site on 1st August 2025. The main site features and potential issues identified during this survey are detailed below and are shown on the Site Features Plan, Drawing No. C4175/02/Rev D. A selection of photographs from the site walkover are presented to the rear of this report.

| Feature | Description |
|---|---|
| Site Area | Approximately 20.6 hectares. |
| Site Access | Access to the main area of the site is gained off Walmersley Road which bounds the site to the west. |
| Site Overview Imagery |  <br>Orientated North<br>Update from Google: All images: Imagery Google©2023, Imagery ©2023 Airbus, CNES / Airbus, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies, The Geoinformation Group, Map data ©2023. |
| Current Land Use and Site Features | The site can be split into three different areas, a northerly smaller area separated from the main area to the south by the M66 link road. This area is comprised of rough pasture and is currently used for grazing horses. A number of wooden stables are present in the south western corner of this area.<br>An area of agricultural land is present to the east of Walmersley Brook. This also appears to be used as animal pasture and this slopes down to the west towards Walmersley brook. The area adjacent to Walmersley Brook is covered by a strip of trees approximately 30m wide which appear mainly coniferous.<br>Walmersley Brook, which is a small water course approximately 3m wide, flows through the centre of the site from the north to the south. The brook is present in a steep sided approximately 6m deep valley, which is generally heavily vegetated with small trees and bushes.<br>The third area lies to the west of the brook. This is a mainly undeveloped parcel of land. Vegetation comprises mostly rough grassland with many reeds present. Drainage on this part of the site appears to be poor with standing water present in many locations at the time of the site visit.<br>A couple of inspection covers were evident on the site; it is not evident whether these were live services.<br>Gin Hall Farm comprising three or four buildings is present adjacent to Walmersley Road in the southwest of the site. Some asbestos and corrugated roofing is present on the buildings, discarded gas cylinders and several old tyres are also present. The buildings are in a derelict state of repair and the remains are circa 1m in height. |

| Feature | Description |
|---|---|
| Potential Sources of Gross Contamination | None noted. |
| Vegetation / Ecology | Trees are present along Walmersley Brook – the valley sides of Walmersley Brook are densely vegetated, with semi-natural woodland. In addition, sporadic trees and bushes are mainly present across the northern and western parts of the site. |
| Topography | The site generally slopes from the north to the south with a further steep slope into the small, steep valley of Walmersley Brook.<br>The top of the site resides at circa 170m OD and slopes down to the south at 150m OD. |
| Site Boundaries | The site is enclosed by a mixture of stone walls, fencing, and hedges/trees.<br>**North:** The northern boundary of the site is largely adjacent to agricultural land. A narrow access track and scattered mature trees also exist alongside this boundary.<br>**East:** The eastern boundary is alongside the M66 motorway, with embankments and drainage infrastructure.<br>**South:** The south of the site is predominantly unbound, and comprises grassed land.<br>**West:** The western boundary fronts directly onto Walmersley Road (A56). The boundary consists of a combination of dry-stone walls, fencing, and hedgerow vegetation. |
| Surrounding Area | The site is situated at the northern edge of Bury. The north of the site is mainly bordered by agricultural land and occasional housing. The east of the site is bordered by the M66 motorway and a farm. The south of the site is immediately bordered by a rough undeveloped area which is divided by Walmersley Brook, beyond which appears to be an embankment associated with a former reservoir. The west of the site is bordered by Walmersley Road, with residential housing beyond. |

# 3.0 GEO-ENVIRONMENTAL SETTING

## 3.1 Historical Setting

A review of the available historical Ordnance Survey Maps and satellite imagery has been conducted, with the pertinent issues that may have affected the site, or its environs, summarised below. The Historical Maps are presented in Appendix B. A review of the historical industrial data within the geo-environmental data report has also been undertaken below, the report is presented in Appendix C.

Notable features on site, and potentially contaminative or geotechnically relevant features within 100m of the site boundary have been presented. Any features that have potentially been infilled will be considered up to 250m from the site boundary.

| Feature | Distance (m) & Direction | Years Present | Description |
|---|---|---|---|
| Gin Hall | Onsite SW border | 1850/51 - Present | Gin Hall was present on the earliest historical map dated to 1850/51 and is still present on the most recent map of 2014. At the time of the site walkover, Gin Hall is disused and in ruins. |
| Pumping Station | Onsite (N of offsite reservoir) | 1908/09 - 2002 | A pumping station first appeared centrally at the site, located to the north of the offsite reservoir in 1908/09 and remained in use until indicated disused on the map dated 1981/83. It had been demolished by the time of the map dated 2002. |
| Reservoir (Bury Water Works) | Immediately Offsite SW* | 1891 – 2002 | A reservoir registered to Bury Water Works first appeared immediately adjacent to the south-west corner of the site between the maps dated 1850/51 and 1891. It is shown with an annotated valve and sluice, along with filter beds. The southern embankment of the reservoir appears to be constructed with soil. The reservoir was shown to be disused by 1980/83 and had disappeared from mapping altogether by 2002. However, satellite imagery shows that the backfilling of the reservoir was still taking place in 2005, being completed by the map dated 2010. |
| Electricity Substation | 50m W | 1987 – present | Mapped until 1992, but confirmed to be present on recent site walkover. Presumed to be the same unit. |

*It is noted that the reservoir to the south of the site is shown to encroach within the site boundary on historic mapping within the environmental database report, however it has been confirmed that the redline boundary for this phase of planning extends only to Walmersley Brook which is beyond the eastern extent of the mapped reservoir, and only extends as far south so as to fall just outside the mapped northern extent of the reservoir.

The extent of the planning red-line boundary in relation to the historic mapping of the reservoir is shown BSL Drawing No. C4175/03/Rev A 'Historic Features Plan'.

The earliest historical map dating to 1850/51 shows the site to be undeveloped, consisting of open fields, a scattering of trees and two streams, with Gin Hall in the south-west corner. The following historical map dated 1891 indicates a reservoir had been constructed adjacent to the south-west, along with associated sluices, valves and pumping station. This remained in use until 1980/83, eventually being shown as being backfilled by the map of 2010.

The land to the north of the M66 slip road does not appear to have been developed since the earliest maps up to the present day.

Ordinance survey mapping indicates a public footpath crosses west to east in the central area of the main land parcel, linking to further public right of way footpaths in the east.

A natural spring is located in the centre of the site, first appearing by the map dated 1967/69 and is shown to exist at present day. A rectangular structure, potentially made ground, was present just north of the reservoir between the maps dated 1980 and 1985.

The majority of the site is surrounded by open fields, with the A56 and a row of residential plots along the western border, and the M66 motorway just off the eastern border. Stones Farm first appeared just offsite in the SE corner in 1985, with one small outbuilding encroaching the site. Historical land use in the surrounding area has been predominantly residential/agricultural.

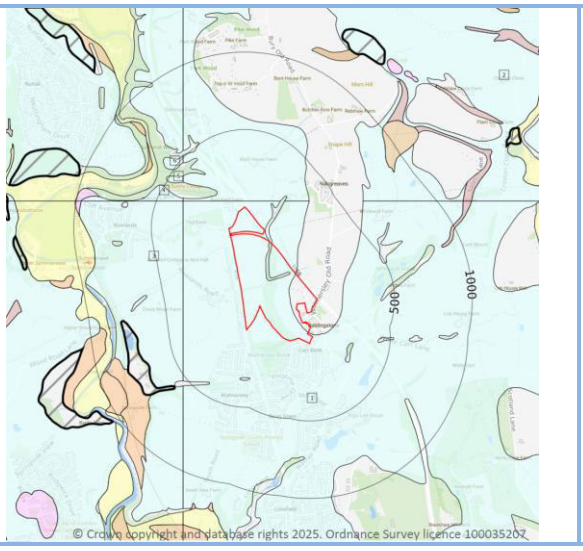
## 3.2 Published Geology

The following publications of the British Geological Survey (BGS) were examined in respect of the geology underlying the site:

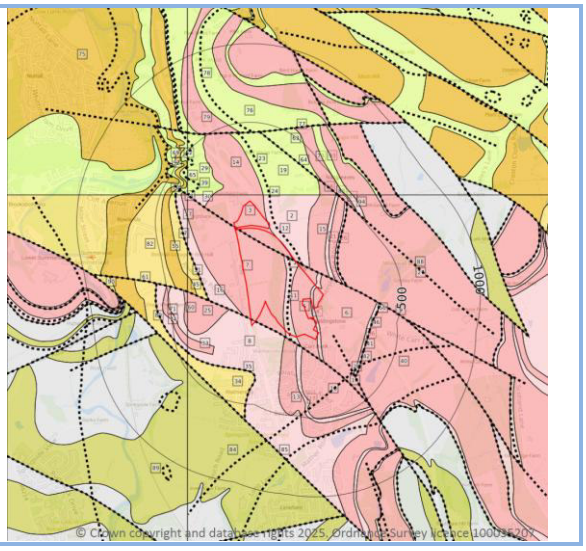
- British Geological Survey (BGS) 1:10,000 Scale Geological Map Sheet SD81SW. Solid and Drift Edition.
- BGS 1:50,000 Scale Geological Map Sheet 76 Rochdale. Solid and Drift Edition.
- BGS Geology of Britain Map Viewer.
- BGS GeoIndex Onshore.
- Mining Remediation Authority Interactive Map.
- Coal Mining Abandonment Plans.
- Geo-Environmental Data Report.

Extracts of the 1:10,000 geological mapping from the Geo-Environmental Data Report are presented below for reference:

**BGS 1:10 000 Superficial Geology**




**BGS 1:10 000 Solid Geology**




*Made Ground*
Information from the environmental data report indicates that made ground is present onsite. This exists in the form of an artificial deposit, present on land to the west of Walmersley Brook in the southern land parcel.

*Superficial Deposits*
The site is indicated to be predominantly underlain by glacial till. This stratum typically comprises firm to stiff sandy clays.

*Solid Geology*

The western half of the site is indicated to be part of the Lower Haslingden Flags Formation, which typically comprises sandstone.

The central portion of the site is indicated to be part of the Rossendale Formation, typically comprising mudstone and siltstone.

A very small portion along the southern border of the site is underlain by the Upper Haslingden Flags formation, typically comprising sandstone.

The southeastern part of the site is indicated to be part of the Rough Rock Formation, which typically comprises sandstone.

Two thrust faults are shown to traverse the site in a north west to south east direction, one in the upper half and one crossing the southwestern corner of the site. Both are downthrown to the south west. However, any movements associated with this fault should now have stopped.

The site is located within the coal mining reporting area. However, the closest seam, the Sand Rock Coal lying 300m to the east, dips away from site and does not sub crop beneath.

The Sand Rock Coal is indicated to be between 0.0m to 0.70m thick, and underwent underground mining, crop and opencast mining.

## 3.3 BGS Exploratory Hole Records

There are 16 BGS borehole records within the site boundary.

A summary of the four most relevant boreholes on, or in close proximity to the site, is presented in the table below:

| Reference | Distance from Site (m) and Direction | Depth Made Ground (m) | Depth Superficial Deposits (m) | Depth Solid Geology (m) |
|---|---|---|---|---|
| SD81SW3 | Onsite | GL – 0.35m Topsoil | 0.35 – 1.37m Clay | 1.37 – 30.17m Sandstone |
| SD81SW464 | Onsite | GL – 0.40m Topsoil | 0.40 – 2.25m Gravelly Clay | 2.25 – 2.75m Sandstone |
| SD81SW467 | 41m NE | GL – 0.20m Topsoil | 0.20 – 1.30m Gravelly Clay | 1.30 – 1.40m Siltstone |
| SD81SW4 | 121m SW | GL – 0.45m Topsoil | 0.45 – 4.51m Clay | 4.51 – 35m Sandstone |

The BGS Borehole Logs are presented in Appendix D.

## 3.4 Mining and Mineral Extraction

*Coal Mining*

As the site lies within the Mining Remediation Authority Reporting Area, a mining search has been undertaken as the site could be affected by past or current coal mining. It is noted that the site does not lie within a High Risk Development Area.

The mining searches are presented in Appendix E, the main findings of which are presented below:

| Highlighted Evidence | Issue | Details |
|---|---|---|
| Past Underground Mining | No | |
| Present Underground Mining | No | |
| Future Underground Mining | No | |
| Mine Entries | No | The closest mine entry is over 300m to the south-east and is for the Rock Sand coal seam which dips away from the site. |
| Past, present and future opencast coal mining | No | |
| Coal mining subsidence | No | |
| Mine gas | No | |
| Withdrawal of support | No | |
| Information from the Cheshire Brine Subsidence Compensation Board | No | |

Based on the above, no significant issues are identified therefore coal mining risks are not any considered further in this report.

*Non-Coal Mining*

Whilst the site is not within an area of recorded mining, two sandstone quarries are located 250m to the west of the site, present on the historical mapping dating between 1850/51 and 1891, after which they disappeared from mapping.

## 3.5 Hydrogeology

Based on the inferred geology, a summary of the Environment Agency aquifer designations is presented in the table below:

| Stratum | Coverage | Aquifer Designation |
|---|---|---|
| Superficial | Majority, excluding a strip of central site towards eastern boundary, and also SE corner. | Secondary Aquifer (Undifferentiated). The classification is assigned where it is not possible to attribute either category A or B to the aquifer. |
| Bedrock | Full Site | Secondary (A) Aquifer. These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. |

A summary of the pertinent hydrogeological features within the Geo-Environmental Data Report are provided below:

| Feature | Distance (m) & Direction | Details |
|---|---|---|
| Nearest Active Groundwater Abstraction | 600m NE | Status: Active<br>Licence No: 2569001188<br>Details: General Farming & Domestic<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT WALMERSLEY, NEAR BURY<br>Annual Volume (m3): 12456<br>Max Daily Volume (m3): 34<br>Original Start Date: 17/06/1971<br>Expiry Date: - |
| Nearest Active Potable Groundwater Abstraction | - | None within 2000m. |
| Source Protection Zones | - | None within 500m. |

### 3.6 Hydrology

A summary of the pertinent hydrological aspects within the Geo-Environmental Data Report are provided below:

| Feature | Distance (m) & Direction | Details |
|---|---|---|
| Nearest Watercourse | Onsite | Walmersley Brook, flow direction is indicated to be from north to south. |
| Nearest Active Surface Water Abstraction | - | None within 2000m. |
| Closest Active Licenced Discharge Consent | 106m NE | Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY<br>Permit Number: 016982481<br>Receiving Water: TRIB IRWELL<br>Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY)<br>Issue date: -<br>Effective Date: 07/06/1992<br>Revocation Date: - |

Information obtained from the Environment Agency (EA) Risk of Flooding from Rivers and the Sea (RoFRaS) database indicates that the risk of flooding across the site is very low (less than 1 in 1000 chance of flooding in any given year).

The site is not indicated to lie within an EA designated flood plain.

No further consideration of flood risk is undertaken in this report. Specialist flood risk advice should be sought with regards to drainage and flooding.

### 3.7 Landfill and Waste Management Sites

There are no current landfill sites recorded within 500m.

Two historic landfills are registered onsite in the north of the site, related to inert waste only. Licences are noted as being issued in 1987, however the areas of landfill are not clear on historic mapping from this date.

A historic landfill is also noted directly adjacent to the southwest of the site associated with the former reservoir and is listed as accepting inert, industrial, commercial and household waste. Whilst the database report shows this landfill as encroaching on site based on the red-line boundary used for the database search, is has been confirmed that the red-line boundary to be used for this planning application does not extend to within the area of the historic landfill / former reservoir.

The locations of historic landfills are shown in relation to the red-line site boundary that this report pertains to in BSL drawing C4175/03 'Historic Features Plan'.

There are no historical waste management sites recorded within 150m.

### 3.8 Environmental Regulatory Data

A summary of the relevant environmental aspects, both on site and within 250m of the site contained in the Geo-Environmental Data Report, are presented in the table below:

| Entry | On-site | 0 – 50m | 50 – 250m | Details |
|---|---|---|---|---|
| Recent Industrial Land Uses | 3 | 1 | 7 | Telecommunication masts and pylons are present onsite. An electrical substation is listed 57m west of the site (also noted on historical mapping) |
| Current or Recent Fuel Stations | - | - | - | |
| Licensed Industrial Activities (Part A(1)) | - | - | - | |
| Licensed Pollutant Release (Part A(2)/B) | - | - | - | |
| Radioactive Substances | - | - | - | |
| Pollution Incidents (EA/NRW) | 1 | 0 | 1 | The onsite incident occurred in February 2002 and relates to inert materials and wastes having a minor impact on land. The other incident is 231m SE relating to inert materials and waste. It was classified as Cat 2 (significant) for water and Cat 4 (no impact for land / air. |

### 3.9 Radon

Information from the environmental database report indicates part of the site is in an area where 1-3% of properties are above the Action Level for radon. Basic radon protective measures are not considered to be required in accordance with BRE Report 211 'Radon – Guidance on protective measures for new dwellings'.

### 3.10 UXO Risk

In accordance with CIRIA Report C681, BSL have reviewed non-specialist UXO data for the site using the online Zetica Bomb Risk Mapping data.

There is no indication of former military use from the Phase I Assessment.

As the site is at low risk, no further consideration of UXO is required at this stage. Should new evidence indicate that UXO may be an issue, it would be prudent to seek appropriate specialist advice.

### 3.11 Other Potential Development Constraints

A formal survey of asbestos within structures is not covered in this report. It should be noted that an asbestos demolition / refurbishment survey will be required prior to any work on structures. If asbestos

is present in soils, these will need to be dealt with in accordance with the Control of Asbestos Regulations (CAR) 2012 and CARSOILS™.

No invasive species have been noted during the walkover.

There are known services on site, these may need to be disconnected prior to any construction activities. A high voltage pylon is present in the NW part of the site in an east to west direction.

### 3.12 Summary of Previous Reports

A summary of the relevant points from the preliminary site assessment completed by E3P in 2014 (reference 10-112-c1) is presented below. It is noted that this report included the reservoir directly south of the site within it's boundary:

- The southern part of the site was historically occupied by a reservoir labelled as 'Bury Water Works' and the northern part was undeveloped grazing land. However, it should be noted that the southern historic reservoir now lies outside the site boundary, immediately adjacent to the south-west corner.
- The site remained largely undeveloped until the early 1980's at which time the site was subject to landfill operations that are referred to as Gin Hall Landfill.
- Waste was first received on 1st August 1987 which was classified as Inert waste originating from the construction industry. These are waste streams that are typically non-degradable and should not under normal conditions degrade in a manner that would generate significant concentrations of hazardous ground gasses or leachate. Furthermore, no chemical wastes that could give rise to potentially carcinogenic compounds should have been deposited within the waste mass, although this cannot be entirely discounted.
- E3P suspected that the infilling operations comprised the placement of inert soils across the easterly sector to create a level plateau as observed during the site walkover.
- Inert soils will be the subject of self-weight settlement, the majority of which should have occurred within the first 8 years of placement and as such it is considered that the landform should by now have undergone total self-weight settlement.
- The second southern landfill referred to as Gin Hall adjacent to the southwestern corner of the proposed site, was licensed to accept degradable waste streams (i.e. commercial and household waste) in a regulated manner and has subsequently been capped in accordance with UK Waste Management Legislation. It was understood that the operator of Gin Hall previously determined that the waste mass would have degraded within 25 years of cessation of the site's operation.
- A series of trial pits were excavated by E3P as part of a preliminary assessment of ground conditions. The trial pits were positioned across the area referred to as 'Field North of Gin Hall'. No intrusive investigations were carried out within the main Gin Hall Landfill located within the south / south eastern sectors of the wider site.
- Ground conditions across the northern area were generally consistent comprising a thin veneer of topsoil over a thicker horizon of organic soil material to depths varying between 0.95m and 1.35m bgl. The organic soil overlies sandy gravelly clays with some evidence of inert concrete masonry, rare plastic and metal fragments.
- No significant areas of deleterious components that would be deemed to be degradable or instable were identified.
- No significant sources of potential inorganic or organic contamination were observed during the excavation works.
- No buried obstructions identified. No Asbestos Containing Materials (ACMs) were observed, however given the known site use it is anticipated that future ground investigations will, in all likelihood identify asbestos fibres / ACM.
- A low-level organic odour was observed.
- It was concluded that the area north of Gin Hall could be redeveloped in a manner that would pose no unacceptable level of risk to future residential or commercial occupants.

In regard to the self-weight settlement referred to, it is possible this has taken place by the present day.

### 3.13 Anecdotal Evidence

BSL contacted Mr. Graham Cockburn of GC Town & Country Planning regarding information on the historic landfills noted on and near the site on 13/03/2019 via telephone. Unfortunately, the physical data for the site was lost in August 2018, however, he confirmed the use of inert waste only in the northern area landfills and confirmed that household waste from Manchester City Council was placed in the former reservoir directly south. He mentioned that clay was taken from the northern part of the site to be used in the reservoir, and that the area to the east of Walmersley Brook has always remained undeveloped with no land fill occurring in that area.

# 4.0 PHASE 1 SUMMARY AND RISK ASSESSMENT

## 4.1 Introduction

The risk posed by any contaminants in soil or groundwater will depend on the nature and level of the source, the probability of exposure occurring, the potential pollution pathway and the likely effects on the receptors.

A contaminant is defined as a substance that has the potential to cause harm, a risk is considered to exist if such a substance is present at sufficient concentrations to cause harm and if a pathway is present through which a receptor could be exposed to the contaminant.

The following sections discuss the identified potential on-site and off-site sources, and any pollution that could impact receptors via the pathways associated with the proposed development. Pollution linkages are assessed which may represent a risk to human health and/or controlled water receptors from the information gained from the Phase I Assessment searches. The assessment has been carried out on a qualitative basis and aims to produce a complete and comprehensive Preliminary Conceptual Site Model.

Three potential impacts exist for any given site and all three need to be considered in the qualitative risk assessment, these are:

- On-site impacts.
- The site impacting its surroundings.
- Off-site sources impacting the subject site.

## 4.2 Potential Contaminative Sources

*On-Site*
From the information obtained, the following sources have been identified which may affect the redevelopment of the site for residential end use:

- Made ground associated with the historic landfills onsite.
- Ground gas from former landfills.

Gin Hall consists of a single building along the western border that has remained unaltered, albeit in a state of disrepair and currently present to a maximum height of circa 1m above ground, from the earliest map until present day and is not deemed to present a significant risk to the development.

*Off-Site*
The following off-site sources have been identified which may affect the redevelopment of the site:

- Made ground associated with the historic reservoir turned landfill.
- Ground gas from former reservoir.

Due to the relatively impermeable nature of soils underlying the site, indicated shallow bedrock, overall size to site, distances involved and age of surrounding developments, no other offsite features are considered to present a significant source of contamination or risk to the site.

*Associated Contaminants*
The contaminants commonly associated with the potential sources of contamination identified are tabulated below:

| Contaminative Sources | Department of the Environment Industry Profile or Other Source | Commonly Associated Contaminants |
|---|---|---|
| **On Site** | | |
| Made Ground in landfill | AGS Guides<br>BS8485 and BS8576<br>CL:AIRE TB19 and TB22 | Heavy metals, polycyclic aromatic hydrocarbons (PAHs), asbestos, ground gases (carbon dioxide, methane and hydrogen sulphide), solvents, disinfectants, pesticides, Putrescible Waste, ammonium, nitrates. |
| **Off Site** | | |
| Made Ground in landfill | AGS Guides<br>BS8485 and BS8576<br>CL:AIRE TB19 and TB22 | Heavy metals, polycyclic aromatic hydrocarbons (PAHs), asbestos, ground gases (carbon dioxide, methane and hydrogen sulphide), solvents, disinfectants, pesticides, Putrescible Waste, ammonium, nitrates. |

## 4.3 Pathways

A pathway is defined as a medium by which a contaminant comes into contact with, or otherwise impacts a receptor.

At this stage the potential contaminants identified above are considered to present potential risks to site end users and controlled waters through the following pathways:

| Potential Pathways | |
|---|---|
| Pathways in respect to Human Health | • Ingestion of contaminated soils.<br>• Dermal contact with contamination.<br>• Inhalation of dusts.<br>• Inhalation of gases or vapours in both indoor and outdoor air. |
| Pathways in respect to Controlled Waters – Surface water | • Surface run-off /over land flow.<br>• Drainage discharge.<br>• Base flow from groundwater. |
| Pathways in respect to Controlled Waters – Groundwater | • Leaching of mobile contamination into groundwater via the unsaturated zone.<br>• Migration of perched groundwater in any permeable soils or along existing or proposed service runs.<br>• Migration into the saturated zone and flow through the aquifers underlying the site. |
| Pathways in respect to Property/structures/water pipes | • Direct contact with substances deleterious to building materials and potable water supply pipelines.<br>• Migration of ground gases (methane) into confined spaces (explosion and damage to property). |

## 4.4 Receptors

The identified receptors are listed below:

- Residential/ end users (human health).
- Structures/Property/water pipes.
- Nearest watercourse. Walmersley Brook (Controlled waters - onsite).
- Superficial Aquifer. Secondary Undifferentiated within glacial till (Controlled waters).
- Bedrock Aquifer. Secondary A Aquifer within underlying formations (Controlled waters).

Under current UK health and safety legislation, employers are required to carry out their own appropriate site-specific risk assessments and mitigation to protect employees. It has been assumed that any future construction works onsite will be undertaken in compliance with these requirements. Therefore, construction workers have not been specifically considered as part of this assessment.

## 4.5 Preliminary Conceptual Site Model (CSM)

The information obtained in the previous sections has been used to compile a Preliminary CSM. The identified potential contaminants and receptors have been assessed in the table below as to whether a plausible source-pathway-receptor pollutant linkage for the proposed end use of the site exists. The risk classification has been estimated in accordance with information in the BSL Guidance and Methodology in Appendix A.

The Preliminary CSM's are presented in the tables overleaf, any assessed risk above moderate will possibly require further action:

| Human Health | | | | | | |
|---|---|---|---|---|---|---|
| Potential Source | Potential Pathway | Potential Receptor | Likelihood | Severity | Level of Risk | Justification |
| **On site Made ground** Heavy metals, polycyclic aromatic hydrocarbons (PAHs), asbestos, solvents, disinfectants, pesticides, Putrescible Waste | Root uptake, ingestion, direct contact, inhalation of dusts | End-users | Likely | Mild | Moderate / Low | The two historical landfills located in the north of the site are smaller on the historical mapping, compared to the much larger area portrayed in the Groundsure report. Little information is available for these two landfills, other than being backfilled with inert materials. However, E3P have previously undertaken trial pitting in this area which indicates that the ground conditions in this area comprises a thin veneer of topsoil over a thicker horizon of organic soil material to depths varying between 0.95m and 1.35m bgl. The organic soil overlies sandy gravelly clays with some evidence of inert concrete masonry, rare plastic and metal fragments. No significant areas of deleterious components that would be deemed to be degradable or instable were identified and no significant sources of potential inorganic or organic contamination were observed during the excavation works. The severity of the made ground in this area is mild, and with the likelihood still likely, the risk to end users is considered moderate to low, however this should be confirmed via intrusive investigation. |
| **On Site Made ground** Ground Gas (carbon dioxide and methane) | Migration into confined spaces, inhalation and asphyxiation/ explosion | End-users / property / structures | Low Likelihood | Severe | Moderate | The E3P trial pitting investigation works did not identify any significant putrescible materials capable of generating significant ground gases in the area of the two historic landfills in the north. Additionally, the landfills are recorded as accepting inert waste only. The nature of the material in these areas should be further investigated, and gas monitoring undertaken to confirm the risks to the proposed development. |

| Human Health | | | | | | |
|---|---|---|---|---|---|---|
| Potential Source | Potential Pathway | Potential Receptor | Likelihood | Severity | Level of Risk | Justification |
| **Off site**<br>**Made ground**<br>Heavy metals, polycyclic aromatic hydrocarbons (PAHs), asbestos, solvents, disinfectants, pesticides, Putrescible Waste | Root uptake, ingestion, direct contact, inhalation of dusts | End-users | Likely | Medium | Moderate | The historic landfill directly southwest of the site is the location of the former reservoir that became disused in 1980/83. The Groundsure report indicates that inert, household, industrial and commercial waste was infilled here. This has a high potential to produce significant quantities of a large variety of contaminants that pose a medium risk to human health. However, due to the likelihood of the former reservoir being lined with impermeable materials, the relatively impermeable nature of soils underlying the site as well as indicated shallow bedrock, migration potential from the off-site source is reduced.<br>Intrusive investigation should be undertaken in the southwest of the site to confirm that mapped boundaries of the landfill do not encroach onto the proposed development area. |
| **Off Site**<br>**Made ground**<br>Ground Gas (carbon dioxide and methane) | Migration into confined spaces, inhalation and asphyxiation/ explosion | End-users / property / structures | Likely | Severe | High | The nature and thickness of the backfilled reservoir landfill located immediately offsite in the south is unknown, however based on the age and recorded waste types, is likely to have a high to very high ground gas generation potential in accordance with BS8576:2013.<br>Given the proximity, gas migration to the site remains a plausible pathway to neighbouring proposed residential properties. The underlying geology is relatively impermeable with indicated shallow bedrock reducing lateral migration potential.<br>Risks are currently considered to be high associated with this source; however, a robust gas risk assessment should be undertaken to confirm the risks and determine whether mitigation measures are required within the proposed new buildings. |

| Controlled Waters | | | | | | |
|---|---|---|---|---|---|---|
| Potential Source | Potential Pathway | Potential Receptor | Likelihood | Severity | Level of Risk | Justification |
| **Made Ground** Heavy metals, polycyclic aromatic hydrocarbons (PAHs), asbestos, solvents, disinfectants, pesticides, Putrescible Waste | Overland flow, / migration through saturated zone | Walmersley Brook (Surface waters) Neighbouring A56 and residential areas | Low Likelihood | Medium | Moderate / Low | Site walkovers have identified evidence of waterlogged ground in the area, indicating that the groundwater table is high across the site.<br><br>Based on the findings of the E3P report, significant contamination is not anticipated in the north of the site. The presence of underlying natural clay Till soils will limit vertical and lateral migration of any contamination present, however further investigation is required to confirm this.<br><br>It is noted that development of large areas of the site with new surface water drainage and hardstanding will reduce infiltration of surface water and control overland flow and ultimately provide a betterment to the site as a consequence of development.<br><br>Given the proximity of Walmersley Brook, risks are currently assessed as being moderate / low. |
| | Leaching through unsaturated zone / Migration through saturated zone | Secondary Aquifer Undifferentiated (Ground-water) | Likely | Medium | Moderate | The site is currently surfaced in soft landscaping/vegetation; however, the proposed development will increase the areas of hardstanding substantially, with a new surface water drainage system installed which will further reduce the risk to controlled waters. Given the age of the landfills onsite, they likely have a clay capping layer limiting infiltration the downward migration of harmful contaminants into the underlying aquifers. Care would need to be taken during the design of the development to preserve the integrity of the clay capping layer.<br><br>By virtue of the development taking place, this should contribute to an overall “betterment” of groundwater quality. |
| | Migration through saturated zone | Secondary A Aquifer (Ground-water) | Low likelihood | Medium | Moderate / Low | There are no groundwater abstraction licences or Source Protection Zones near the site. As stated above, the site is currently surfaced in soft landscaping/vegetation, however underlying clay capping, relatively impermeable nature of underlying strata and a new surface water drainage system installed will reduce the risk to controlled waters.<br><br>The E3P report |

*Human Health Risk – Soils Contamination Summary*
Based on the preliminary CSM and the current use of the site, the overall risk from land contamination at the site is considered to be **moderate / low** for a redeveloped site.

Risks would need to be confirmed by appropriate intrusive investigation, testing and assessment.

*Human Health Risk – Ground Gas Summary*
A potential on-site gas source has been identified associated with the made ground associated with historic landfills. Whilst the landfills in the north are not considered likely to contain significant putrescible materials, the nature of the landfill directly off site in the south and the ability for ground gases to migrate are unknown. The preliminary CSM considers the risks from the landfills to be moderate and high respectively to site end users and property.

In accordance with BS8576 and CIRIA C665 as set out in Appendix A of this report, the gas generation potential is considered to be high. The sensitivity of the development is high on account of the proposed residential use.

In line with current guidance, it is recommended that ground gas monitoring should comprise 24 visits over a 12-month period, however the results of monitoring should be regularly reviewed to determine whether worst-case scenario has been recorded, and a robust risk assessment can be completed within a shorter time frame.

Continuous gas monitoring techniques could be used to reduce the required monitoring period.

*Controlled Waters Risk - Summary*
Based on the preliminary CSM, BSL believes the overall risk to controlled waters at the site is **moderate – moderate / low** for the following reasons:

- The Walmersley Brook lies onsite.
- The nature of the landfill in the north is likely to be inert based on information presented within the E3P report.
- Underlying impermeable strata and shallow bedrock along with an overall betterment of the site from the development should help reduce the risk to the underlying Aquifers.

The above assessed level of risk will need to be confirmed by intrusive investigation and quantitative risk assessment.

# 5.0 PRELIMINARY GEOTECHNICAL ASSESSMENT

## 5.1 Hazard Identification

A preliminary geotechnical hazard identification exercise has been undertaken in general accordance with the Highways England document CD 622, 'Managing geotechnical risk'. Potential geotechnical hazards based on the expected ground conditions are listed below:

- Made ground of unknown nature; if placed in a non-engineered manner may cause excessive settlement of foundations, highways and infrastructure.
- Low strength, compressible ground (backfilled material); may cause excessive settlement of foundations, highways and infrastructure.
- Attack of buried concrete by aggressive ground conditions; the site may contain unknown made ground and potentially sulphate bearing soils.
- Shrink / swell of clay; settlement / heave of foundations when located within the influence of trees and vegetation.
- Loose landfill material and shallow groundwater, leading to difficulty with excavation due to trench collapse.
- Slope instability; the development is close to a steep slope located on the southern border of the historic reservoir.

Whilst the site lies within a Mining Remediation Authority reporting area, based on the available information, the risk from mining induced instability is considered to be very low and needs no further consideration.

The above identified geotechnical hazards will need to be considered as part of further investigations and assessments.

## 5.2 Foundation and Geotechnical Design

The proposed development has been provided to BSL and is appended to this report, and will comprise residential dwellings and commercial and employment areas. The type of foundation solution should be informed by an onsite intrusive investigation to confirm ground conditions and obtain geotechnical parameters for preliminary foundation and floor slab design. Intrusive investigation should also obtain data to allow appropriate concrete classification in accordance with BRE SD1 and for preliminary highways/pavement design.

Historical landfills are located on site, however information provided within the provided E3P report indicates that the area comprises a thin veneer of topsoil over a thicker horizon of organic soil material to depths varying between 0.95m and 1.35m bgl. The organic soil overlies sandy gravelly clays with some evidence of inert concrete masonry, rare plastic and metal fragments. No significant areas of deleterious components that would be deemed to be degradable or instable were identified. Consideration of the foundation solution will be required.

The areas of the site not affected by historic landfills are indicated to be underlain by gravelly clays onto shallow sandstone bedrock. Therefore, in these areas, shallow foundations may be possible, depending on ground conditions.

Given the past uses of the site and current form, it is likely that some form of earthworks operation will be required at the site to provide a suitable development platform.

Based on the highly limited previous investigations carried out to date, the upper layer across the northern area comprises approximately 1.00m of organic soil, which is considered geotechnically unsuitable for use

within areas of built structures, highways and infrastructure due to potential settlement, therefore it is likely this material would need to be removed as part of any earthworks to enable construction of a suitable development platform.

## 5.3 Drainage

Given the site is underlain by low permeability clays, it is unlikely that drainage to SuDS such as traditional soakaways will be suitable.

In addition, the use of soakaways would increase infiltration in localised areas, likely leading to the mobilisation of contaminants, if present, which should be avoided. Risks from this can be mitigated by intrusive investigation to confirm if contamination is present across the site, with subsequent drainage design taking the results of the ground investigation into consideration.

## 5.4 Recommendations

To confirm the ground conditions in respect to the identified potential geotechnical hazards and risks, an appropriate intrusive investigation will need to be undertaken.

# 6.0 OTHER DEVELOPMENT CONSTRAINTS

## 6.1 Constraint Identification

No invasive species have been noted during the walkover; however it would be prudent to undertake a specialist survey prior to any works on site.

There are known services on site, these may need to be disconnected prior to any construction activities. A high voltage pylon is present in the northern part of the site in an east to west discretion.

The preliminary risk assessment undertaken within this Desk Study may identify potential risks to site demolition and construction workers. However, full consideration of occupational health and safety issues is beyond the scope of this report.

# 7.0 CONCLUSIONS AND RECOMMENDATIONS

## 7.1 Geo-Environmental Summary

The site has had two historic landfills in the north of the site and one directly off site outside the south west corner. Based on the proposed residential development, the overall risk to human health is considered to be moderate.

There is considered a moderate / high risk from ground gas due to the presence of made ground associated with the historic landfills onsite and directly south of the site. Ground gas protection measures are likely to be a requirement in the new development, however a robust ground gas risk assessment should be undertaken to inform risks and requirements confirmed by the Local Authority.

The risk to controlled waters is considered to be moderate / low due to the historic landfills.

## 7.2 Geotechnical Summary

Intrusive investigations will be required to confirm the most suitable foundation solution and to obtain parameters for concrete classification, floor slab and highways design.

Whilst the site lies within a Mining Remediation Authority Reporting Area, mining related instability is not considered to pose a risk to the site.

Drainage to SuDS is unlikely to be a viable option for the site.

## 7.3 Further Work

To confirm the risks to the identified receptors and confirm the ground conditions in respect to the identified geotechnical and geo-environmental risks, an appropriate intrusive investigation will need to be undertaken. The following further works are recommended, although this list is not exhaustive and should be read in conjunction with any planning conditions that are applicable to the site:

- Topographic survey including location of spring onsite.
- Utility survey.
- Arboricultural survey.
- Intrusive Phase II site investigations comprising:
  - Trial pitting and trenching.
  - Windowless sampling on an approximate 25-30m investigation grid within and around landfill boundaries.
  - Cable percussive drilling with rotary follow on to install deep groundwater monitoring wells (minimum of 7m of rock core to be obtained).
  - In situ geotechnical testing including hand shear vanes and SPTs for preliminary foundation design.
  - Installation of standpipes in boreholes (both window samples and cable/rotary holes) to allow ground gas concentrations and groundwater levels to be monitored.
  - The undertaking of soil infiltration rate testing (if required).
  - Geotechnical laboratory testing of soils, including classification and strength to assist with foundation design.
  - Contamination analyses of both soil and groundwater, including testing for a broad suite of pH, SOM, asbestos, sulphates, sulphides, ammoniacal nitrogen, pesticides, metals, PAHs, petroleum hydrocarbons, VOCs, SVOCs and PFAS.
  - Groundwater sampling, including sampling of surface waters.
  - Ground gas monitoring; likely to comprise 24 No. spot monitoring visits over a 12 month period, or adopt a combination of spot monitoring over a 3 month period, including 6 No. visits and the installation of continuous monitoring equipment at several locations for circa 4-5 weeks.

- Development of a detailed revised Conceptual Site Model and GQRA for human health and groundwater.
- Preliminary geotechnical design recommendations for foundations, floor slabs, highways/pavement and earthworks design.

- Assessment and recommendations based on the above, including requirements for further work, if necessary.

# 8.0 ABBREVIATIONS AND DEFINITIONS

| GLOSSARY | |
|---|---|
| **Term / Abbreviation** | **Definition** |
| **AST** | Above Ground Storage Tank. |
| **B(a)P** | Benzo (a) Pyrene. |
| **BGS** | British Geological Survey. |
| **BRE** | Building Research Establishment. |
| **BS** | British Standard. |
| **BSL** | Brownfield Solutions Ltd. |
| **BTEX** | Benzene, Toluene, Ethylbenzene, Xylenes. |
| **CBR** | California Bearing Ratio (used in pavement/highways design). |
| **CAR 2012** | Control of Asbestos Regulations (2012). |
| **CBCB** | Cheshire Brine Compensation Board. |
| **CBCD** | Cheshire Brine Compensation District. |
| **CBR** | California Bearing Ratio. |
| **CIEH** | Chartered Institute of Environmental Health. |
| **CIRIA** | Construction Industry Research Association. |
| **CL:AIRE** | Contaminated Land: Applications in Real Environments. |
| **CLEA** | Contaminated Land Exposure Assessment. |
| **CLO** | Contaminated Land Officer. |
| **COMAH** | Control of Major Accident Hazards. |
| **Contamination** | Presence of a substance which is in, on or under land, and which has the potential to cause significant harm or to cause significant pollution of controlled water.<br>There is no assumption in this definition that harm results from the presence of the contamination.<br>Naturally enhanced concentrations of harmful substances can fall within this definition of contamination.<br>Contamination may relate to soils, surface water, groundwater or ground gas. |
| **Controlled Waters** | Inland freshwater (any lake, pond or watercourse above the freshwater limit), water contained in underground strata and any coastal water between the limit of highest tide or the freshwater line to the three-mile limit of territorial waters. |
| **CPT** | Cone Penetration Test. |
| **CSM** | Conceptual Site Model. A schematic hypothesis of the nature and sources of contamination, potential migration pathways (including description of the ground and groundwater) and potential receptors, developed on the basis of the information from the preliminary investigation and refined during subsequent phases of investigation and which is an essential part of the risk assessment process. The conceptual site model is initially derived from the information obtained by the preliminary investigation (i.e. the Phase I Phase I Assessment). This conceptual model is used to focus subsequent investigations, where these are considered to be necessary, in order to meet the objectives of the investigations and the risk assessment. The results of intrusive investigations can provide additional data that can be used to further refine the conceptual site model. |
| **DCP** | Dynamic Cone Penetrometer. |
| **DNAPL** | Dense Non-Aqueous Phase Liquid. |
| **DoWCoP** | Definition of Waste Code of Practice. |
| **DWS** | Drinking Water Standard. |
| **EA** | Environment Agency. |
| **EHO** | Environmental health Officer. |
| **EQS** | Environmental Quality Standard. |
| **GAC** | Generic Assessment Criteria. |

| GLOSSARY | |
|---|---|
| **Term / Abbreviation** | **Definition** |
| **GDR** | Geotechnical Design Report. |
| **GFR** | Geotechnical Feedback Report. |
| **GIR** | Ground Investigation Report. |
| **GSV** | Gas Screening Value. |
| **Harm** | Adverse effect on the health of living organisms, or other interference with ecological systems of which they form part, and, in the case of human health, including property/structures and water supply pipelines. |
| **Hazard** | Inherently dangerous quality of a substance, procedure or event. |
| **HDPE** | High Density Polyethylene. |
| **HSV** | Hand Shear Vane. |
| **K** | Modulus of Subgrade Reaction. |
| **LCRM** | Land Contamination: Risk Management (EA guidance). |
| **LNAPL** | Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene). |
| **LOD** | Limit of Detection (for particular method adopted). |
| **MMP** | Materials Management Plan. |
| **Mv** | Modulus of Volume of Compressibility. |
| **ND** | Not Detected. |
| **NHBC** | National House Building Council. |
| **NR** | Not Recorded. |
| **OS** | Ordnance Survey. |
| **PAH** | Polycyclic Aromatic Hydrocarbon. |
| **Pathway** | Mechanism or route by which a contaminant comes into contact with, or otherwise affects, a receptor. |
| **PCB** | Poly-Chlorinated Biphenyl. |
| **PCSM** | Preliminary Conceptual Site Model. |
| **pH** | Scale used to specify how acidic or basic a water-based solution is. |
| **PHC** | Petroleum Hydrocarbons. |
| **PID** | Photo Ionisation Detector. |
| **PNEC** | Predicted No-Effect Concentration. |
| **Precision** | Level of agreement within a series of measurements of a parameter. |
| **PSD** | Particle Size Distribution. |
| **PVC** | Polyvinyl Chloride. |
| **Receptor** | Human health, living organisms, ecological systems, controlled waters (surface waters and groundwater within aquifers), atmosphere, structures and utilities that could potentially be adversely affected by contaminant(s). |
| **Risk** | Probability of the occurrence, magnitude and consequences of an unwanted adverse effect on a receptor. |
| **Risk Assessment** | Process of establishing, to the extent possible, the existence, nature and significance of risk. |
| **Sampling** | Methods and techniques used to obtain a representative sample of the material under investigation. |
| **SOM** | Soil Organic Matter. |
| **Source** | Location from which contamination is, or was, derived. This could possibly be the location of the highest soil, groundwater or gas concentration of the contaminant(s). |
| **SPT** | Standard Penetration Test. |
| **SVOCs** | Semi Volatile Organic Compounds. |
| **TOC** | Total Organic Carbon. |
| **TPH CWG** | Total Petroleum Hydrocarbon (Criteria Working Group). |

| GLOSSARY | |
|---|---|
| **Term / Abbreviation** | **Definition** |
| **TVOCs** | Total volatile organic compounds. |
| **UCS** | Unconfined Compressive Strength. |
| **Uncertainty** | Parameter, associated with the result of a measurement that characterises the dispersion of the values that could reasonably be attributed to the measurement. |
| **UST** | Underground Storage Tank. |
| **UXO** | Unexploded Ordnance. |
| **VCCs** | Vibro Concrete Columns. |
| **VSCs** | Vibro Stone Columns |
| **VOCs** | Volatile Organic Compounds. |
| **WAC** | Waste Assessment Criteria. |
| **WFD (in waste context)** | Waste Framework Directive. |
| **WFD (in water context)** | Water Framework Directive. |
| **Units** | **Definition** |
| **°** | Degrees |
| **Φ** | Phi angle (in degrees) |
| **g/l** | Grams per Litre |
| **Km** | Kilometres |
| **kPa** | Kilo Pascal (Equivalent to $kN/m^2$) |
| **$KN/m^2/mm$** | Kilo Newton per metered squared per millimeter |
| **$kN/m^2$** | Kilo Newtons per metre squared |
| **kPa** | Kilo Pascal (Equivalent to $kN/m^2$) |
| **l/hr** | Litres per hour |
| **MJ/kg** | Mega joule per kilogram |
| **MN** | Mega Newton |
| **$M^2/MN$** | Mega Newton per metre squared |
| **M** | Metres |
| **m bgl** | Metres Below Ground Level |
| **m OD** | Metres Ordnance Datum (sea level) |
| **µg/l** | Micrograms per Litre (parts per billion) |
| **µm** | Micrometre |
| **mb** | Millibars (atmospheric pressure) |
| **mg/kg** | Milligrams per kilogram (parts per million) |
| **$mg/m^3$** | Milligram per metre cubed |
| **mm** | Millimetre |
| **ppb** | Parts Per Billion |
| **Ppm** | Parts Per Million |

## 9.0 REFERENCES

References used in the production of this report are listed below; note not all of the below are relevant to the subject site and may not have been utilised.

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# DRAWINGS




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| No. | Date | By | Revision Notes |
|---|---|---|---|

**PROJECT STATUS:**

S2 (SUITABLE FOR INFORMATION)

theurbanists

Client: Hollins Strategic Land

Project: Land East of Walmersley Road, Bury

Title: Site Location Plan

| Project ID | Organiser | Volume | Level | Type | Role | Dwg | Suit. | Rev. |
|---|---|---|---|---|---|---|---|---|
| 2492 | URB | XX | XX | DR | UD | 010 | S0 | - |

Drawn HW Date 01/12/2025 Checked JD Scale 1:1250 @A1

The Urbanists (Cardiff) - Westgate House - 11 Womanby Street - CF10 1BR
The Urbanists (Bristol) - Generator Building - Finzels Reach - BS1 6BX
T: 029 2023 6133 E: info@theurbanists.net W: www.theurbanists.net

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Mast
(Telecommunication)

Proposed Public Open Space
(subject to Change of Use application)

Recreation Ground

Sports Court

Play Area

Nabbs Farm

Bassfield Farm

Bassfield

Bassfield South

Mount Pleasant

Reservoir

ESS

Mill House

Nangreaves

Longcroft Cottages

Baldingstone House

Ivy Cottage

Robins Bank

Bank Top

The Barn

CARR BANK

Oak View

Shelter

Letter Box

El Sub Sta

Pond

Track

Issues

Pipeline

Path (um)

Works

PH

LB

TCB

CG

M 66

A 56

WALMERSLEY ROAD

WALMERSLEY OLD ROAD

RIBBLE DRIVE

FALSHAW DRIVE

ERIN CLOSE

GREENBOOTH ROAD

STRATFORD AVENUE

LEAMINGTON AVENUE

BURNLEY ROAD

214.0m

200.3m

171.0m

167.6m

161.2m

158.5m

148.1m

142.3m

- Application Site
- Site Associated with the Application Site
- Primary Access Point
- Secondary Access Point
- Existing Access Point / Proposed Bridleway Access
- Residential Developable Area
- Local Centre Including Residential
- Employment Zone
- Mobility Hub
- Focal Dwelling
- Key Frontage
- Potential Locations for Formal Play
- Potential Locations for SuDS
- Primary Street
- Narrowing of Primary Street
- Access Route to Mobility Hub, Local Centre and Employment
- Potential Recreational Routes
- Potential Bridleway Route
- Existing PRoW (Public Rights of Way)
- Proposed Area of Public Open Space
(Subject to Change of Use application)

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| No. | Date | By | Revision Notes |
|---|---|---|---|
| | | | |

**PROJECT STATUS:**

S2 (SUITABLE FOR INFORMATION)

**the urbanists**

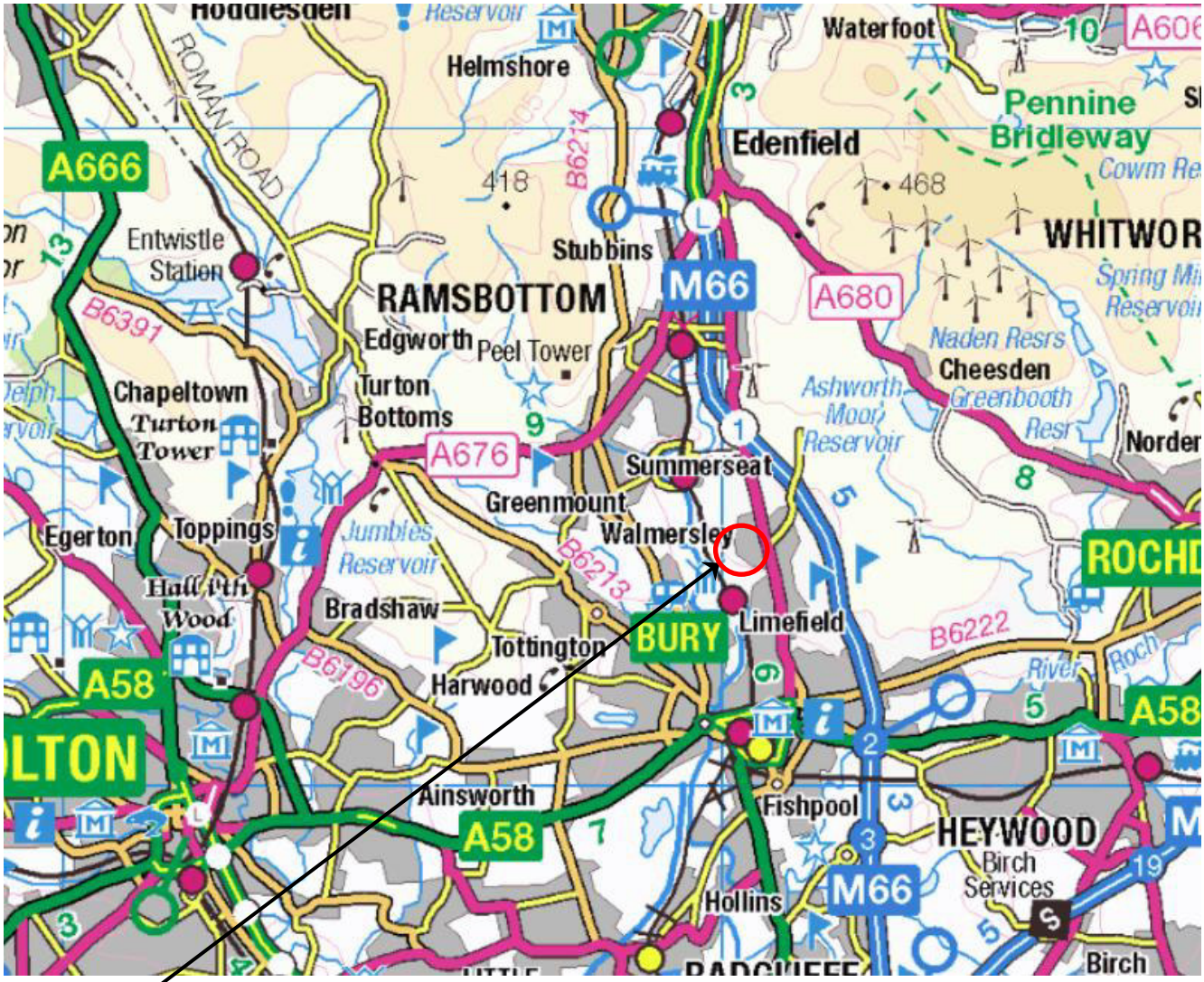
| | |
|---|---|
| Client | Hollins Strategic Land |
| Project | Land East of Walmersley Road, Bury |
| Title | Illustrative Masterplan |

| Project ID | Organiser | Volume | Level | Type | Role | Dwg | Suit. | Rev. |
|---|---|---|---|---|---|---|---|---|
| 2492 | URB | XX | XX | DR | UD | 011 | S0 | - |

Drawn HW Date 01/12/2025 Checked JD Scale 1:1000 @A1

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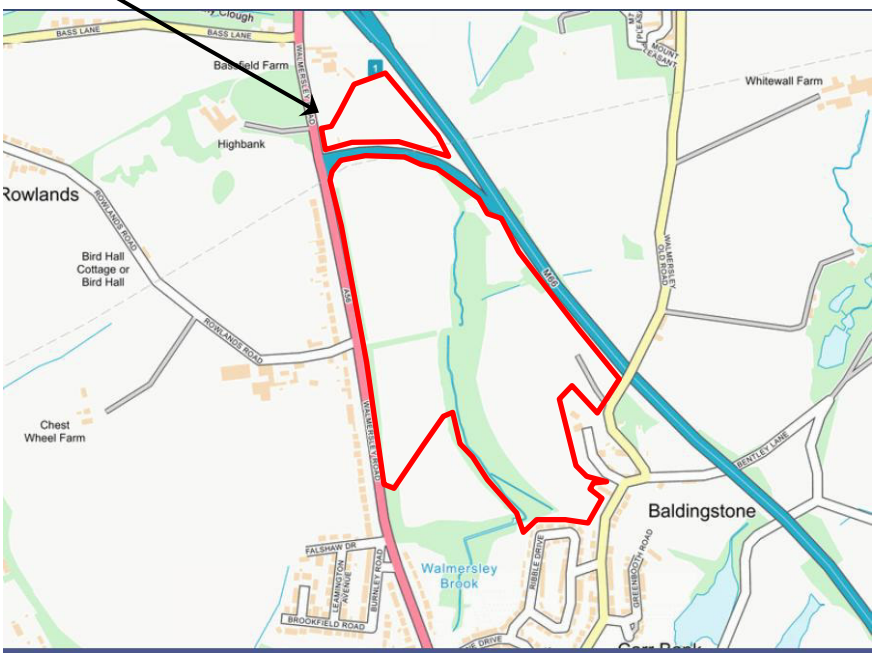
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SITE LOCATION

NEAREST POSTCODE: BL9 5JX

SITE ENTRANCE WHAT3WORDS: ///LOOPS.POSE.GOAD




| REV | DATE | DESCRIPTION | BY | CKD |
|---|---|---|---|---|
| | | | | |

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

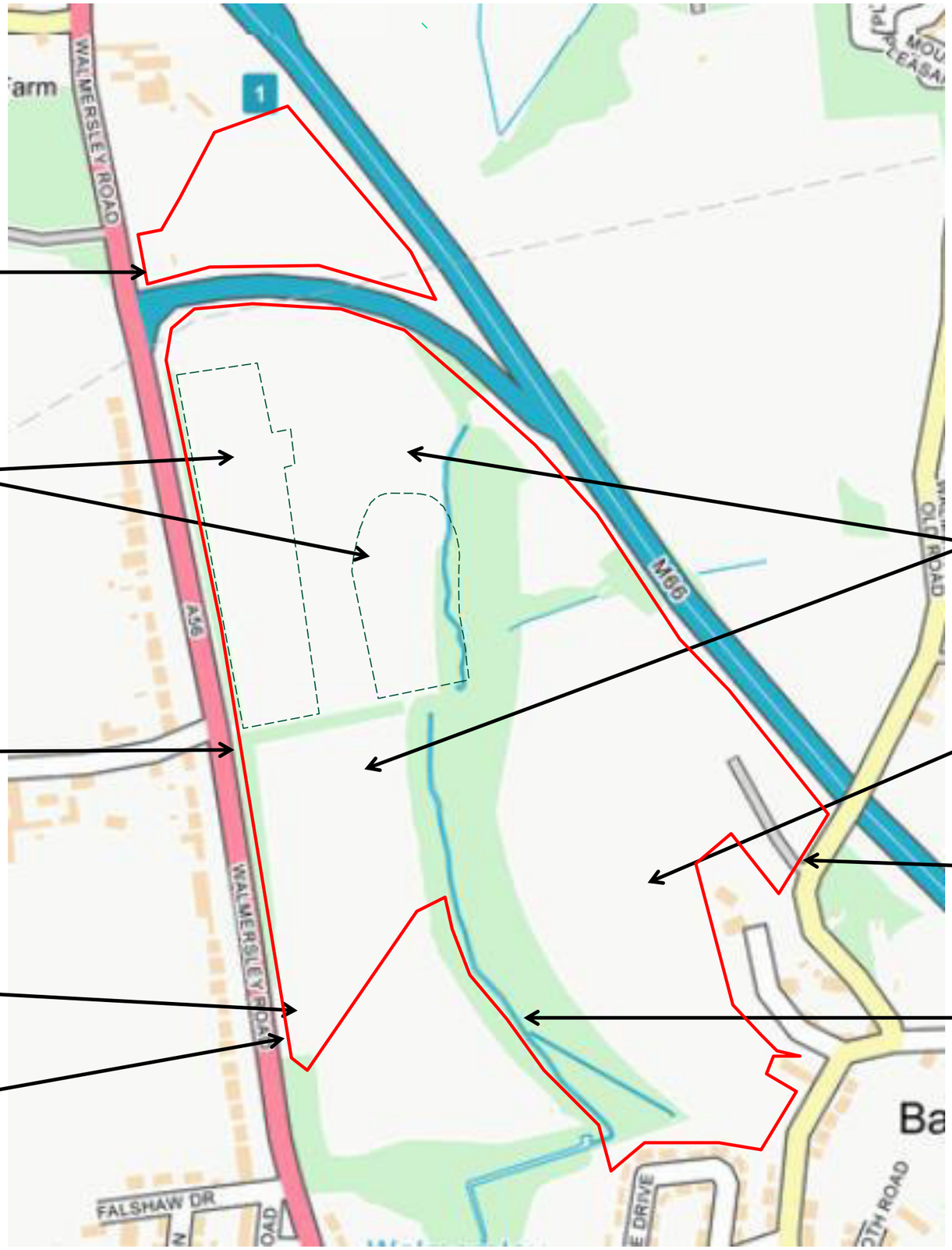
CLIENT
HOLLINS STRATEGIC LAND

PROJECT TITLE
WALMERSLEY ROAD, BURY

DRAWING TITLE
SITE LOCATION PLAN

| DRAWING No. | REVISION | SCALE | DATE |
|---|---|---|---|
| C4175/01 | - | NTS | 29/10/25 |

| DRAWN BY | CHECKED BY |
|---|---|
| MO | LC |




Site Boundary

Approximate area of historic landfills (inert wastes) based on Groundsure Report Data

Site Entrance

Former Gin Hall

Potential alternative site access

Area waterlogged

Non infilled 'natural' ground

Potential alternative site access

Walmersley Brook

## KEY

APPROXIMATE SITE BOUNDARY

CLIENT

NOTES

1. ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
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| REV | DATE | DESCRIPTION | BY | CKD |
|---|---|---|---|---|
| B | 05/08/2025 | SITE FEATURES PLAN | CMC | LC |
| C | 28/08/2025 | UPDATE CLIENT NAME | LC | |

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CLIENT
HOLLINS STRATEGIC LAND

PROJECT TITLE
WALMERSLEY BROOK, BURY

DRAWING TITLE
SITE FEATURES PLAN

| DRAWING No. | REVISION | SCALE | DATE |
|---|---|---|---|
| C4175/02 | D | NTS | 15/12/25 |

| DRAWN BY | CHECKED BY |
|---|---|
| CMC | LC |




Approximate areas of historic landfill (inert wastes) based on Groundsure Report Data

Location of historic pump house

Former Gin Hall buildings

Area of historical reservoir and landfill (household and commercial wastes)

## KEY

APPROXIMATE SITE BOUNDARY

NOTES

1. ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
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CLIENT
HOLLINS STRATEGIC LAND

PROJECT TITLE
WALMERSLEY BROOK, BURY

DRAWING TITLE
HISTORIC FEATURES PLAN

| DRAWING No. | REVISION | SCALE | DATE |
|---|---|---|---|
| C4175/03 | A | NTS | 28/08/25 |

| DRAWN BY | CHECKED BY |
|---|---|
| LC | AS |

# PHOTOGRAPHS



Photograph 1: Site Entrance



Photograph 2: Potential Site Access



Photograph 3: Potential Site Access



Photograph 4: Pylon



Photograph 5: Electricity Substation - offsite



Photograph 6: Telecommunication Mast



Photograph 7: Telecommunication Mast



Photograph 8: Gin Farm Ruins



Photograph 9: Gin Farm Ruins



Photograph 10: Gin Farm Ruins



Photograph 11: View from top of reservoir backfill looking north to historic landfills.



Photograph 12: Former southern site boundary looking north to reservoir embankment (now offsite).

# APPENDIX A

**BSL Methodology and Guidance**

## BSL Phase I Geo-Environmental Assessment Reports - Methodology and Guidance

### Background

This Appendix provides information on the approaches, methods and guidance used by Brownfield Solutions Ltd in the preparation of this report.

The term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential soils and groundwater contamination). The term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements). It should be noted that this is an integrated investigation and these two main aspects are related, unless otherwise specified within the report.

Phase I reports are written in general accordance with the description of a Preliminary Investigation as defined in BS10175:2011+A2:2017 and are also produced in general accordance with the recommendations for a Tier 1 Preliminary Risk Assessment as described in LCRM guidance.

The first stage of the investigation and assessment of a site is the Preliminary Investigation/Tier 1 Preliminary Risk Assessment, often referred to as a Phase 1 Desk Study, comprising a desk study and walk-over survey and collation of desk-based searches, which culminates in the Preliminary Risk Assessment and the development of a preliminary/initial **Conceptual Site Model (CSM)**. From this are identified any potential geotechnical and geo-environmental hazards and the qualitative degree of risk associated with them. In the case of the geotechnical hazard identification, this is referred to as the **Ground Model.**

From the geo-environmental perspective, the hazard Identification process uses professional judgement to evaluate all the hazards in terms of possible contaminant linkages (of source-pathway-receptor). Possible contaminant linkages are potentially unacceptable risks in terms of the current contaminated land regime legal framework and require either remediation or further assessment. These are normally addressed via intrusive ground investigation and generic risk assessment as part of Phase II investigations and reports.

The second stage is the Ground Investigation, Generic Risk Assessment and Geotechnical Interpretation. This represents the further assessment mentioned above. The Ground Investigation comprises field work and laboratory testing based on the findings of the Preliminary Risk Assessment, to reduce uncertainty in the geotechnical and geo-environmental hazard identification. This may include an exploratory, a detailed or/and supplementary Investigations as described in BS 10175:2011+A2:2017. Phase II Assessments are produced in general accordance with the recommendations for a Tier 2 Generic Quantitative Risk Assessment as described in LCRM guidance and are also intended to fulfil the requirements of a Ground Investigation Report (GIR) as detailed in BS EN 1997-2:2007.

**Contaminated Land - Legislative Background**

Land contamination can be addressed in several ways, e.g. during planning, under Part 2A, following an incident, during an investigation into environmental damages, or during the application of an environmental permit, or its surrender.

For the planning process the key test is **as a minimum the site cannot be determined as contaminated land**, e.g. there is not significant harm, significant possibility of significant harm to human health or that there is not significant harm to, or the significant possibility that the pollution of controlled waters will occur.

Environmental liabilities and risks have been evaluated in terms of a source -pathway - target relationship in accordance with the approach set out in:

- The 1995 Environment Act.
- The Contaminated Land Statutory Guidance, DEFRA – April 2012.
- The Contaminated Land (England) Regulations 2006.
- The Contaminated Land (England) Amendment Regulations 2012.
- Water Resources Act.
- Water Framework Directive.
- Environmental Damage Regulations.
- Environment Agency (EA) - Land Contamination Risk Management (LCRM) 2019.

Contaminated land is defined within the legislative framework as land which is in such condition by reason of substances in, on or under the land that:

1) Significant harm is being caused or there is a significant possibility of such harm being caused.
2) Significant pollution of controlled waters is being or is likely to be caused.

The potential for harm is based on the presence of three factors:

**Source** - substances that are potential contaminants or pollutants that may cause harm.
**Pathway** - a potential route by which contaminants can move from the source to the receptor, and the impact of that migration on the source e.g., attenuation.
**Receptor** - a receptor that may be harmed, for example the water environment, humans and water, considering the sensitivity of the receptor.

Where a source, pathway and target are all present a pollutant linkage exists and there is potential for harm to be caused.




Where any one of the “pollution linkages” between the above is absent there is deemed to be no risk.

The presence of a source does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and unacceptable risk of harm. The nature and importance of both pathways and receptors are site specific and will vary according to the intended end use of the site, its characteristics and its surroundings.

The key principle which supports the S-P-R approach is ‘suitable for use’ criteria. This requires remedial action only where contamination is considered to pose unacceptable actual or potential risks to health or the environment and, taking into account the proposed use of the site.

*Relevant Guidance Documents*
This report has been prepared in accordance with the list of guidance below, however the list is not exhaustive:

- DETR: Circular 02/2000: Environmental Protection Act 1990: Part IIA: Contaminated land. 2012.
- Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the EPA1990, May 2002.
- BS 10175:2011+A2:2017.
- Environment Agency (EA) - Land Contamination Risk Management (LCRM). 2019.
- Groundwater Protection https://www.gov.uk/government/collections/groundwater-protection
- UK Technical Advisory Group (UKTAG) - - Water Framework Directive
- Incidents and their classification: the Common Incident Classification Scheme (CICS) – Used by the Environment Agency to classify pollution incidents.

*Relevant Legislative Documents*
The following is a non-exhaustive list of legislative framework documents that has been considered in the production of this report:

- The Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (2012).
- The Environment Protection Act (1990).
- The Water Resources Act (1991).
- The Environment Act (1995).
- The Contaminated Land (England) Act (2000).
- The Pollution Prevention and Control (England and Wales) Regulations (2000).
- The Landfill Regulations (England and Wales) Regulations (2002).
- The Landfill (England and Wales) (Amendment) Regulations (2004).
- Contaminated Land (England) Regulations (2012).
- The Environmental Damage (Prevention and Remediation) Regulations (2009).
- Environmental Permitting Regulations (England and Wales) Regulations (2010).
- The Water Environment (Water Framework Directive) (England and Wales) Regulations (2017).
- Health and Safety at Work Act.
- National Planning Policy Framework (NPPF) – latest version.

**Contaminated Land Risk Assessment Approach**

Contaminated Land Risk Assessment is a technique that identifies and considers the associated risk, determines whether the risks are significant and whether action needs to be taken. The four main stages of risk assessment are:




LCRM outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. The starting point of the risk assessment is to identify the context of the problem and the objectives of the process. Under LCRM, three tiers of risk assessment exist – Stage/Tier Preliminary Risk Assessment, Stage 2 Generic Quantitative Assessment and Stage 3 Detailed Quantitative Assessment.

Further information can be found at the below site:
https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

Formulating and developing a conceptual model for the site is an important requirement of risk assessment, this supports the identification and assessment of pollutant linkages. Development of the conceptual model forms the main part of preliminary risk assessment, and the model is subsequently refined or revised as more information and understanding is obtained through the risk assessment process.

Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk.

The risk assessment process needs to take into account the degree of confidence required in decisions. Identification of uncertainties is an essential step in risk assessment.

The likelihood of an event is classified on a four-point system using the following terms and definitions from CIRIA C552, with reference to Incidents and their classification: the Common Incident Classification Scheme (CICS), Environmental Protection Act 1990: Part 2A – Contaminated Land Statutory Guidance 2012 and other guidance as appropriate which will be detailed within the main body of the report if applied.

The likelihood of a given receptor being impacted is related to a number of factors, e.g. the geology which could inhibit contaminant migration. For example, a site with a significant thickness of clay between it and a receptor may reduce migration of contamination via the subsurface, which will reduce the likelihood of a given receptor being impacted. The geology or drainage for example could offer a preferential pathway e.g. mines shafts/faults increasing the likelihood and potential magnitude of an impact. The depth of contamination will also affect the exposure pathway, for example petroleum hydrocarbons at depth are unlikely to reach a receptor via dermal contact but could via vapour pathways which will influence the likelihood of an impact being felt e.g. if there are no buildings on site.

The terms and definitions used for the assessment of the likelihood are provided below:

**High likelihood**: There is a pollution linkage and an event appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
*Examples - Extensive areas with concentrations above saturation limits for mobile contamination e.g. petroleum hydrocarbons within the water table.*

**Likely**: There is a pollution linkage and all the elements are present and in the right place, which means it is probable that an event will occur. Circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term.
*Examples – Localised areas of contaminants with concentrations above saturation limits for mobile contamination e.g. localised petroleum hydrocarbons within the water table; shallow contamination above relevant human health generic assessment criteria is present with little or no hardstanding,*

**Low likelihood**: There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain even over a longer period such event would take place, and is less likely in the short term.
*Examples - A thickness/distance of low permeability deposits preventing contaminant migration to a receptor is present; a site is mostly covered hard standing preventing exposure to soil contamination.*

**Unlikely**: There is a pollution linkage but circumstances are such that it is improbable the event would occur even in the long term.
*Examples – A site is underlain by a substantial thickness of low permeability clays, between the source and potential receptors which will inhibit significantly, but not completely rule out migration to sensitive receptors.*

The severity is also classified using a system based on CIRIA C552, with reference to Incidents and their classification: the Common Incident Classification Scheme (CICS), Environmental Protection Act 1990: Part 2A – Contaminated Land Statutory Guidance 2012 and other guidance as appropriate which will be detailed within the main body of the report, if applied. The terms and definitions are:

**Severe**: Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
*Examples – High concentrations of contaminant on surface of recreation area, major spillage of contaminants from site into controlled waters, explosion causing building to collapse.*

**Medium**: Chronic damage to human health ('significant harm' as defined in DETR 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
*Examples - Concentrations of contaminants exceed the generic assessment criteria, leaching of contaminants from a site to a Principal or Secondary Aquifer, death of species within a designated nature reserve.*

**Mild**: Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures, services or the environment.
*Examples – Pollution of non-classified groundwater or damage to buildings rendering it unsafe to occupy.*

**Minor**: harm, not necessarily significant harm, which may result in financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by use of personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.
*Examples – Presence of contaminants at such concentrations PPE is required during site work, loss of plants in landscaping scheme or discolouration of concrete.*

Once the likelihood and severity have been determined, a risk category can be assigned using the table below.

| | | Consequences | | | |
|---|---|---|---|---|---|
| | | Severe | Medium | Mild | Minor |
| Probability | Highly likely | Very high | High | Moderate | Moderate/low |
| | Likely | High | Moderate | Moderate/low | Low |
| | Low likelihood | Moderate | Moderate/low | Low | Very low |
| | Unlikely | Moderate/low | Low | Very Low | Very low |
| | Negligible | Negligible Risk / No Linkage | | | |

Definitions of the risk categories obtained from the above table are as follows together with an assessment of the further work that might be required:

**Very high**: There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability. Urgent investigation and remediation are likely to be required.

**High**: Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the longer term.

**Moderate**: It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it would be more likely to be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term.

**Low**: It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.

**Very Low**: There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

Some linkages may be identified which constitutes a theoretical connection between a source and a receptor, but professional judgement shows them not to be possible for some reason. These are labelled 'negligible risk' and 'no linkage' in the summary table, which give rise to an overall **negligible** risk category and no further action is required.

**Ground Gas Risk Assessment**

BS8485:2015+A1:2019, BS 8576:2013, CL:AIRE RB17, and NHBC 'Hazardous Ground Gas - An essential guide for housebuilders' 2023, are the current guidance which gives up-to-date advice on all aspects of permanent ground gas risk. BS8576 alongside CIRIA C682 also provides guidance on assessment of hydrocarbon vapour intrusion.

The CL:AIRE publication 'Good Practice for Coal Mine Gas Emissions" 2021 provides guidance on the assessment of risks from mine gas sources.

The above all outline good practice in investigation, the collection of relevant data and monitoring programmes in a risk-based approach to ground gas contamination. The aim of the guidance is for a consistent approach to decision making, particularly relating to the scope of protective design measures on a site-specific basis.

*Legislative Framework*
BS8485:2015+A1:2019, BS 8576:2013 and CIRIA C665 provides technical guidance, however they also recognise the context into which the guidance has to be employed. Government policy is based upon a "suitable for use approach", which is relevant to both the current and proposed future use of land. When considering the current use of land, Part IIA of the Environment Protection Act 1990 provides the regulatory regime. The presence of hazardous ground gases could provide the "source" in a "pollutant linkage" which could lead the regulator to determine that considerable harm or there is a significant possibility of such harm being caused. Under such circumstances, the regulator would determine the land to be "contaminated land" under the provisions of the Act, setting out the process of remediation as described in the DETR Circular 02/2000 *Statutory guidance on contaminated land*.

*Generation Potential of Sources*
BS 8576:2013 Figure 6 provides a basis for assessing the generation potential from sources identified as part of the Phase I Assessment. These are summarised below:

| Generation Potential | Typical Sources |
|---|---|
| Very Low | • Natural carbonate soil and strata, e.g. chalk and limestone.<br>• Natural soil strata with a low degradable organic content, e.g. alluvium, peat.<br>• In-filled pond less than 15 m diameter, in-filled before 1930s to 1940s.<br>• Made ground with low degradable organic content (e.g. up to 5% organic material such as pieces of wood, pieces of paper, rags, etc. with a high proportion of ash and no food or other easily degradable waste).<br>• Mine workings shallow or shaft (where there is clear evidence that they are flooded).<br>• Inert landfill sites. |
| Low | • Natural soil strata with a high degradable organic content (DOC).<br>• Made ground with total organic carbon (TOC) up to 6% (e.g. dock silt, no food or other easily degradable waste).<br>• Foundry sand (includes phenolic binders, rags and wood that decay, albeit at low rates).<br>• Landfill 1945 to mid 1960s (see also Moderate below). |
| Moderate | • Sewage sludge.<br>• Mine workings – unflooded, more than 50 years since last worked (gas is liberated from coal when mine workings are excavated; this continues for up to about 50 years).<br>• Landfill 1945 to mid 1960s (this could also be "low" or, if disturbed, "high"). |
| High | • Landfill mid 1960s to early 1990s.<br>• Mine workings – unflooded – less than 50 years since last worked. |
| Very High | • Municipal landfill sites.<br>• Landfill early 1990s onward. |

*Frequency and Duration of Monitoring*

BS8576 notes to determine where and how to monitor ground gases requires consideration of credible pathways of possible exposure of the receptors, taking into account what is known about the geology and hydrogeology, building construction and services layout, foreseeable events such as flooding, changes in groundwater level, climate change, extreme weather conditions, the closure of mines, and possible changes to the gas regime caused by future development.

The monitoring period for a specific site should cover the "worst case" scenario. A "worst case" scenario will typically occur during falling atmospheric pressure and, in particular, weather conditions such as rainfall, frost and dry weather.

The benefits of additional information and whether it is likely to change the scope of gas protection should be considered, as are the consequences of failing to characterise adequately pollutant linkages. Investigations concerned with ground gas are required to provide monitoring data sufficient to allow prediction of worst case conditions enabling the confident assessment of risk and subsequent design of appropriate gas protection schemes. Monitoring programmes should not be an academic exercise in data collection. CL:AIRE publication TB17 "Ground Gas Monitoring and 'Worst-Case' Conditions" provides further guidance.

Below are matrices that will aid in determining an appropriate number of gas monitoring visits and the length of monitoring period.

*Typical/idealised periods of monitoring*

| | | Generation of Potential Source | | | | |
|---|---|---|---|---|---|---|
| | | Very Low | Low | Moderate | High | Very High |
| Sensitivity of Development | Low (Commercial) | 1 month | 2 months | 3 months | 6 months | 12 months |
| | Moderate (Apartments) | 2 months | 3 months | 6 months | 12 months | 24 months |
| | High (Low rise Residential) | 3 months | 6 months | 6 months | 12 months | 24 months |

*Typical/idealised frequency of monitoring/Number of Visits Required*

| | | Gas Generation of Potential Source | | | | |
|---|---|---|---|---|---|---|
| | | Very Low | Low | Moderate | High | Very High |
| Sensitivity of Development | Low (Commercial) | 4 | 6 | 6 | 12 | 12 |
| | Moderate (Apartments) | 6 | 6 | 9 | 12 | 24 |
| | High (Low rise Residential) | 6 | 9 | 12 | 24 | 24 |

**Notes**

1 Generation potential of sources based on descriptions within BS 8576:2013.

2 At least two sets of readings should be at low and falling atmospheric pressure (but not restricted to periods below <1000 mb) known as worst case conditions. Historical data can be used as part of the data set (Table 5.5b).

*RB17 Approach*

CL:AIRE RB17 (Card et al 2012) is a pragmatic approach to ground gas risk assessment and was developed because gas concentration, pressure and flow rate measured in a well headspace may not be representative of the conditions in the surrounding formation.

In these low-risk situations, the approach is to use the conceptual site model and the estimation of the likely gas generation from a source to identify where or if gas monitoring is required to better define the risks.

Under this approach, for sites with natural soils only with no credible methane source, then no action is required (no monitoring or gas protection measures) as this represents Characteristic Situation 1 (CS1).

*Radon*
Advice on radon protection in England is provided by the UK Health Security Agency, https://www.ukradon.org/information/ukmaps and by the BRE (BR 211 (Scivyer 2023)).

Areas of the country can be categorised according to the percentage of existing homes where radon is present above the Action Level:

- 0-1% lower probability.
- 1-3% and 3-10% intermediate probability.
- >10% higher probability.

Basic radon protection measures are required in new buildings and extensions in areas of England and Wales where 3-10% of properties exceed the Action Level and full radon protection measures where >10% exceed the Action Level.

**Unexploded Ordnance (UXO) Guidance**

Clients have a legal duty under the CDM 2015 Regulations to provide designers and contractors with project-specific health and safety information needed to identify hazards and risks. This includes the possibility of unexploded ordnance (UXO) being encountered on the site. Further details are given in CIRIA report C681.

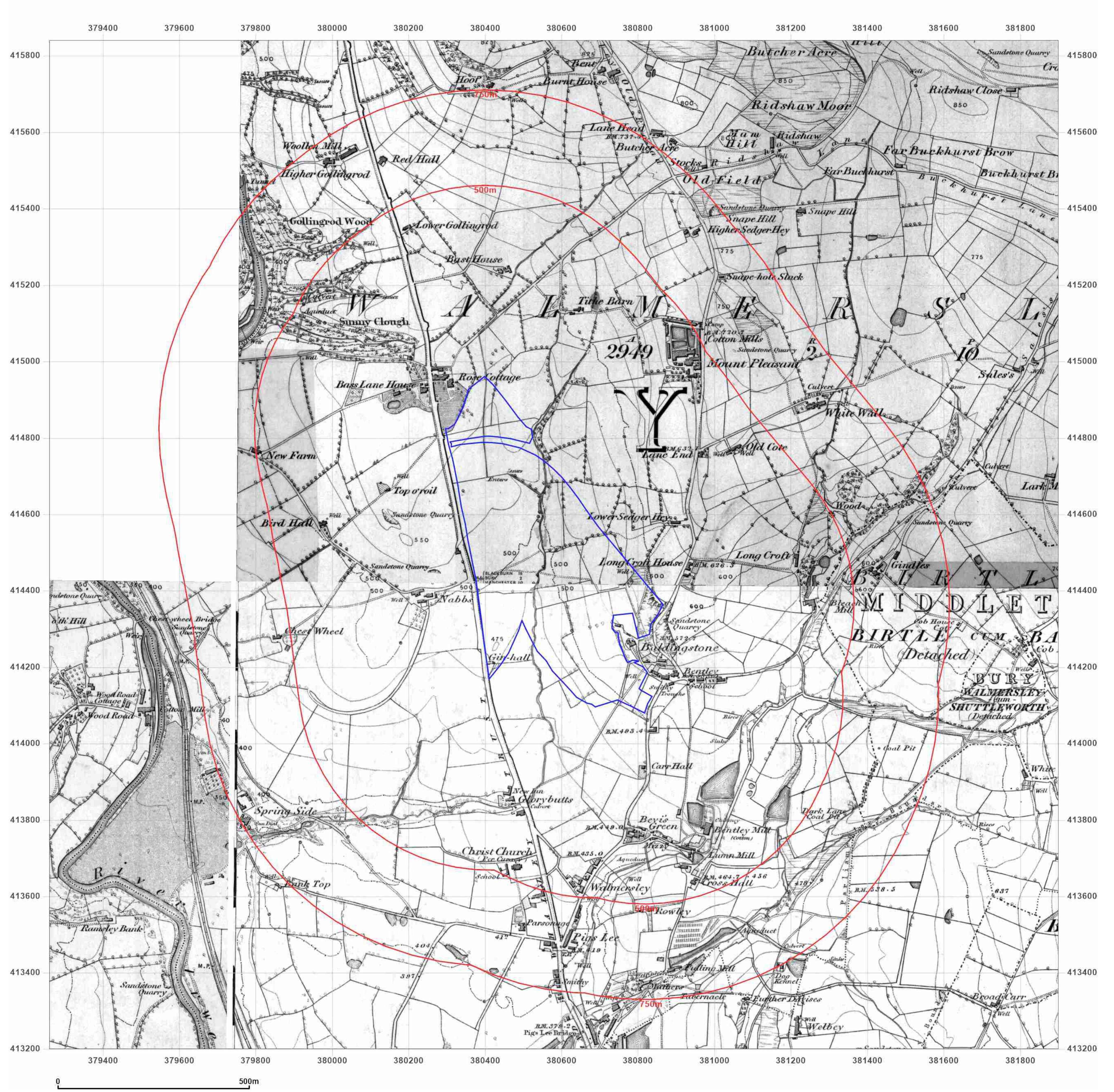
BSL carry out non-specialist UXO screening exercises by considering any evidence of UK defence activities on or near the site evident from gathered desk study information and the unexploded aerial delivered bomb (UXB) online risk maps produced by Zetica. Other data sources are available, but as a first stage screening exercise the freely available online Zetica maps have been used. The level of risk stated is that determined by Zetica, a company experienced and considered competent in the assessment of UXO.

**Geotechnical Guidance**

A preliminary risk assessment of geotechnical hazards is carried out at the desk study stage and confirmed (or amended) at the ground investigation stage. The desk-based stage my include the requirements for a Coal Mining Risk Assessment (CMRA) which specifically assesses the risks from mining induced instability and related issues in high risk development areas: https://www.gov.uk/guidance/planning-applications-coal-mining-risk-assessments

# APPENDIX B

**Historical Maps**




**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB
**Grid Ref:** 380579, 414520

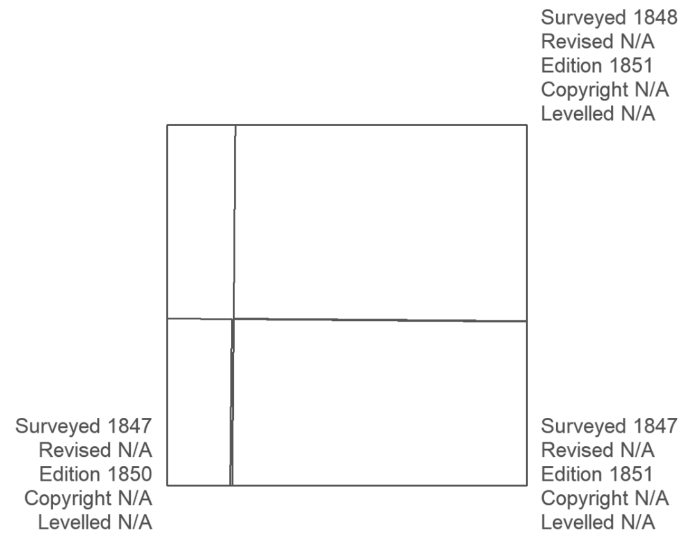
**Map Name:** County Series

**Map date:** **1850-1851**

**Scale:** 1:10,560

**Printed at:** 1:10,560

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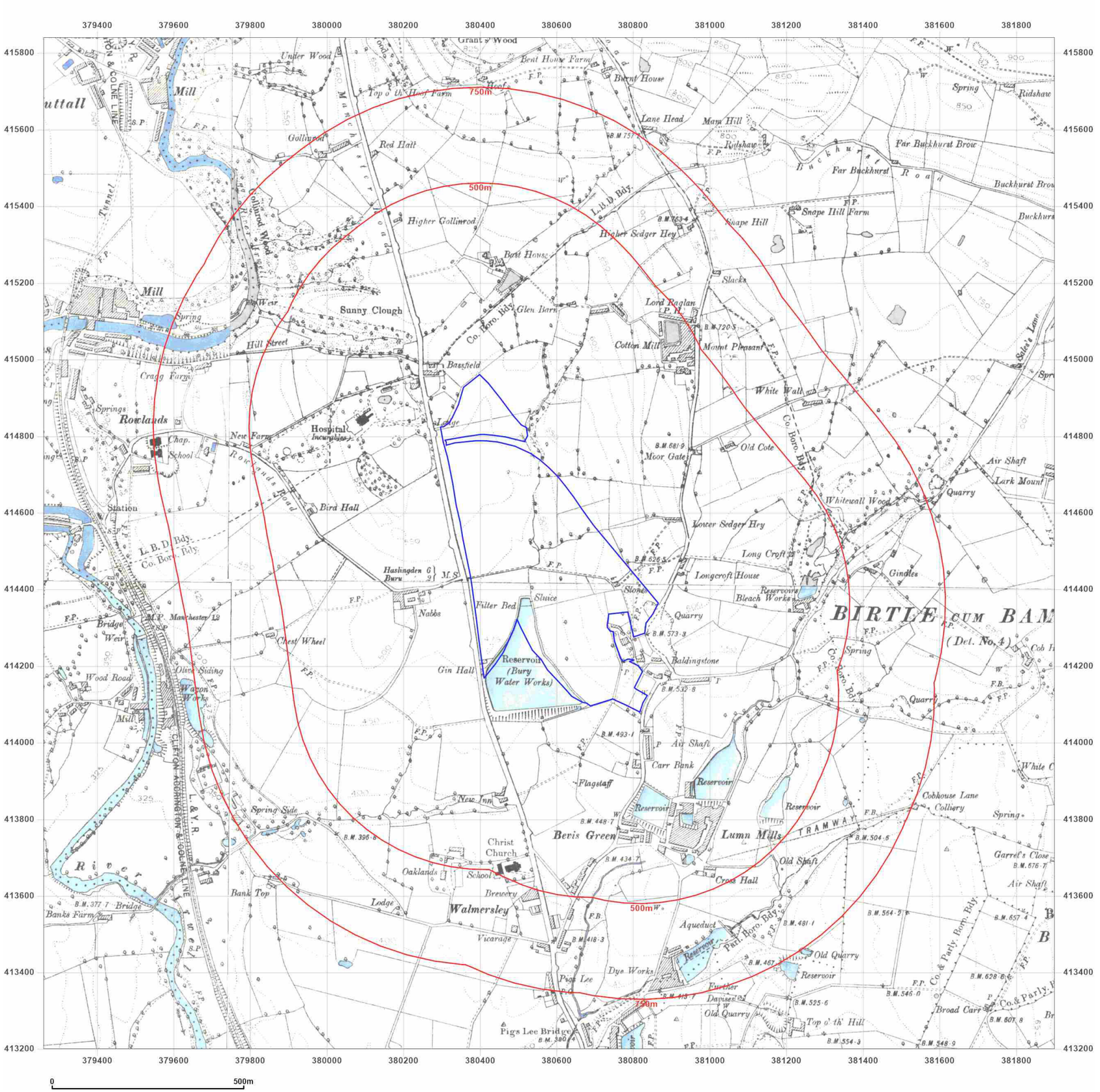



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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB
**Grid Ref:** 380579, 414520

**Map Name:** County Series

**Map date:** **1891**

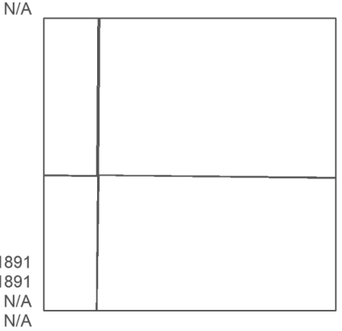
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**Printed at:** 1:10,560

N
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Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

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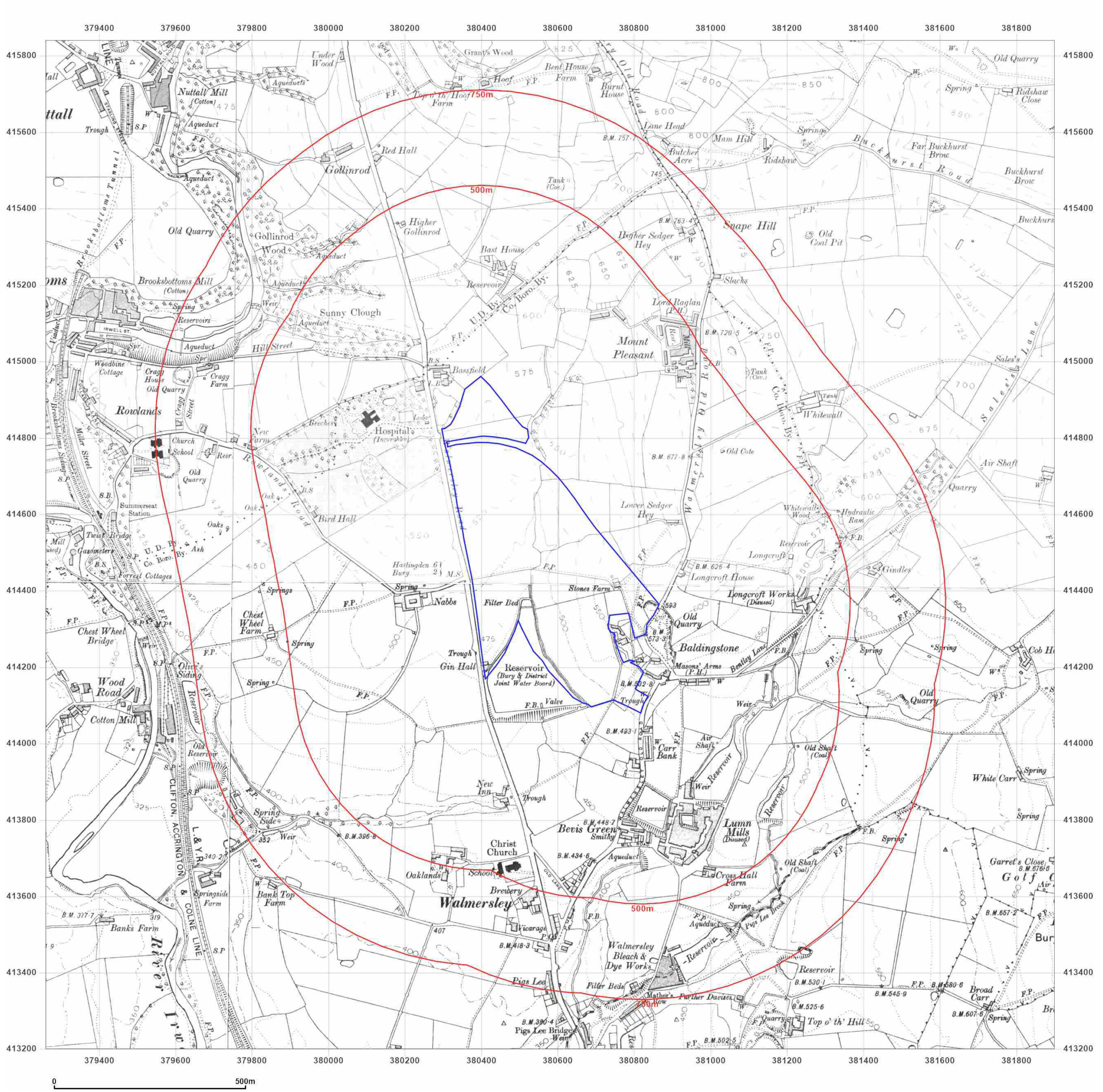
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB
**Grid Ref:** 380579, 414520

**Map Name:** County Series

**Map date:** **1908-1909**

**Scale:** 1:10,560

**Printed at:** 1:10,560

N
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| Surveyed 1848<br>Revised 1908<br>Edition N/A<br>Copyright N/A<br>Levelled N/A | Surveyed 1848<br>Revised 1908<br>Edition N/A<br>Copyright N/A<br>Levelled N/A |
|---|---|
| Surveyed 1844<br>Revised 1909<br>Edition N/A<br>Copyright N/A<br>Levelled N/A | Surveyed 1848<br>Revised 1908<br>Edition N/A<br>Copyright N/A<br>Levelled N/A |

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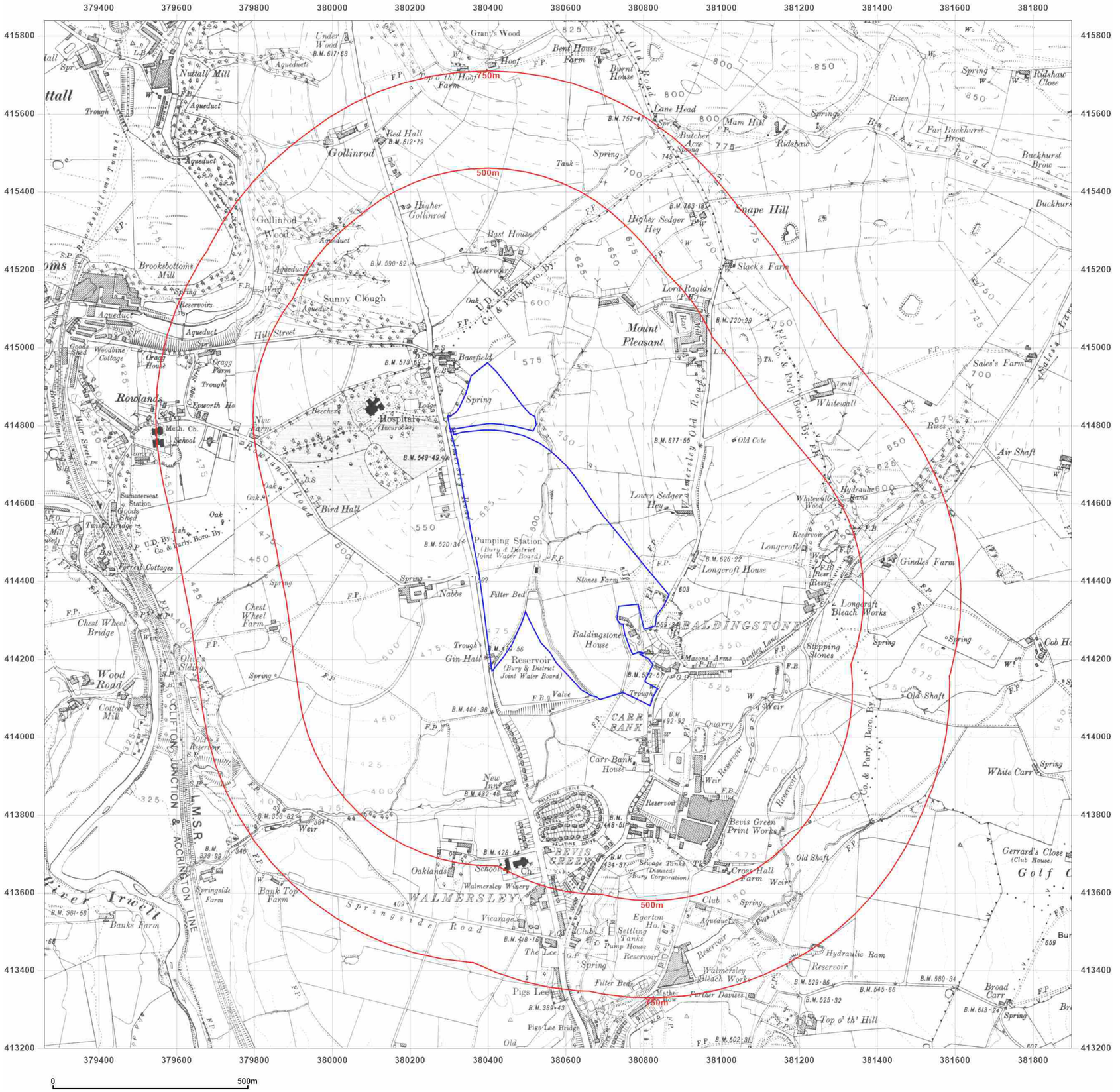
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB
**Grid Ref:** 380579, 414520

**Map Name:** County Series

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**Printed at:** 1:10,560

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Surveyed 1848
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1848
Revised 1928
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1928
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1848
Revised 1928
Edition N/A
Copyright N/A
Levelled N/A

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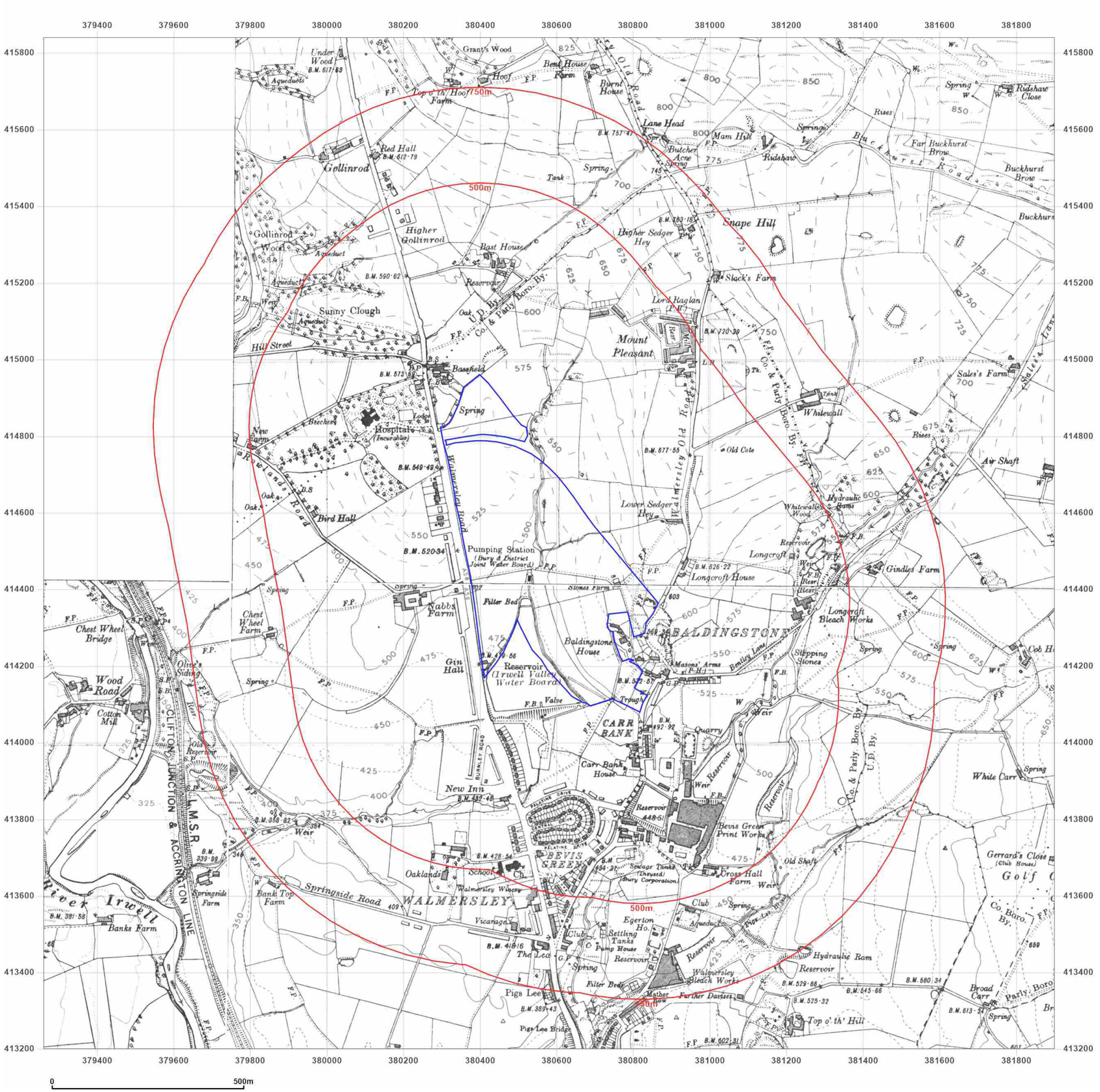
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB
**Grid Ref:** 380579, 414520

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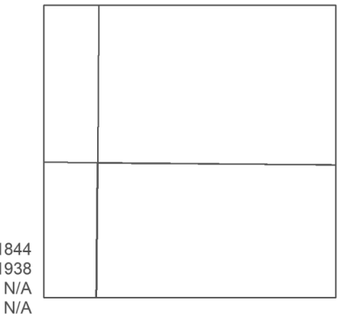
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N
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Surveyed 1848
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1844
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1848
Revised 1938
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Copyright N/A
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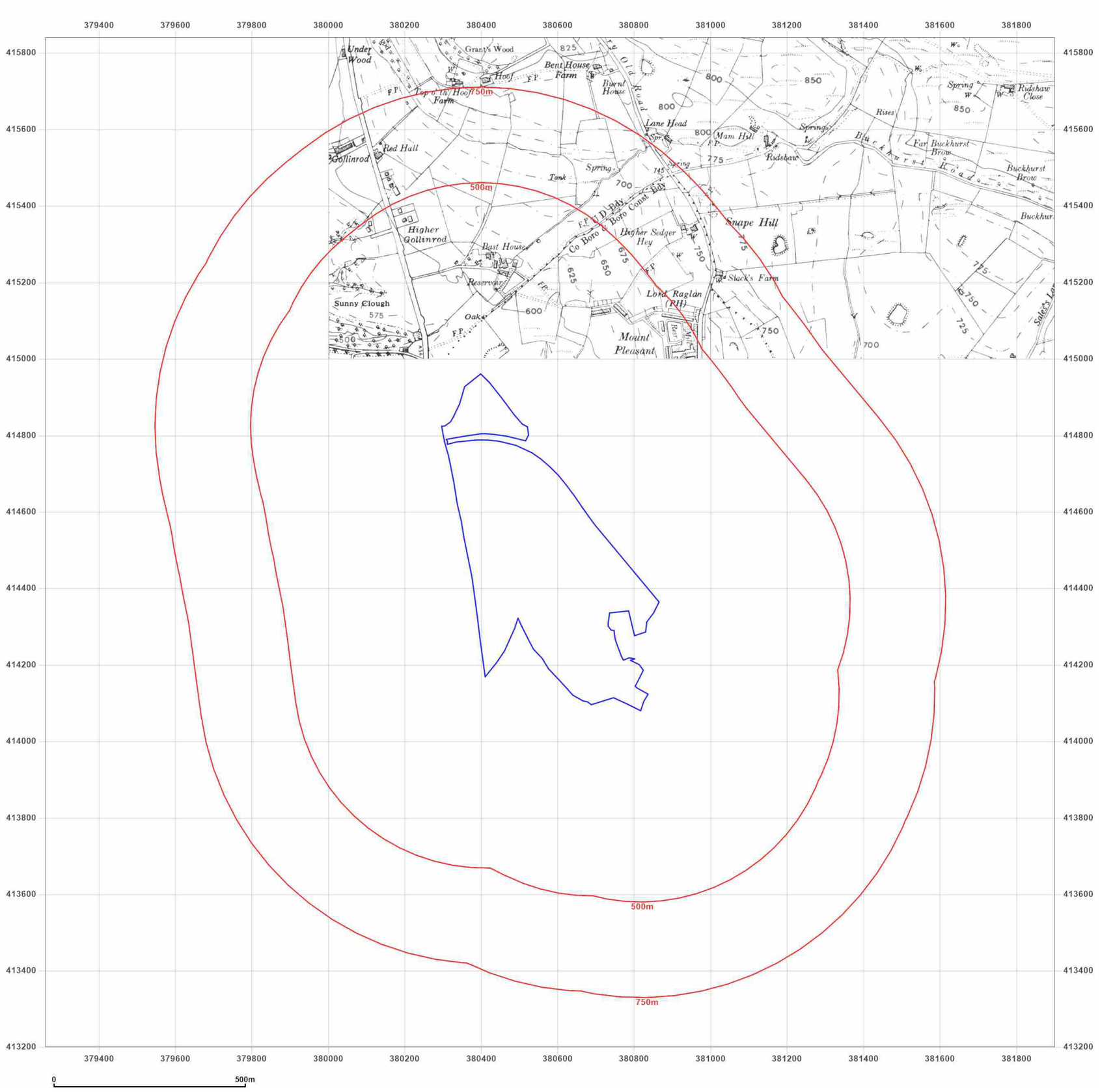
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**Report Ref:** BRO-FEA-BTB-C1J-XVB
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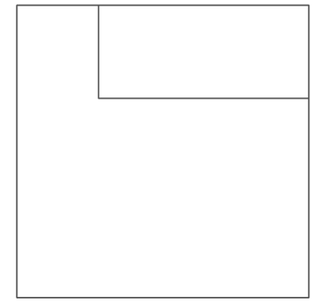
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N
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Surveyed 1949
Revised 1949
Edition N/A
Copyright N/A
Levelled N/A



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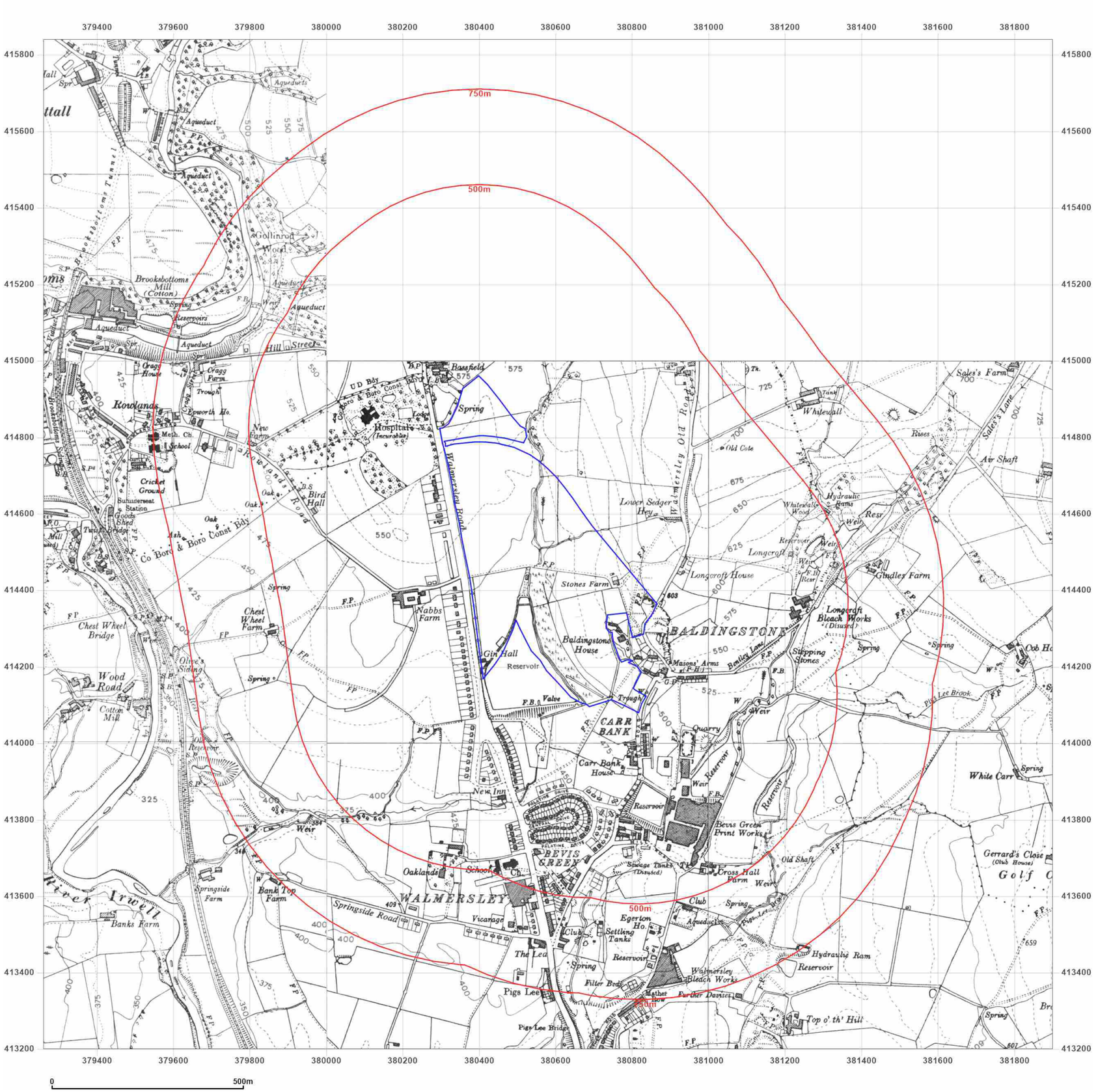
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**Grid Ref:** 380579, 414520

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**Printed at:** 1:10,560

N
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Surveyed 1949
Revised 1949
Edition N/A
Copyright 1955
Levelled N/A

Surveyed 1949
Revised 1949
Edition N/A
Copyright 1956
Levelled N/A

Surveyed 1949
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Edition N/A
Copyright 1956
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Surveyed 1949
Revised 1949
Edition N/A
Copyright 1956
Levelled N/A

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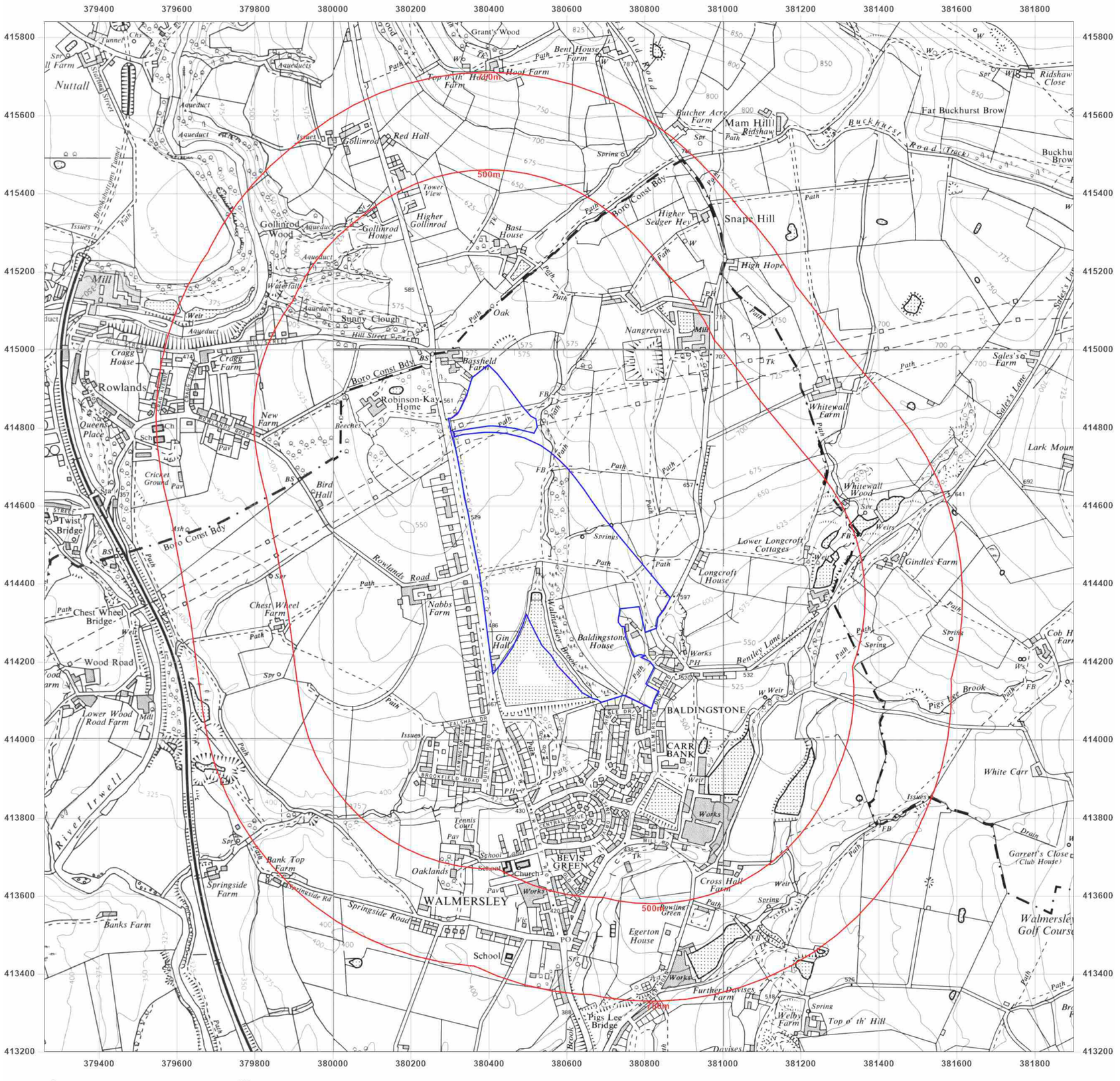
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**Report Ref:** BRO-FEA-BTB-C1J-XVB
**Grid Ref:** 380579, 414520

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**Map date:** **1967-1969**
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**Printed at:** 1:10,560

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Surveyed 1968
Revised 1968
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1967
Revised 1967
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1969
Revised 1969
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1967
Revised 1967
Edition N/A
Copyright N/A
Levelled N/A

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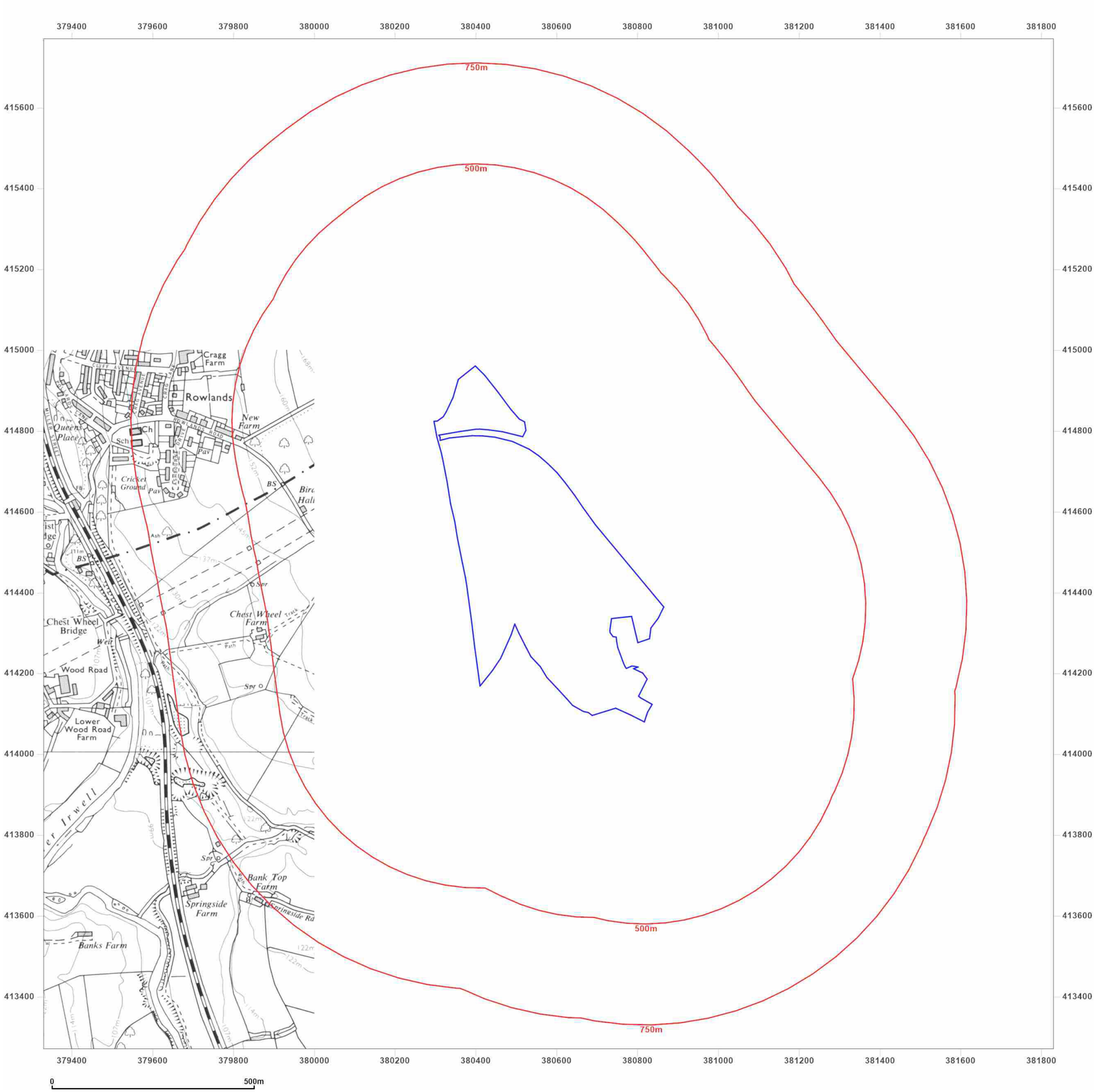
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**Grid Ref:** 380579, 414520

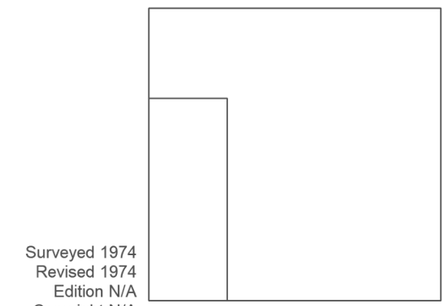
**Map Name:** National Grid

**Map date:** **1974**

**Scale:** 1:10,000

**Printed at:** 1:10,000

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Surveyed 1974
Revised 1974
Edition N/A
Copyright N/A
Levelled N/A

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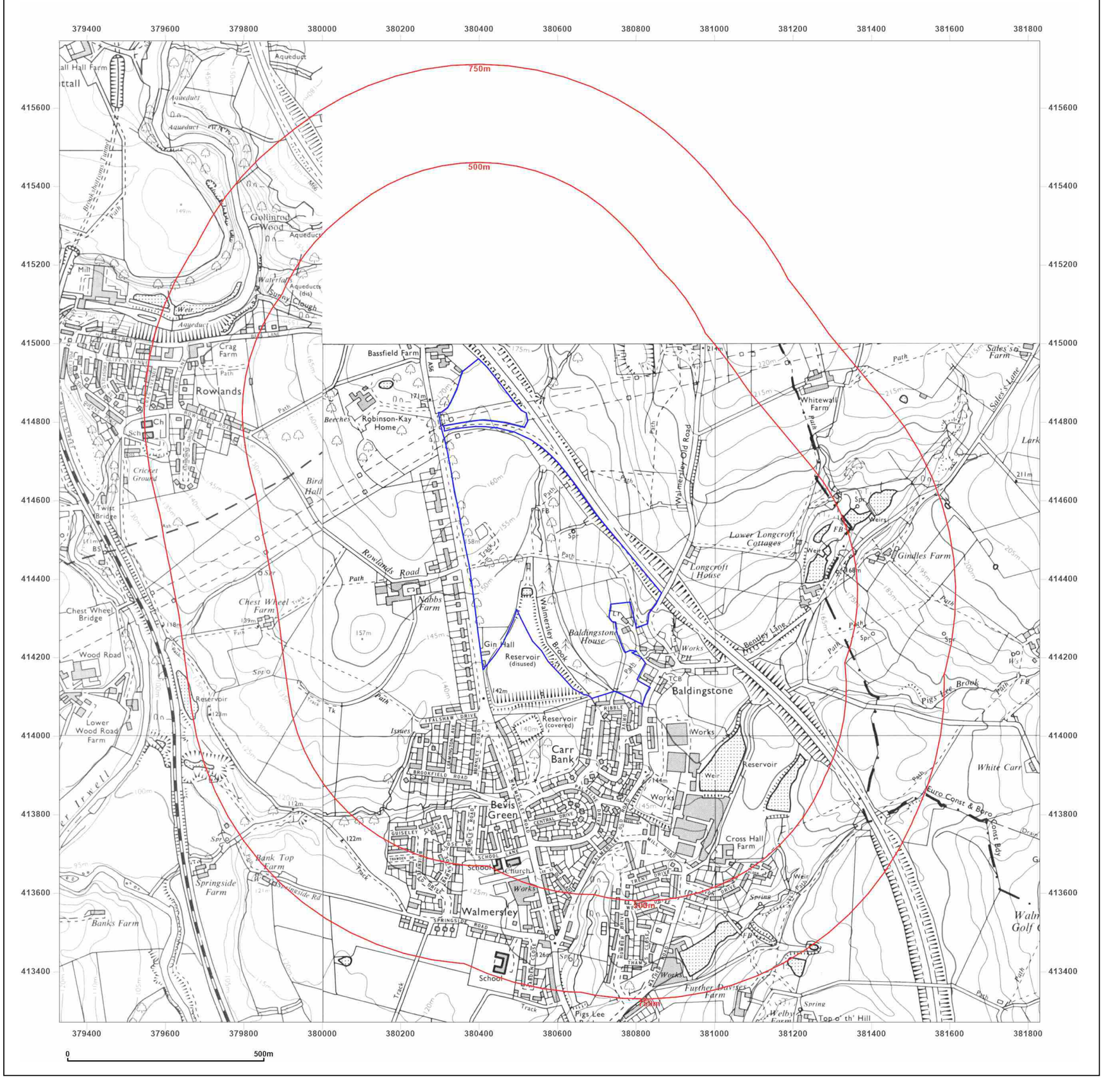
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**Report Ref:** BRO-FEA-BTB-C1J-XVB
**Grid Ref:** 380579, 414520

**Map Name:** National Grid

**Map date:** **1980-1983**

**Scale:** 1:10,000

**Printed at:** 1:10,000

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Surveyed 1978
Revised 1980
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1978
Revised 1980
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1977
Revised 1983
Edition N/A
Copyright N/A
Levelled N/A

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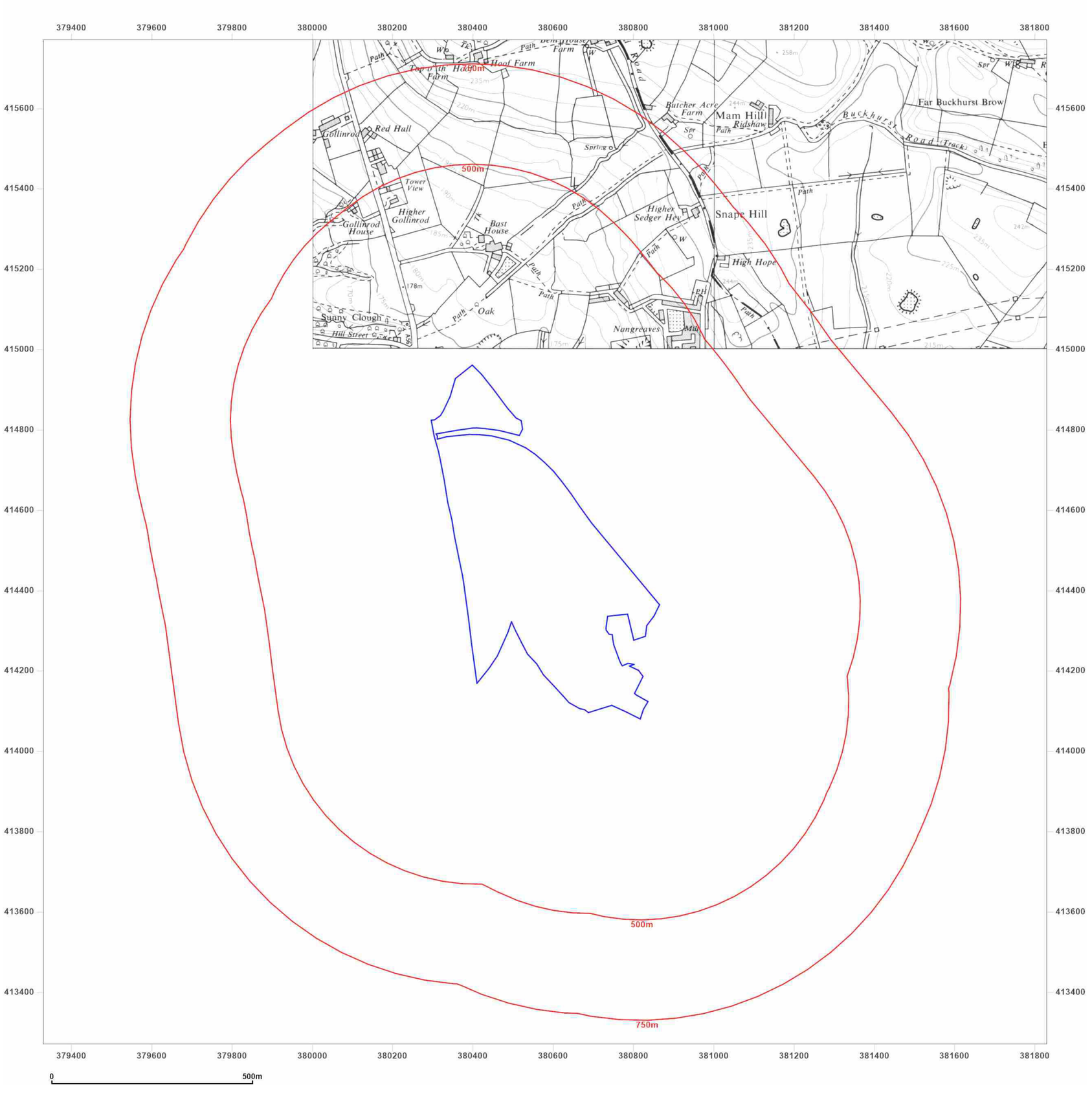
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**Grid Ref:** 380579, 414520

**Map Name:** National Grid

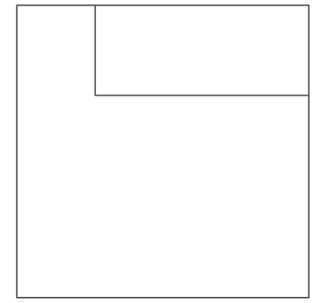
**Map date:** **1987**

**Scale:** 1:10,000

**Printed at:** 1:10,000

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Surveyed 1962
Revised 1987
Edition N/A
Copyright N/A
Levelled N/A



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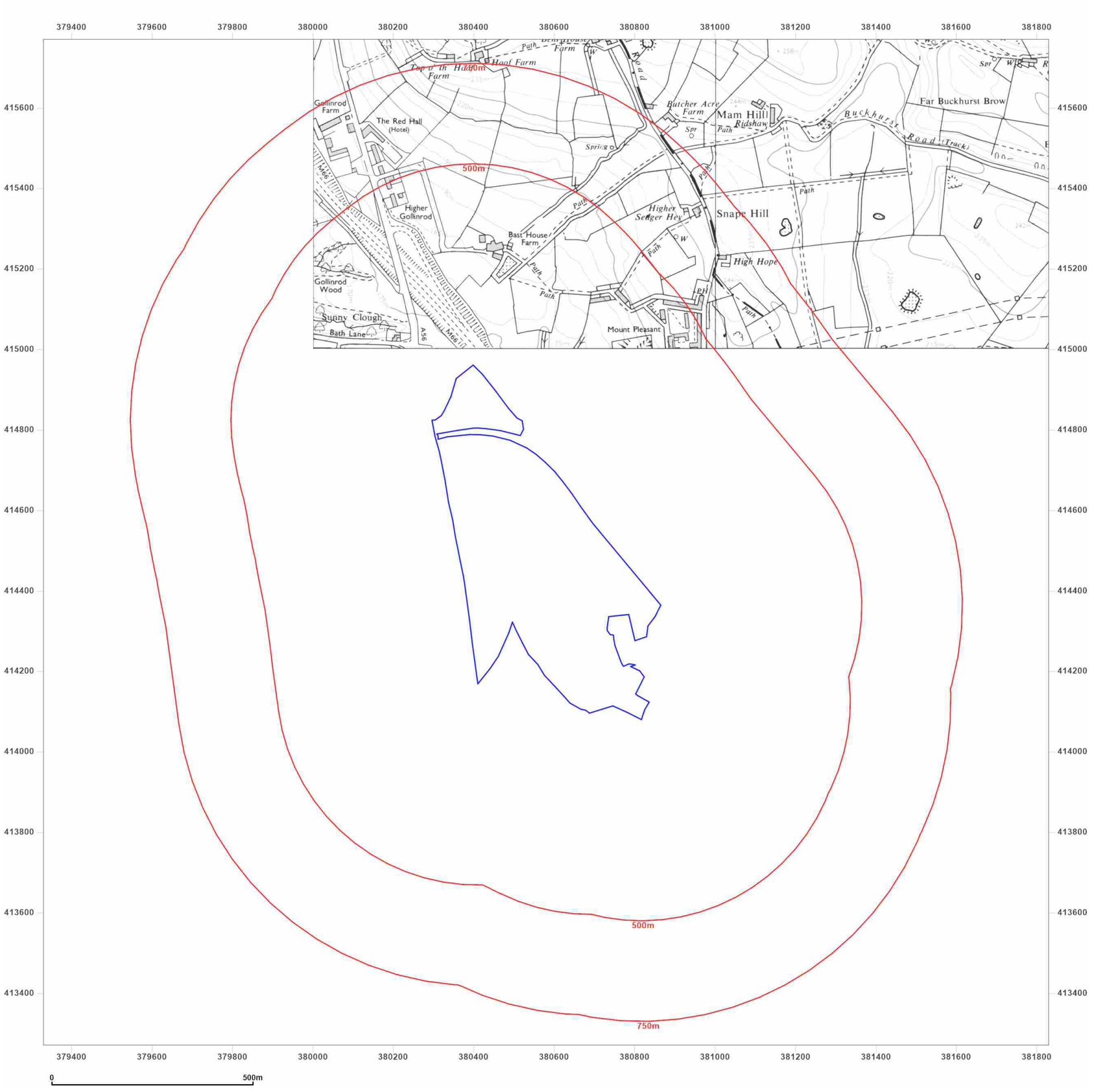
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB
**Grid Ref:** 380579, 414520

**Map Name:** National Grid

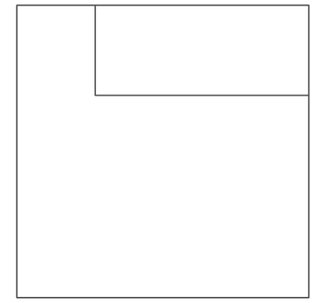
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**Printed at:** 1:10,000

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Surveyed 1962
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A



Groundsure INSIGHTS

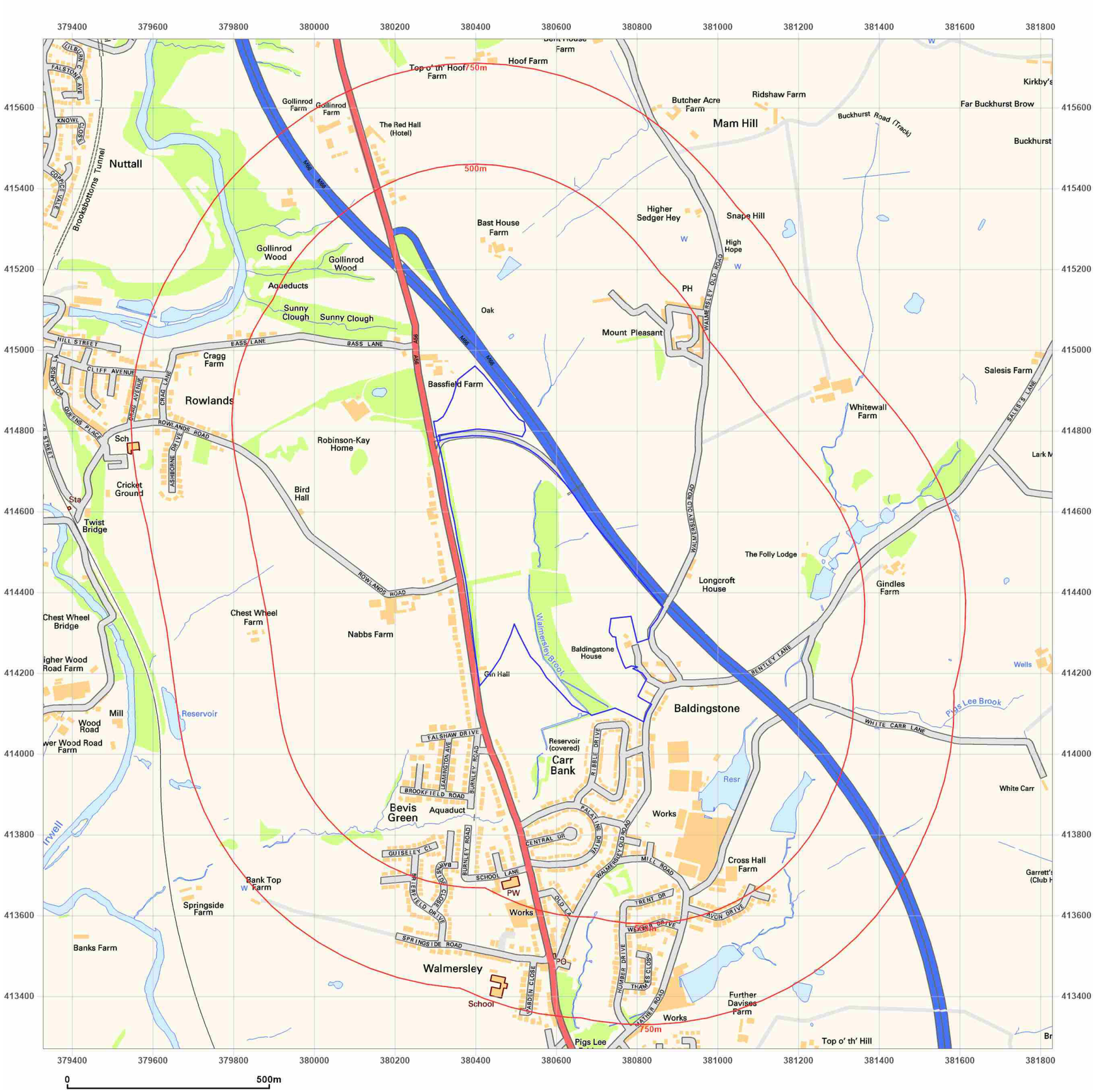
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB
**Grid Ref:** 380579, 414520

**Map Name:** National Grid

**Map date:** **2001**

**Scale:** 1:10,000

**Printed at:** 1:10,000

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2001

Groundsure INSIGHTS

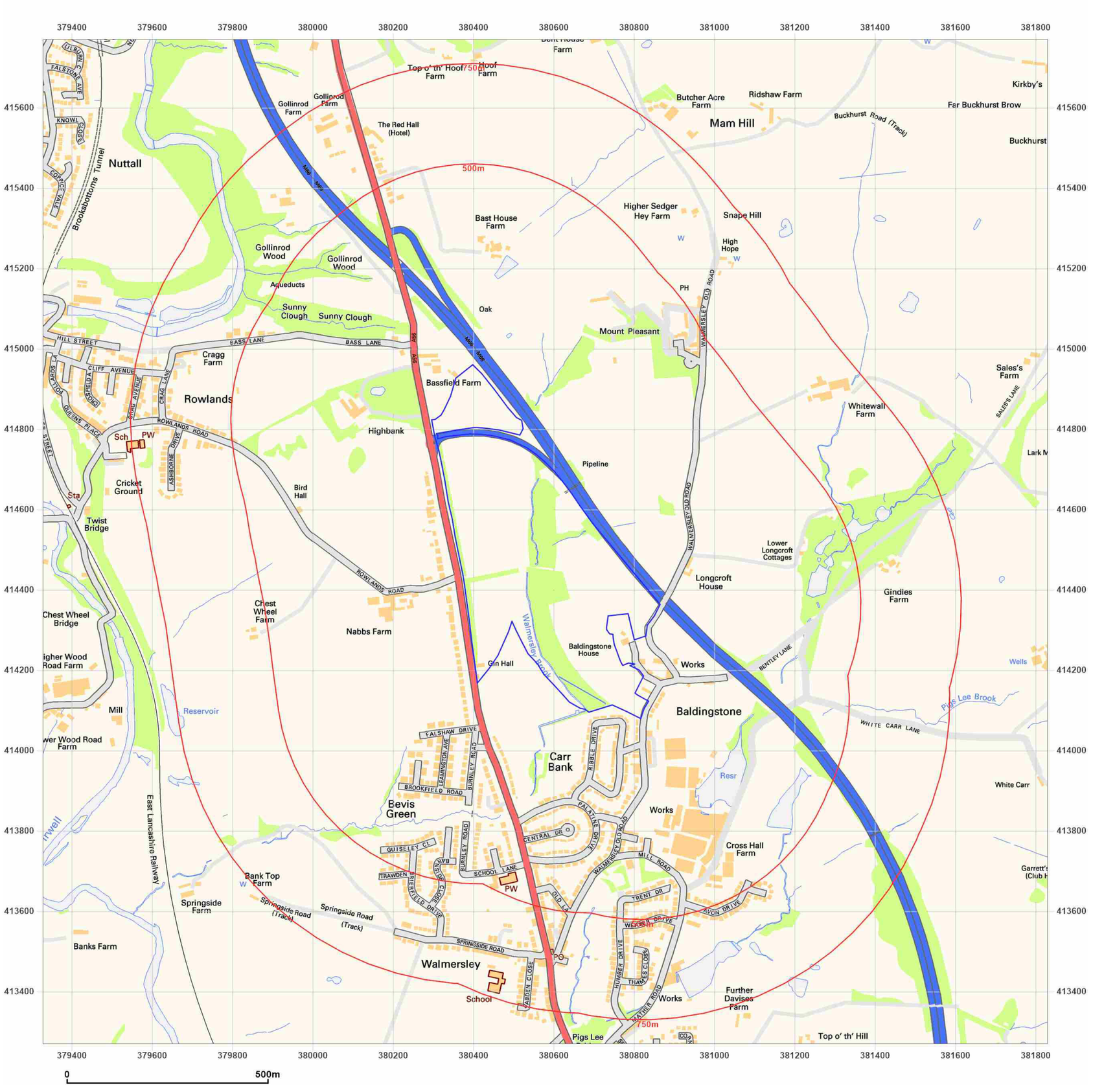
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB
**Grid Ref:** 380579, 414520

**Map Name:** National Grid

**Map date:** **2010**

**Scale:** 1:10,000

**Printed at:** 1:10,000

N
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2010

Groundsure INSIGHTS

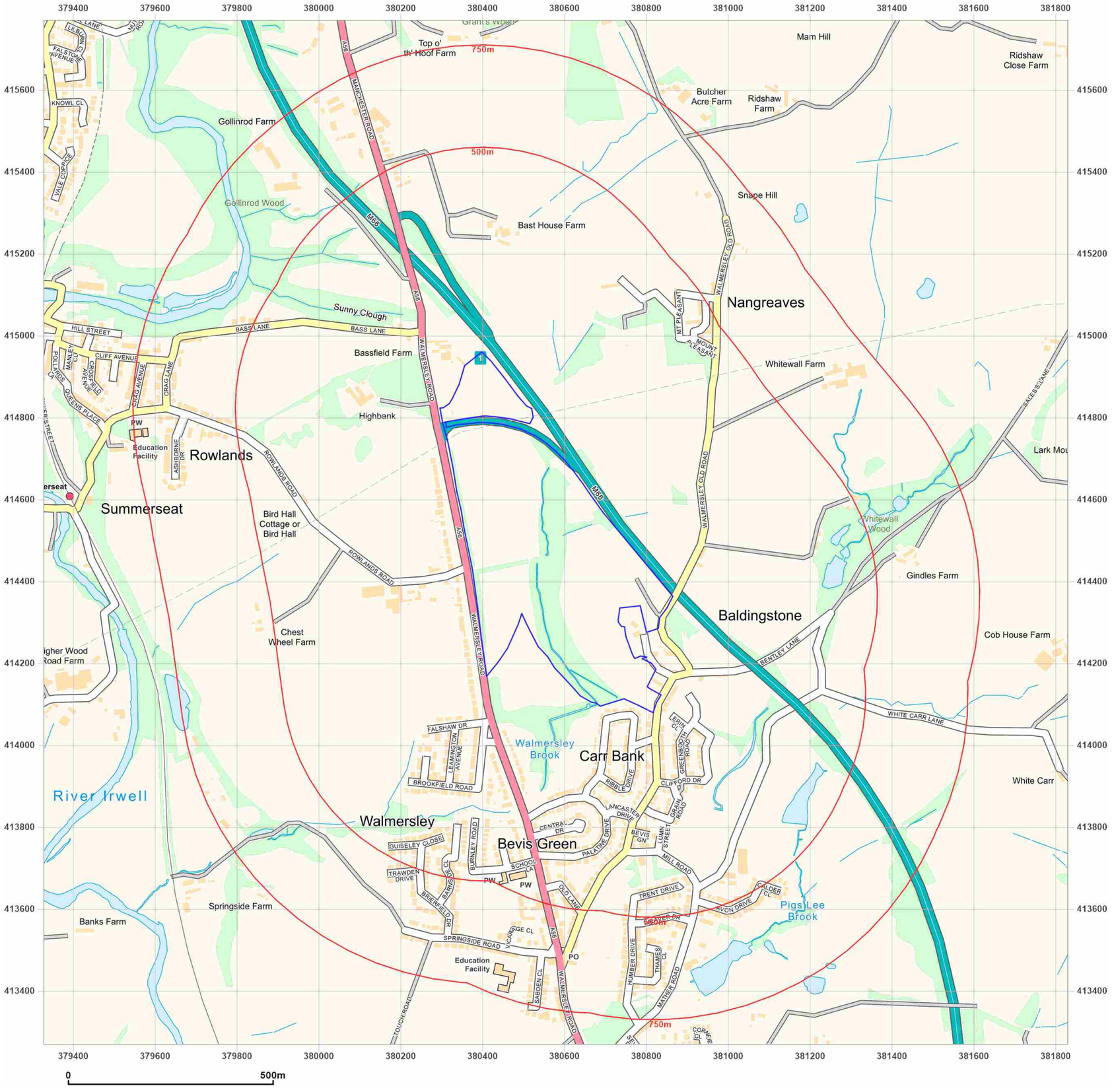
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB
**Grid Ref:** 380579, 414520

**Map Name:** National Grid

**Map date:** **2025**

**Scale:** 1:10,000

**Printed at:** 1:10,000

N
W E
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2025

Groundsure INSIGHTS

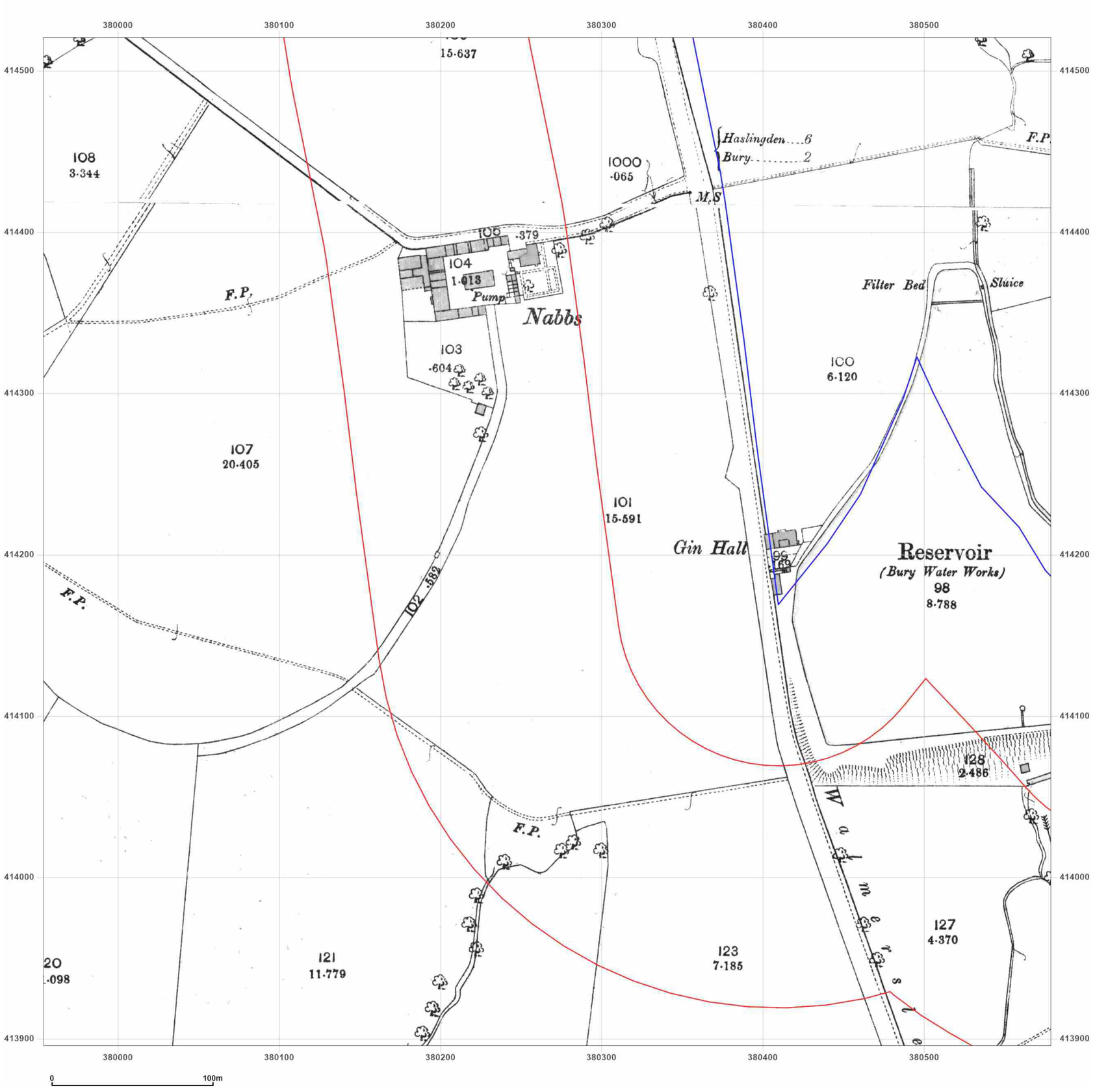
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_1
**Grid Ref:** 380266, 414208

**Map Name:** County Series

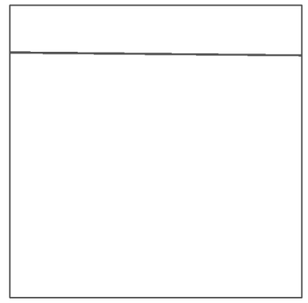
**Map date:** **1891**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
S

Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

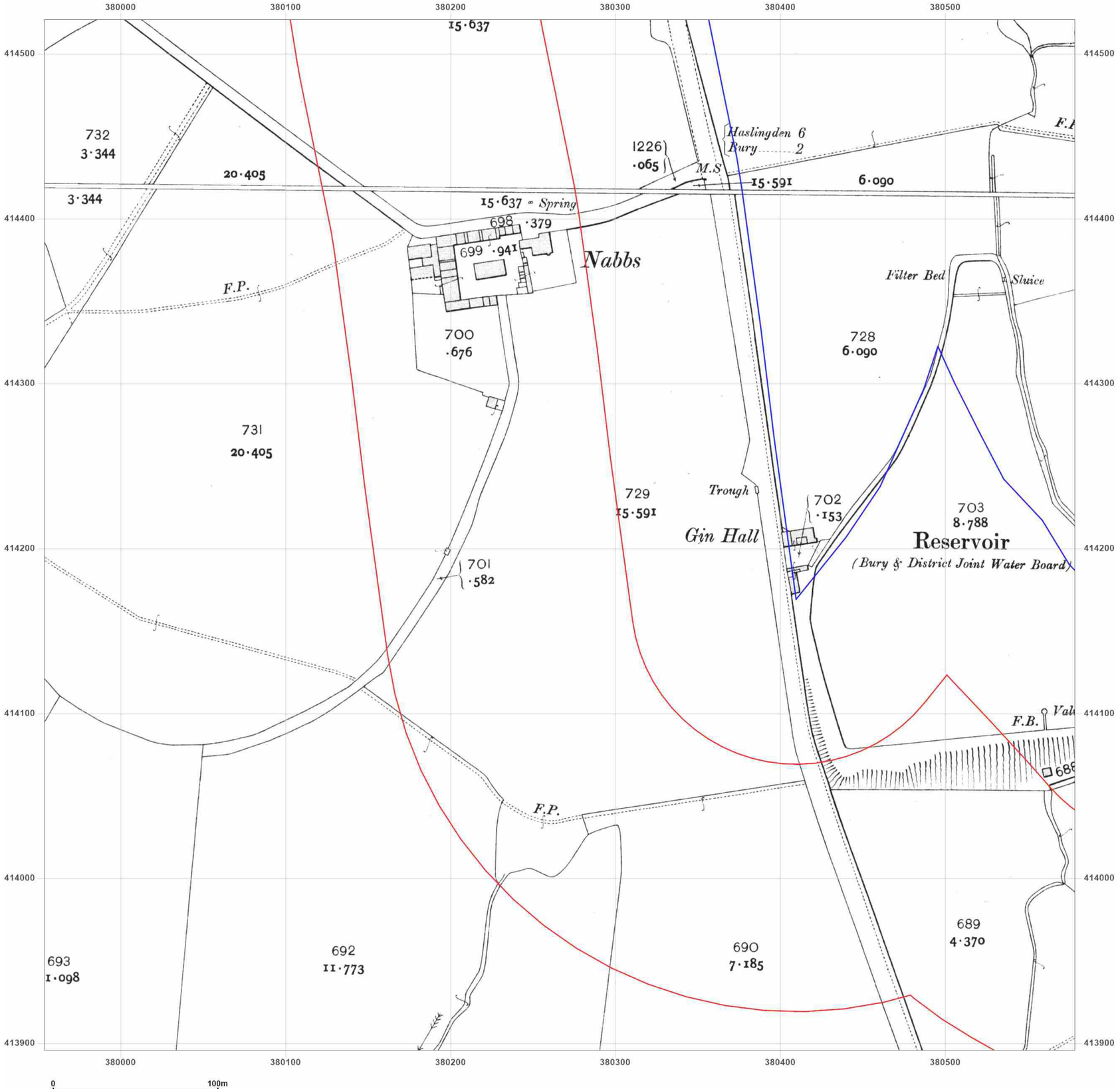
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_1
**Grid Ref:** 380266, 414208

**Map Name:** County Series
**Map date:** **1910**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
S

Surveyed 1910
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1910
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

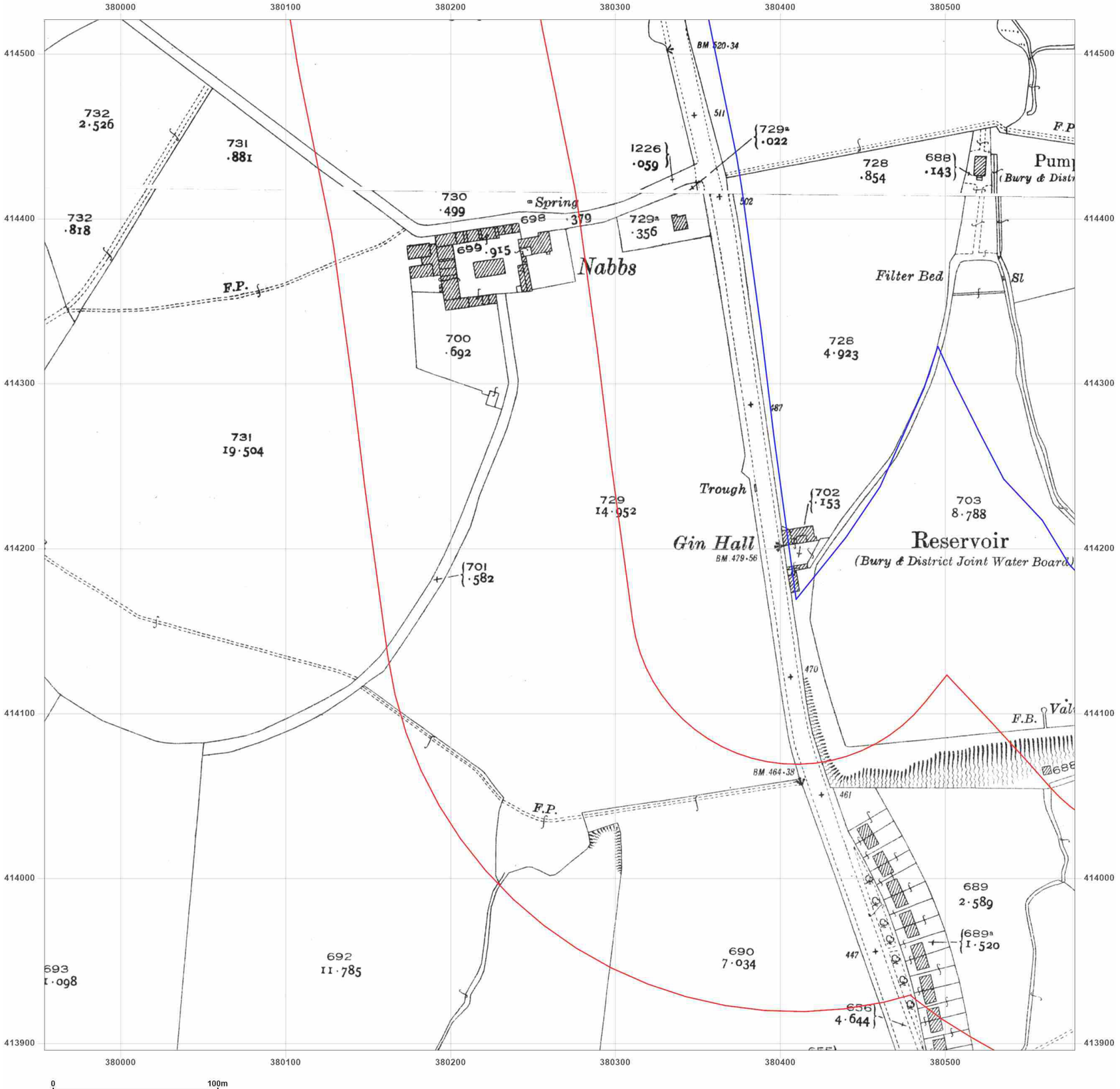
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_1
**Grid Ref:** 380266, 414208

**Map Name:** County Series

**Map date:** **1929-1930**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
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Surveyed 1929
Revised 1929
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1930
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

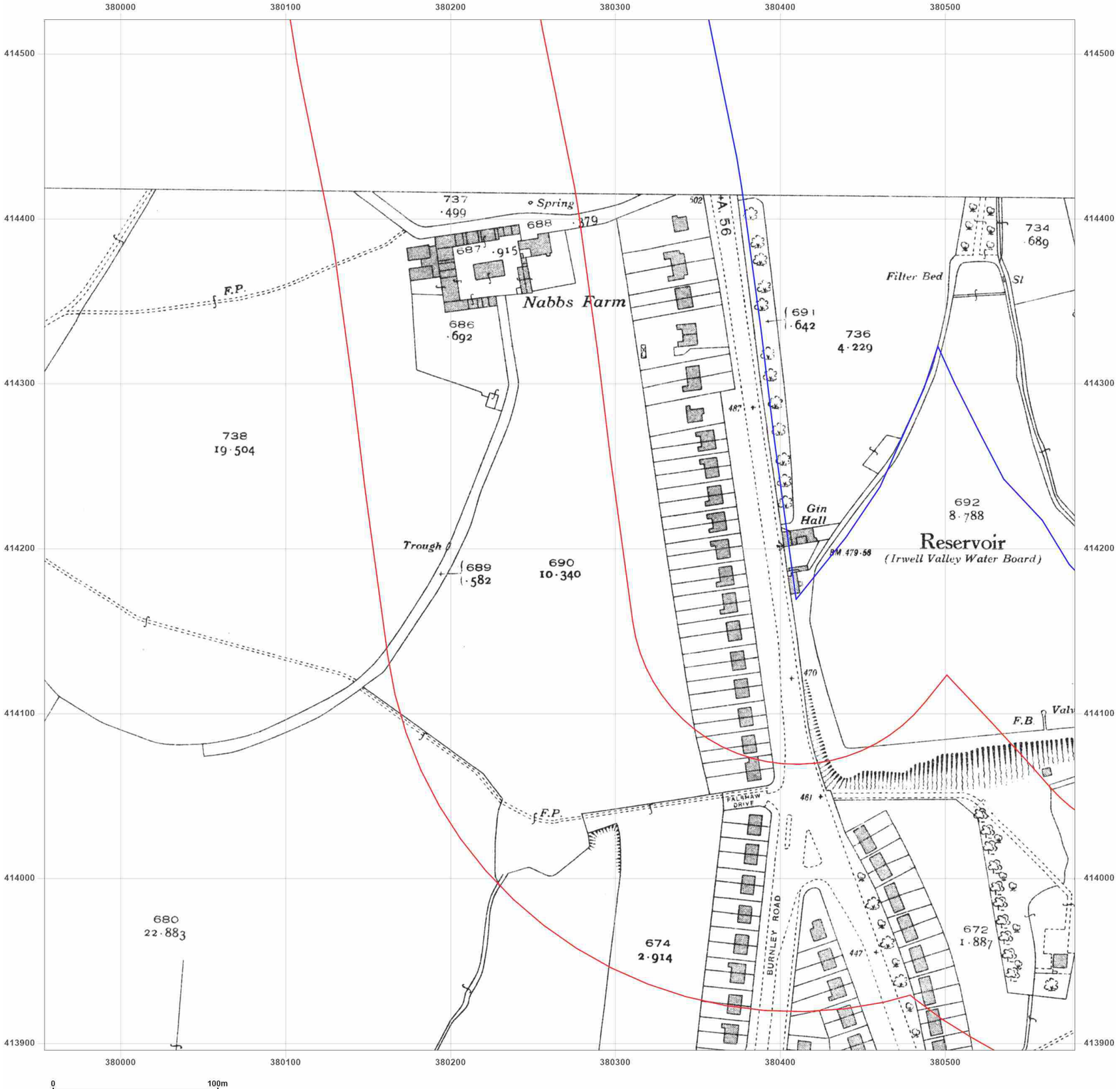
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_1
**Grid Ref:** 380266, 414208

**Map Name:** County Series
**Map date:** **1937**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
S

Surveyed 1937
Revised 1937
Edition N/A
Copyright N/A
Levelled N/A

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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_1
**Grid Ref:** 380266, 414208

**Map Name:** National Grid

**Map date:** **1960-1964**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
S

Surveyed 1962
Revised 1962
Edition N/A
Copyright 1963
Levelled 1957

Surveyed 1962
Revised 1962
Edition 1964
Copyright 1964
Levelled 1956

Surveyed 1959
Revised 1959
Edition 1960
Copyright 1960
Levelled 1957

Surveyed 1961
Revised 1961
Edition 1963
Copyright 1963
Levelled 1956

Groundsure INSIGHTS

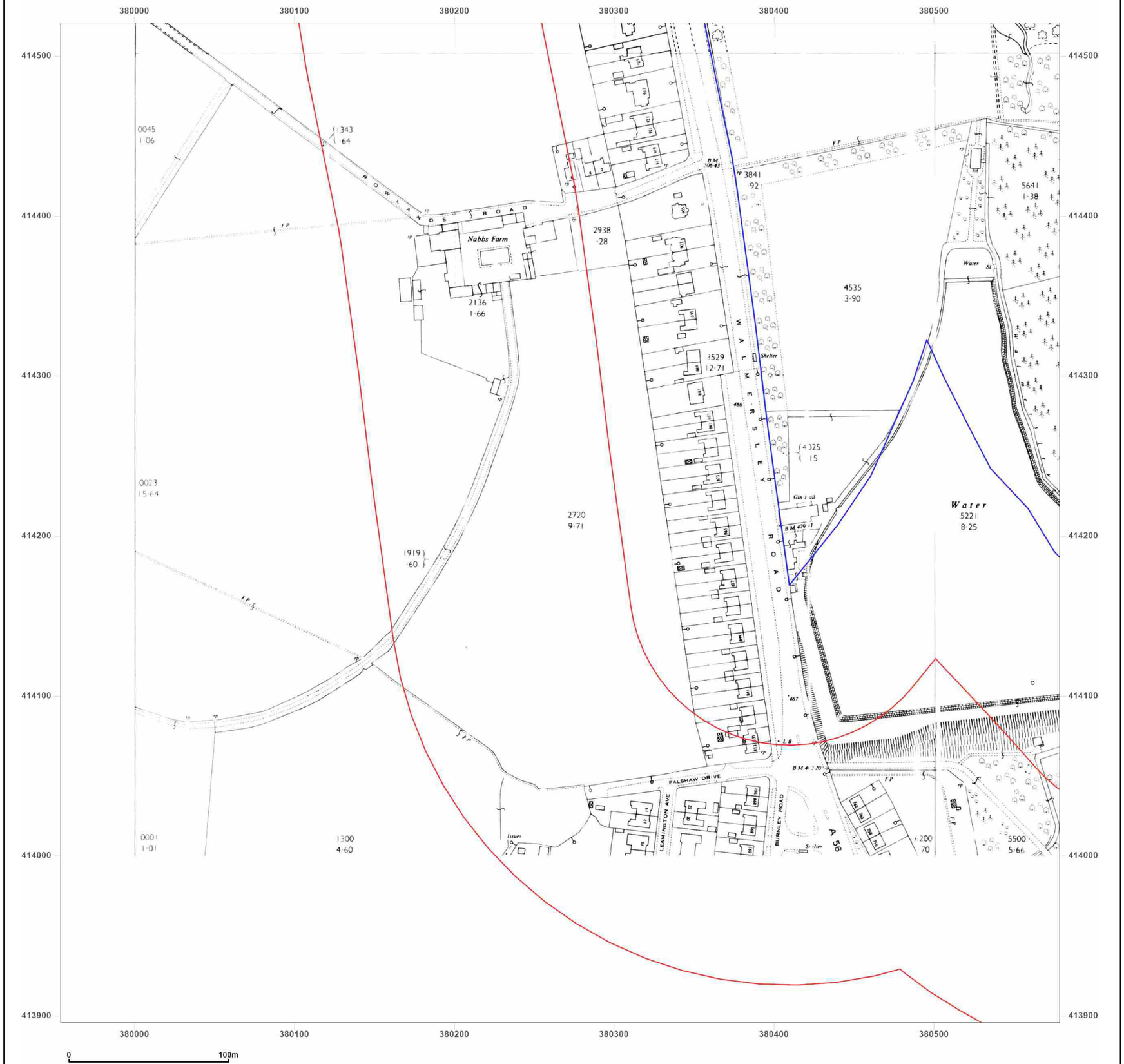
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_1
**Grid Ref:** 380266, 414208

**Map Name:** National Grid

**Map date:** **1964**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A


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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_1
**Grid Ref:** 380266, 414208

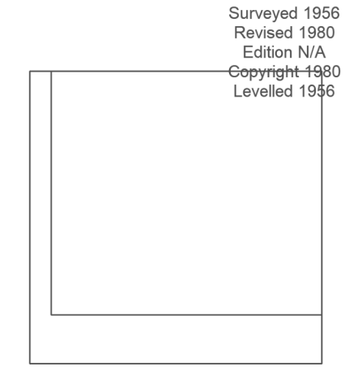
**Map Name:** National Grid

**Map date:** **1980**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_1
**Grid Ref:** 380266, 414208

**Map Name:** National Grid
**Map date:** **1980**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
S

Surveyed 1956
Revised 1980
Edition N/A
Copyright 1980
Levelled 1956

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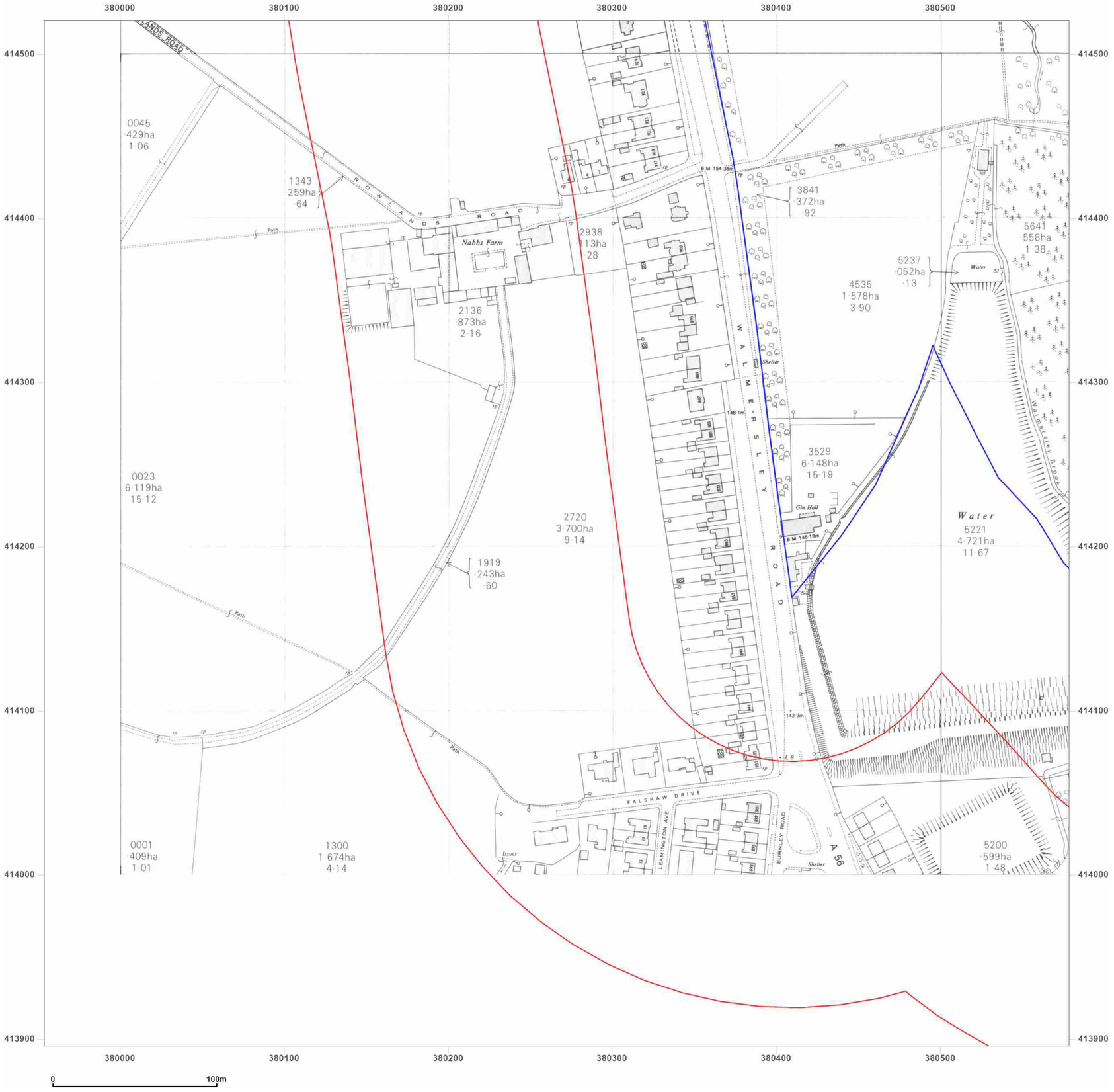
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_1
**Grid Ref:** 380266, 414208

**Map Name:** National Grid

**Map date:** **1987**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
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Surveyed 1959
Revised 1985
Edition N/A
Copyright 1987
Levelled 1956

Groundsure INSIGHTS

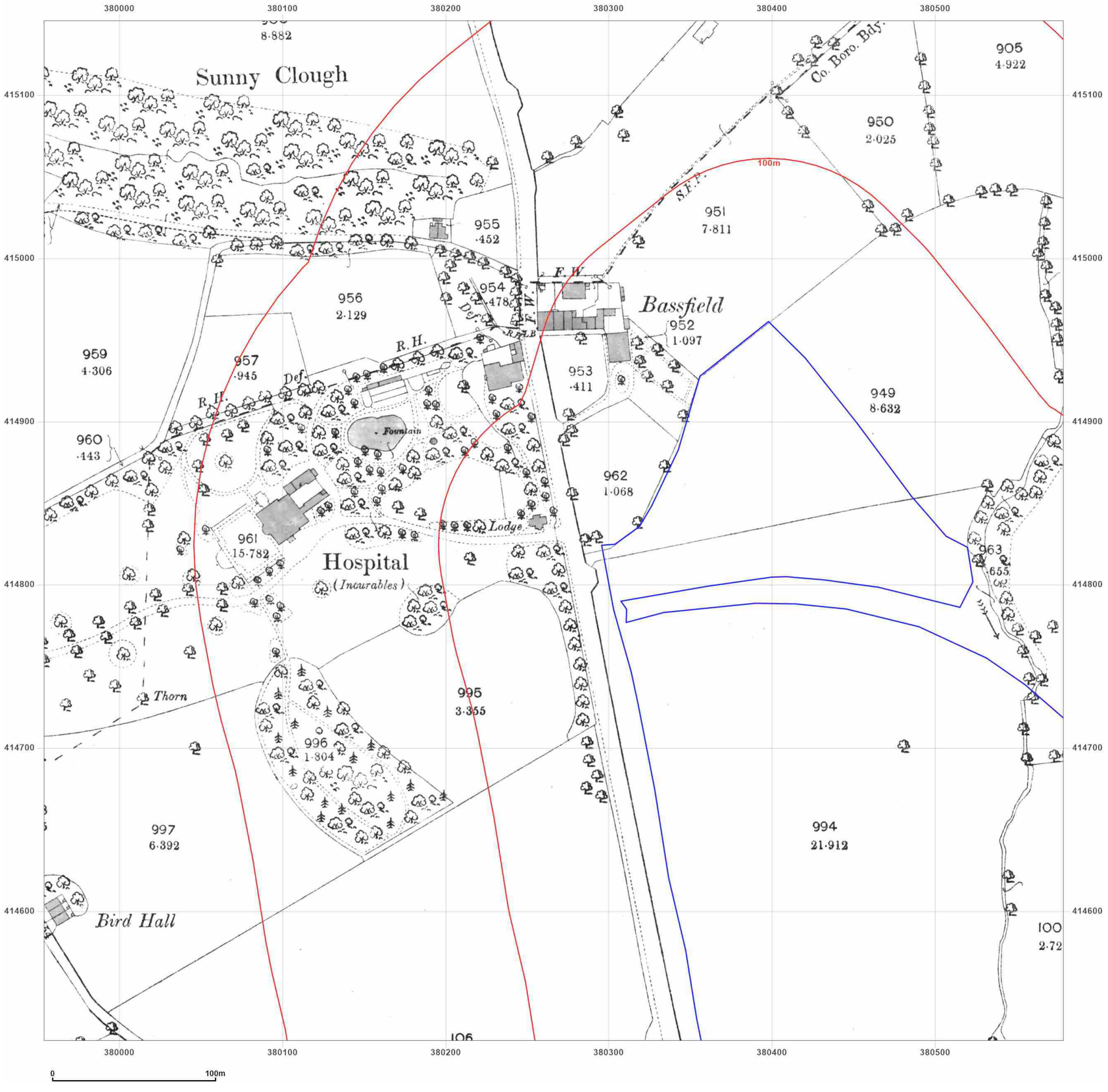
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_2
**Grid Ref:** 380266, 414833

**Map Name:** County Series
**Map date:** **1891**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
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Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

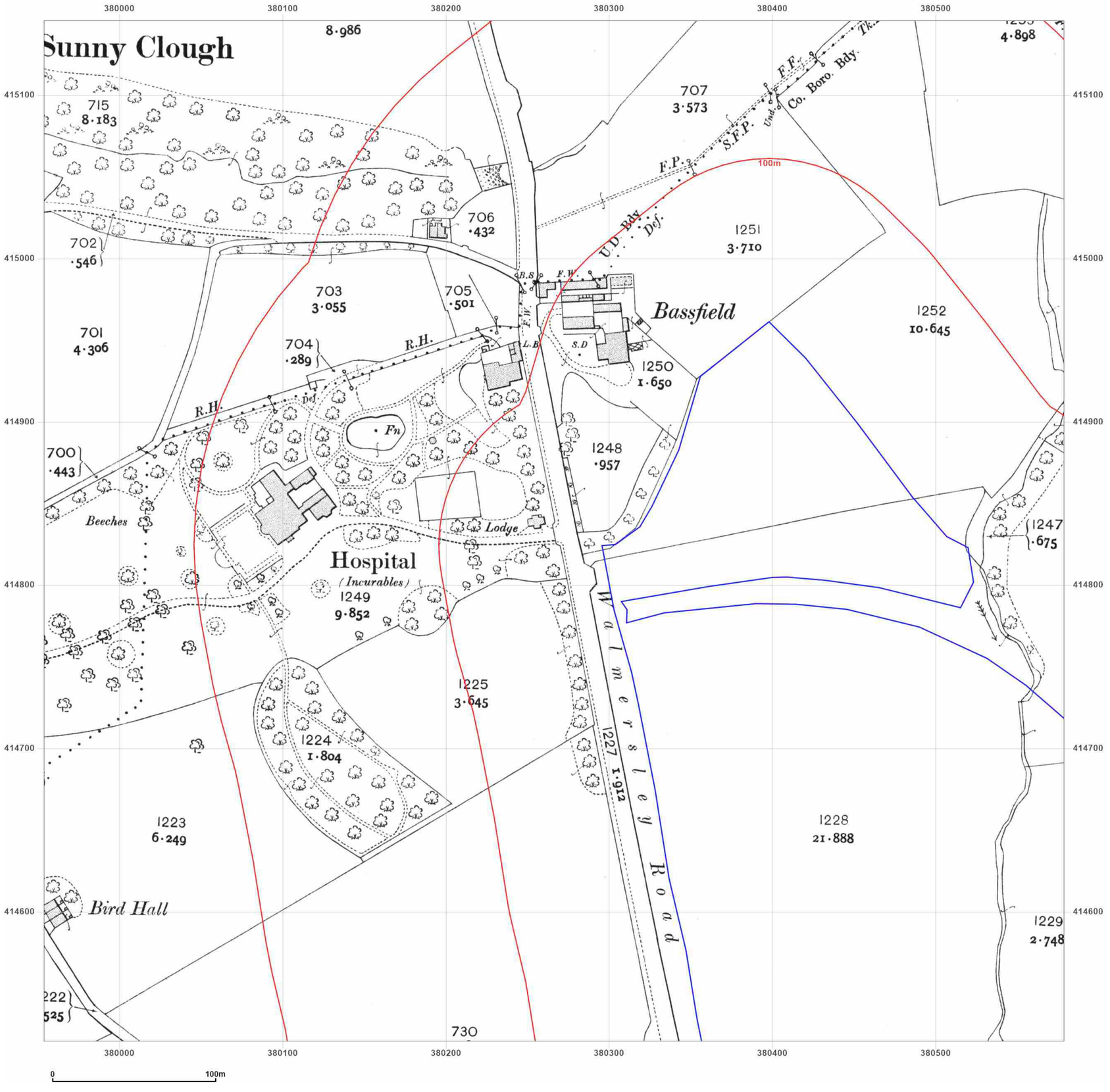
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**Site Details:**

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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_2
**Grid Ref:** 380266, 414833

**Map Name:** County Series
**Map date:** **1910**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
S

Surveyed 1910
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

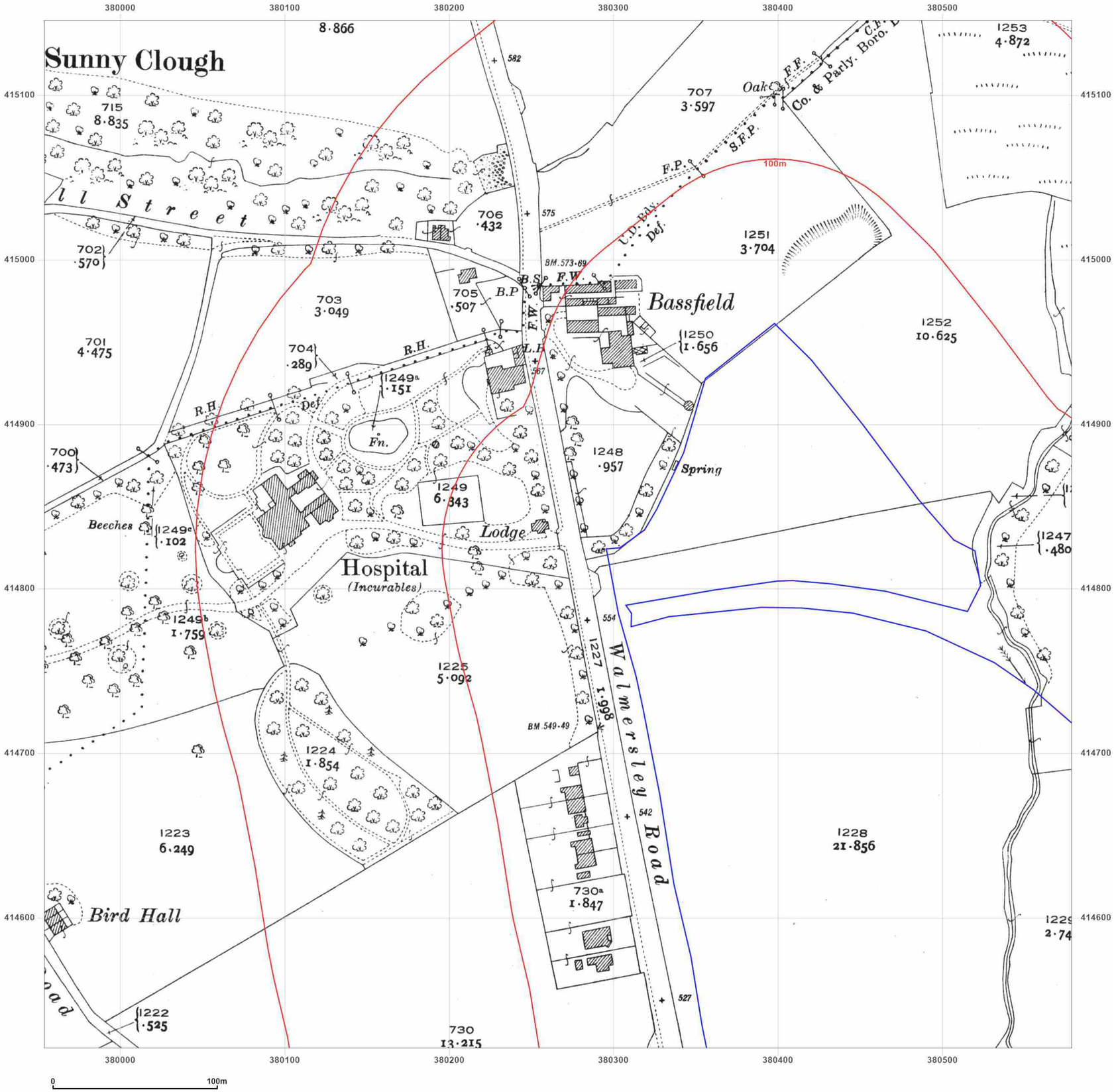
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_2
**Grid Ref:** 380266, 414833

**Map Name:** County Series

**Map date:** **1929**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
S

Surveyed 1929
Revised 1929
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

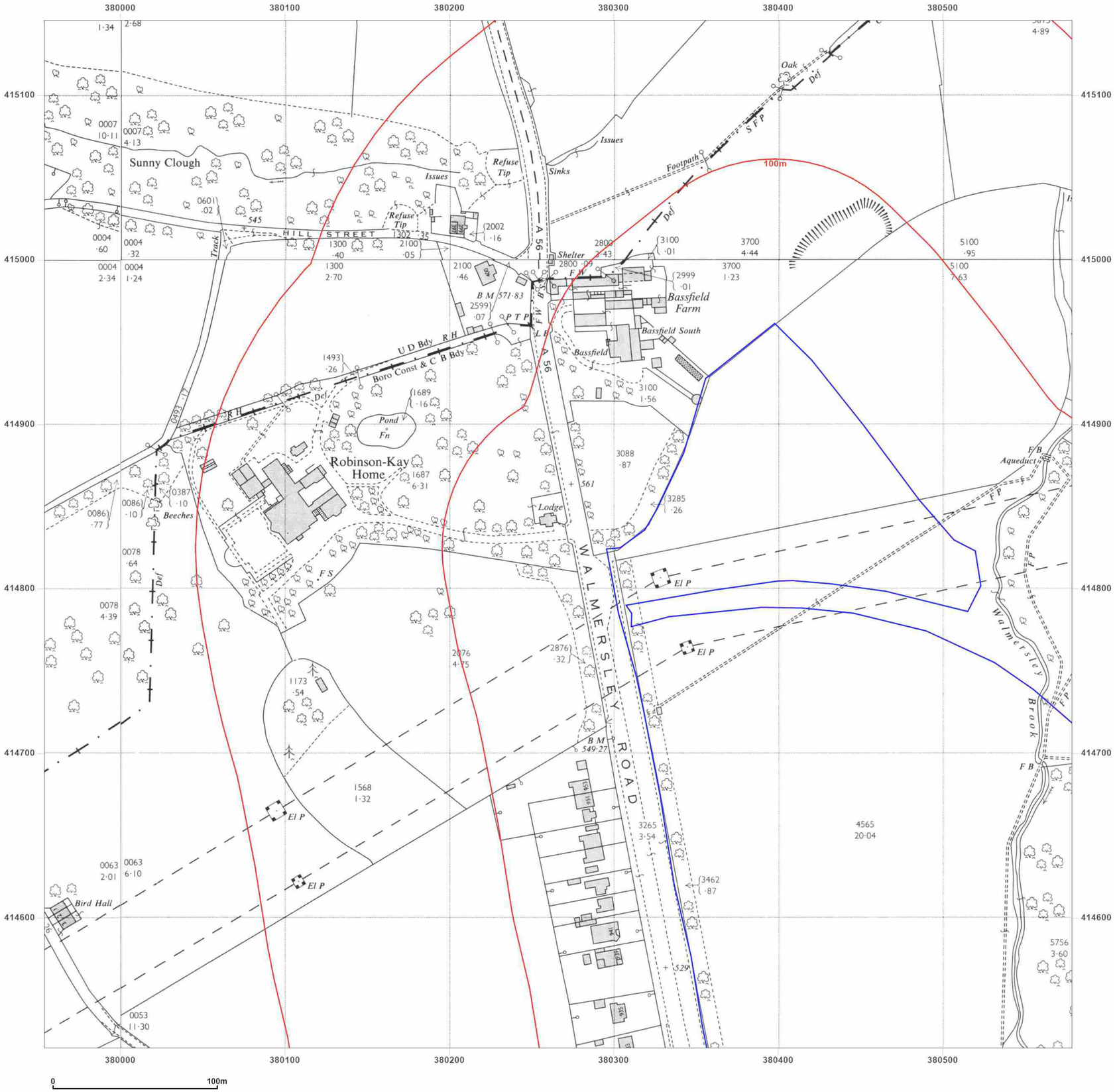
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_2
**Grid Ref:** 380266, 414833

**Map Name:** National Grid

**Map date:** **1963-1964**

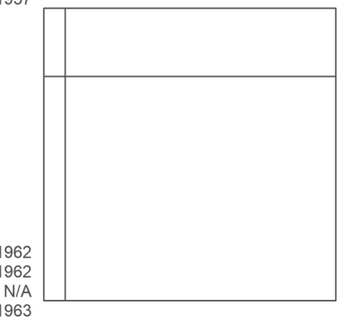
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**Printed at:** 1:2,500

N
W E
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Surveyed 1962
Revised 1962
Edition N/A
Copyright 1963
Levelled 1957

Surveyed 1962
Revised 1962
Edition N/A
Copyright 1963
Levelled 1957



Surveyed 1962
Revised 1962
Edition N/A
Copyright 1963
Levelled 1957

Surveyed 1962
Revised 1962
Edition 1964
Copyright 1964
Levelled 1956

Groundsure INSIGHTS

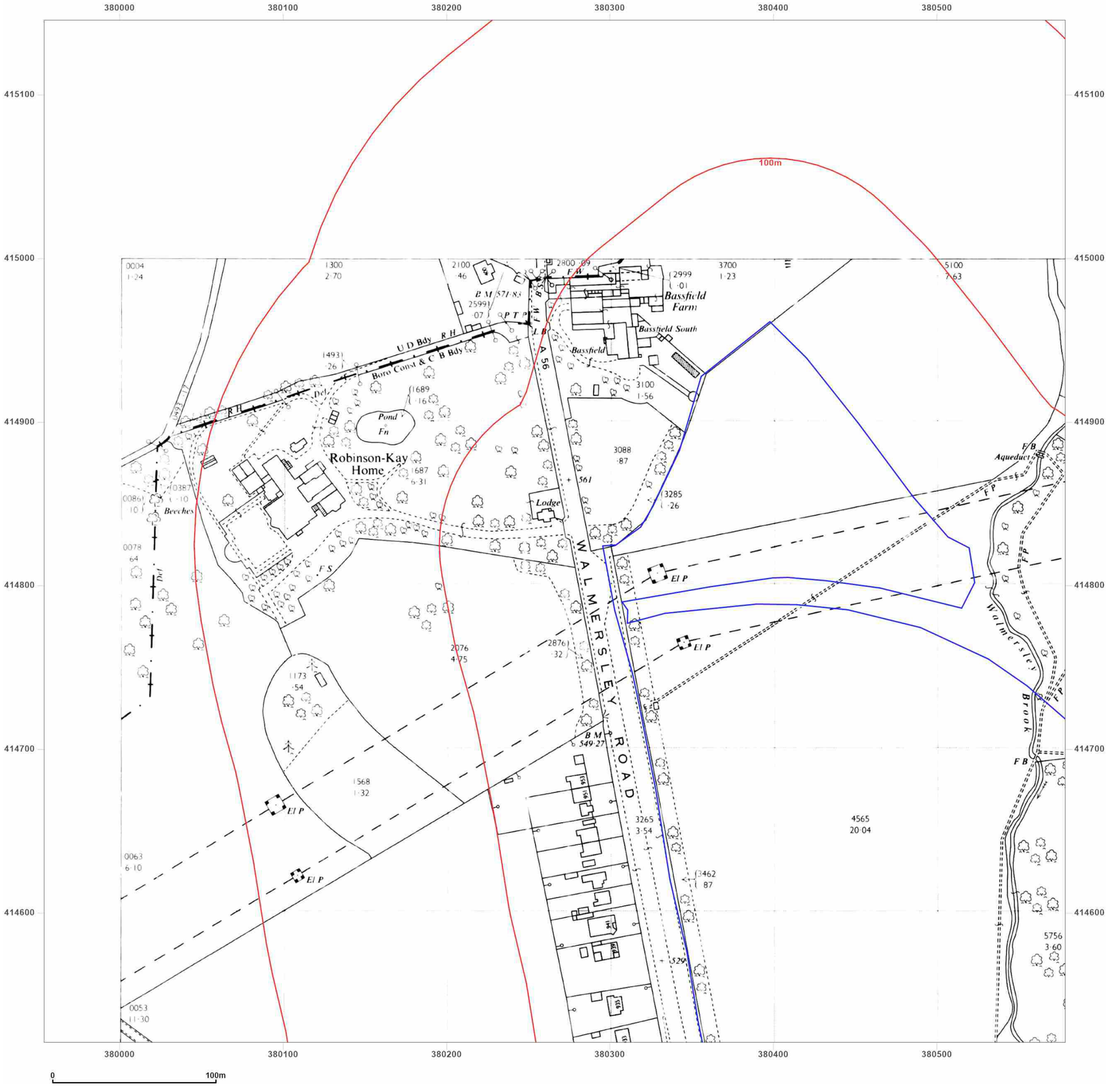
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Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_2
**Grid Ref:** 380266, 414833

**Map Name:** National Grid
**Map date:** **1964**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

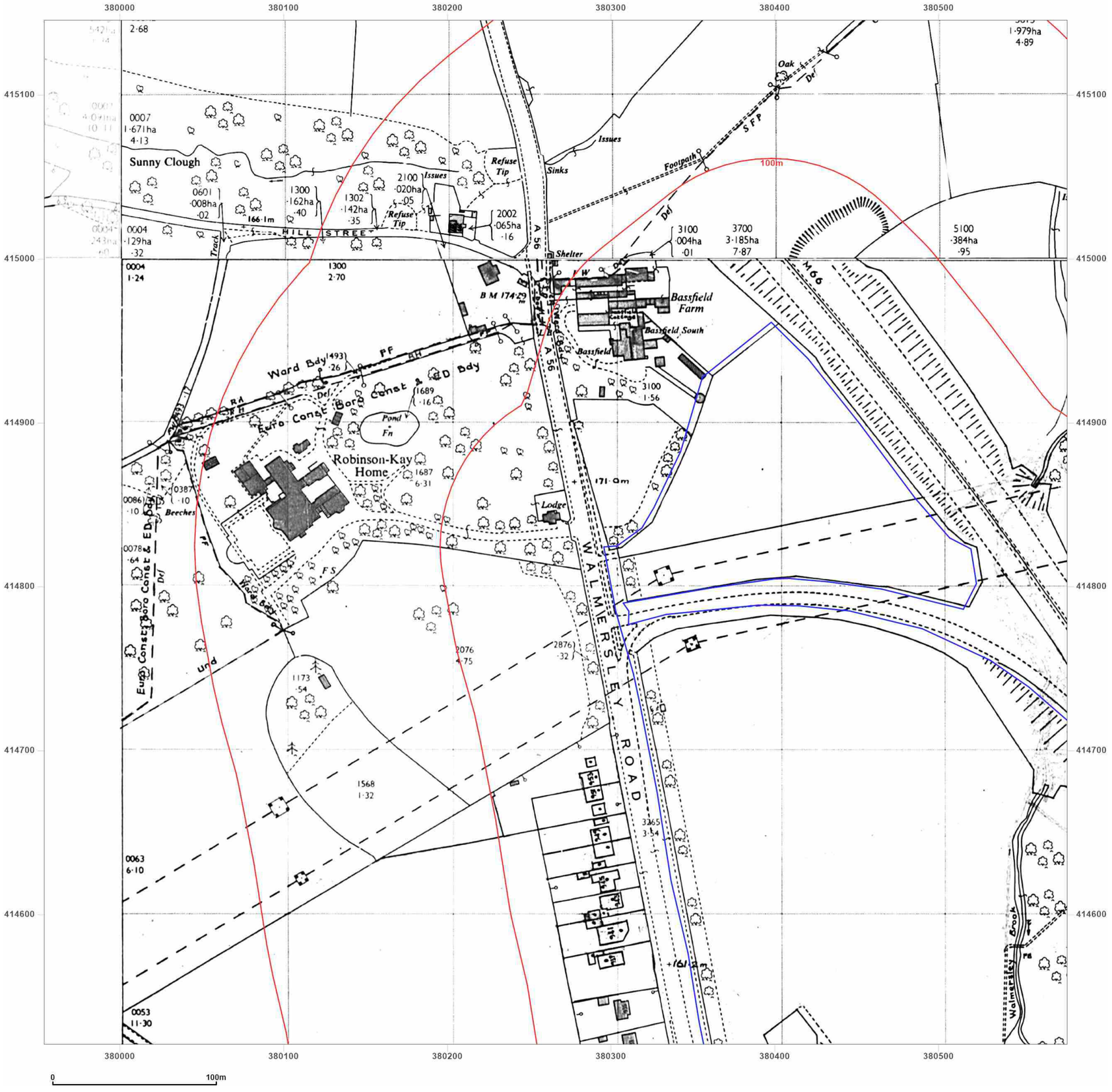
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_2
**Grid Ref:** 380266, 414833

**Map Name:** National Grid

**Map date:** **1978-1980**

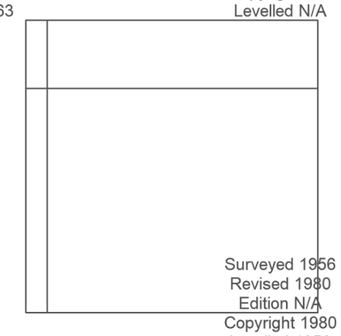
**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1980
Levelled 1963

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1956
Revised 1980
Edition N/A
Copyright 1980
Levelled 1956

Groundsure INSIGHTS

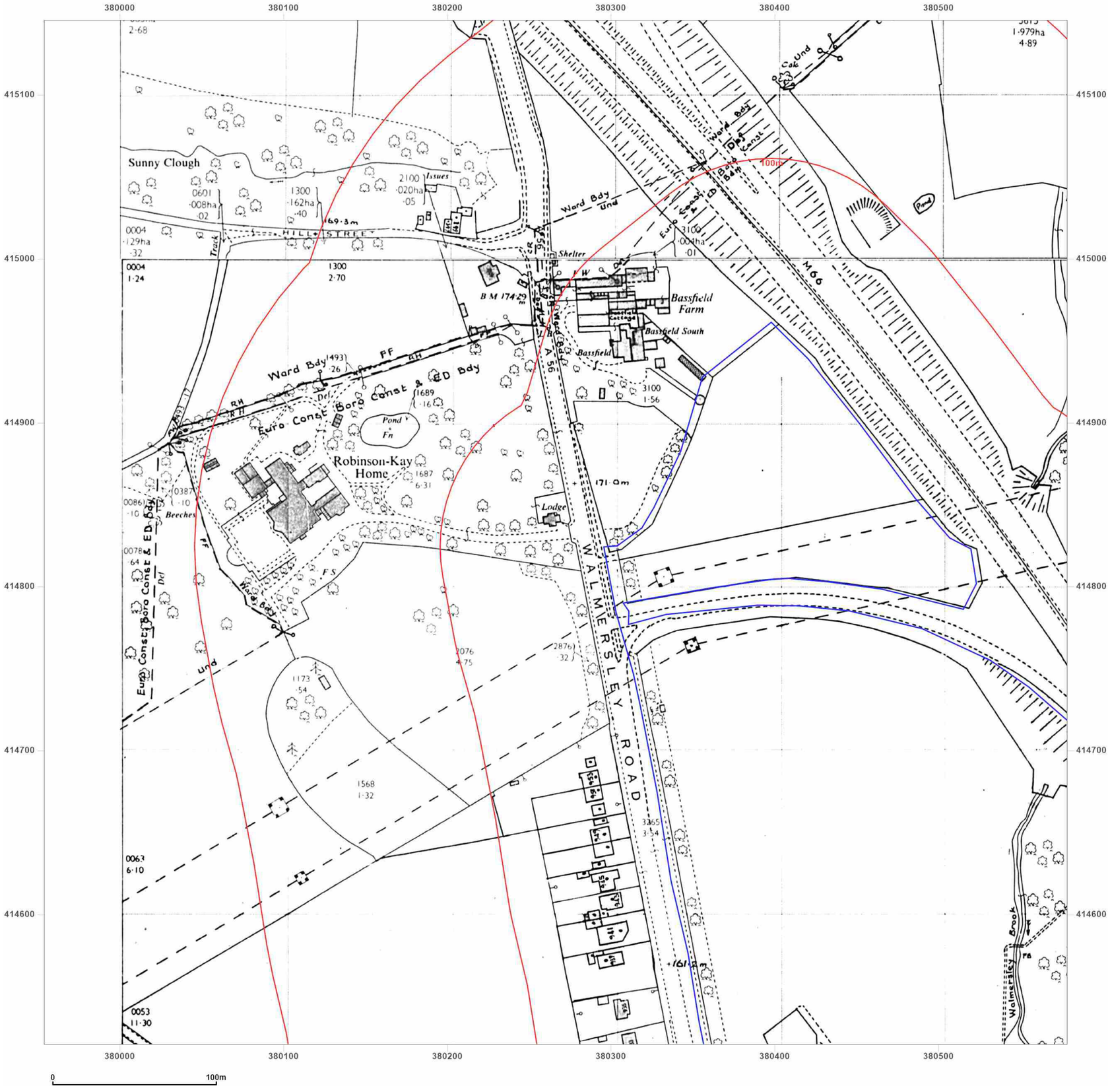
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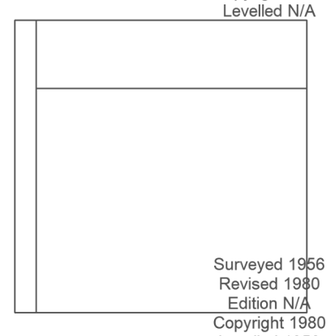
Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_2
**Grid Ref:** 380266, 414833

**Map Name:** National Grid
**Map date:** **1980**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
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Surveyed 1980
Revised 1980
Edition N/A
Copyright 1980
Levelled N/A



Surveyed 1956
Revised 1980
Edition N/A
Copyright 1980
Levelled 1956

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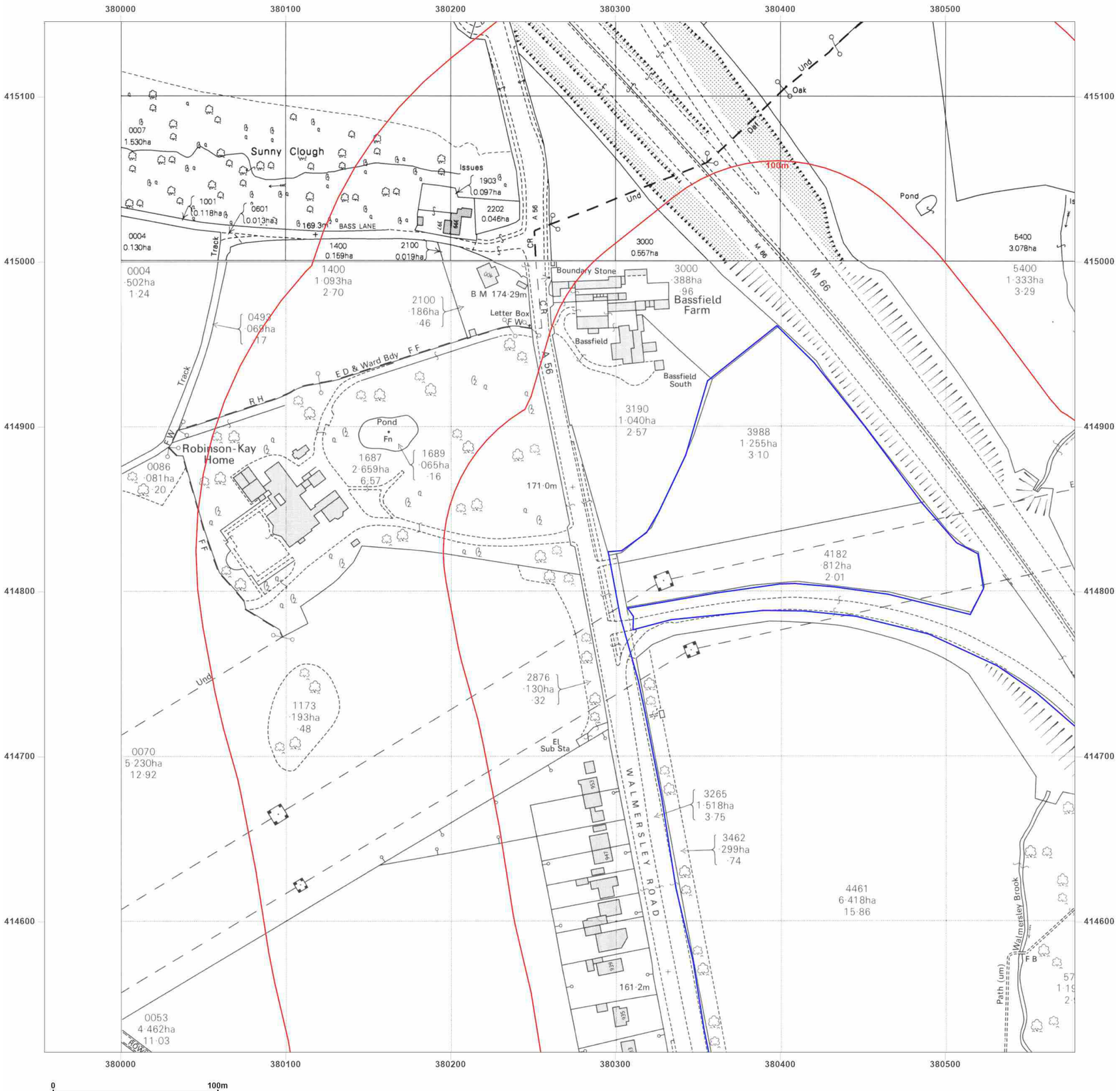
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_1_2
**Grid Ref:** 380266, 414833

**Map Name:** National Grid

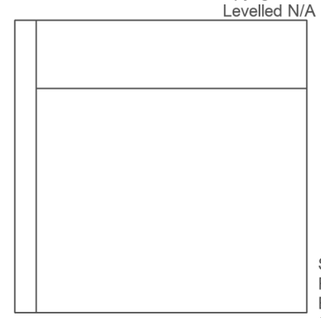
**Map date:** **1987-1991**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
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Surveyed 1989
Revised 1989
Edition N/A
Copyright 1991
Levelled N/A



Surveyed 1959
Revised 1985
Edition N/A
Copyright 1987
Levelled 1956

Groundsure INSIGHTS

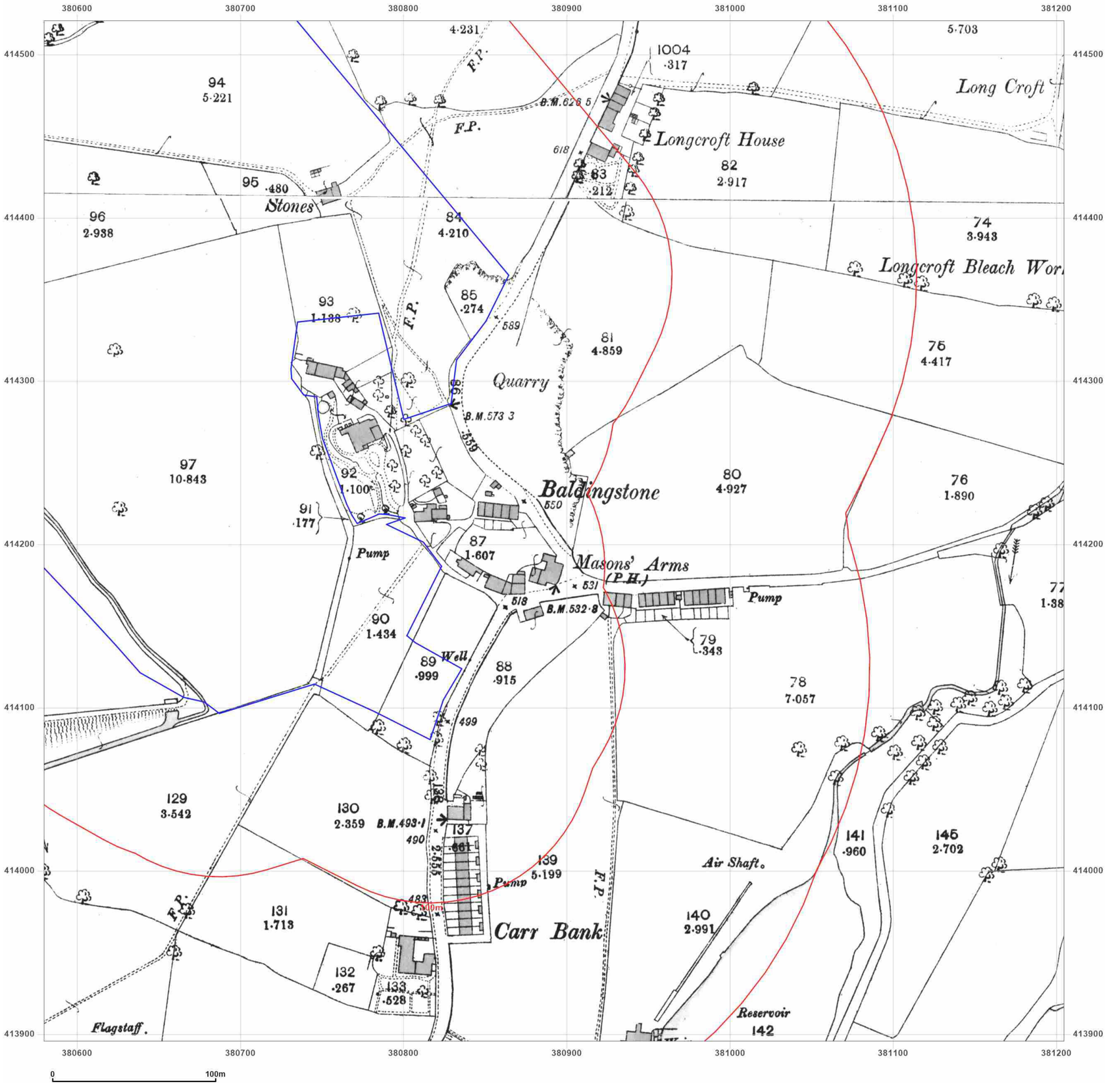
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

**Map Name:** County Series

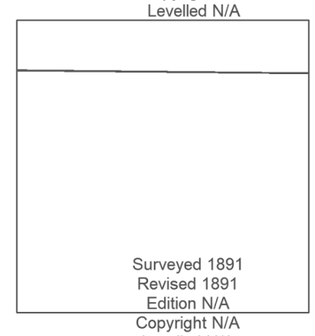
**Map date:** **1891**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
S

Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A




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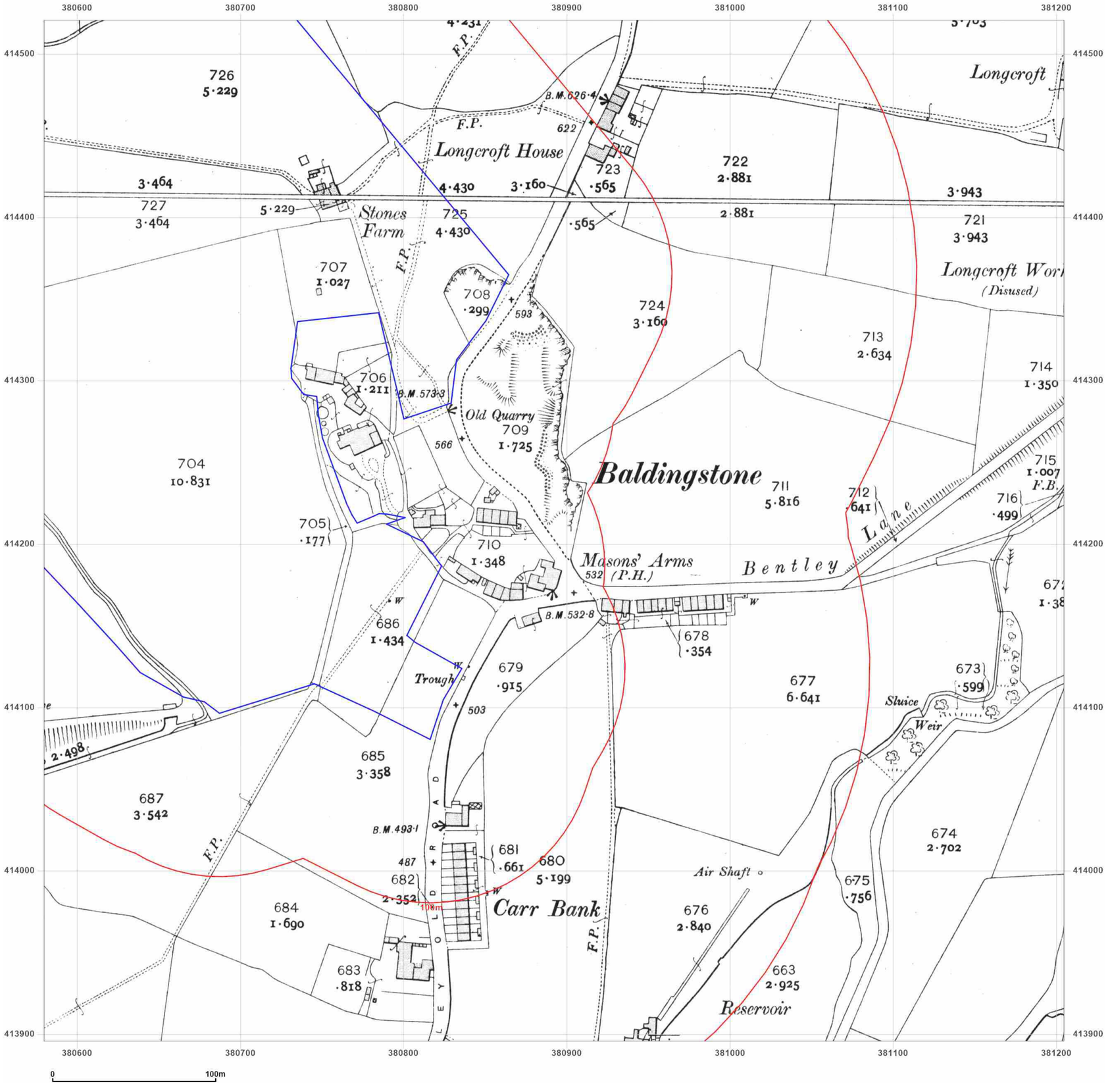
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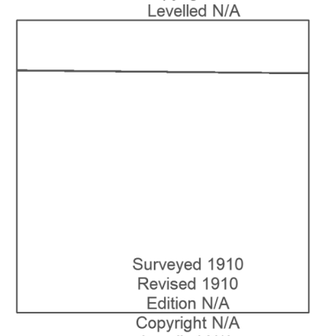
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

**Map Name:** County Series
**Map date:** **1910**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
S

Surveyed 1910
Revised 1910
Edition N/A
Copyright N/A
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

**Map Name:** County Series

**Map date:** **1929-1930**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
S

Surveyed 1929
Revised 1929
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1930
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

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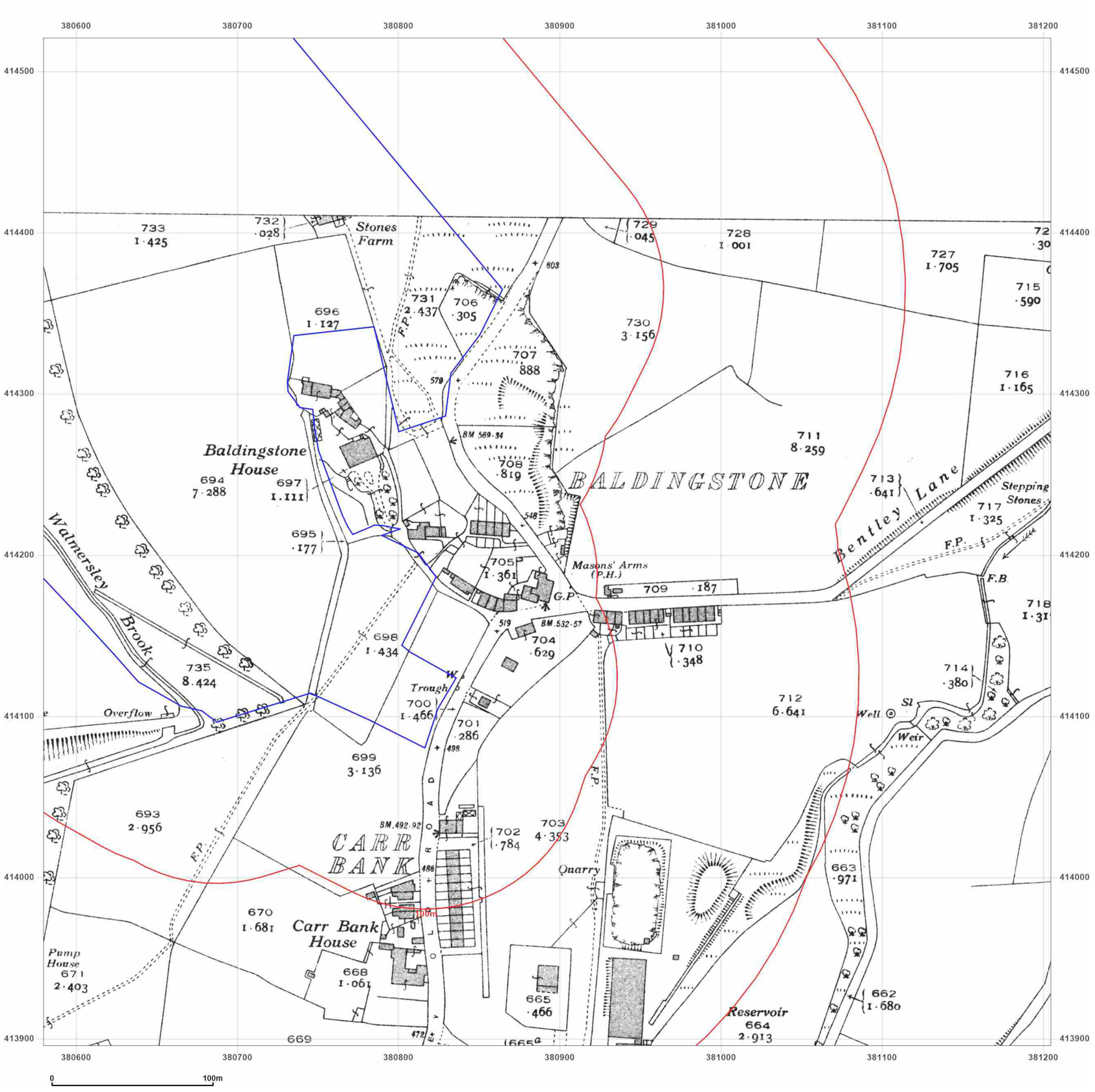
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

**Map Name:** County Series
**Map date:** **1937**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
S

Surveyed 1937
Revised 1937
Edition N/A
Copyright N/A
Levelled N/A

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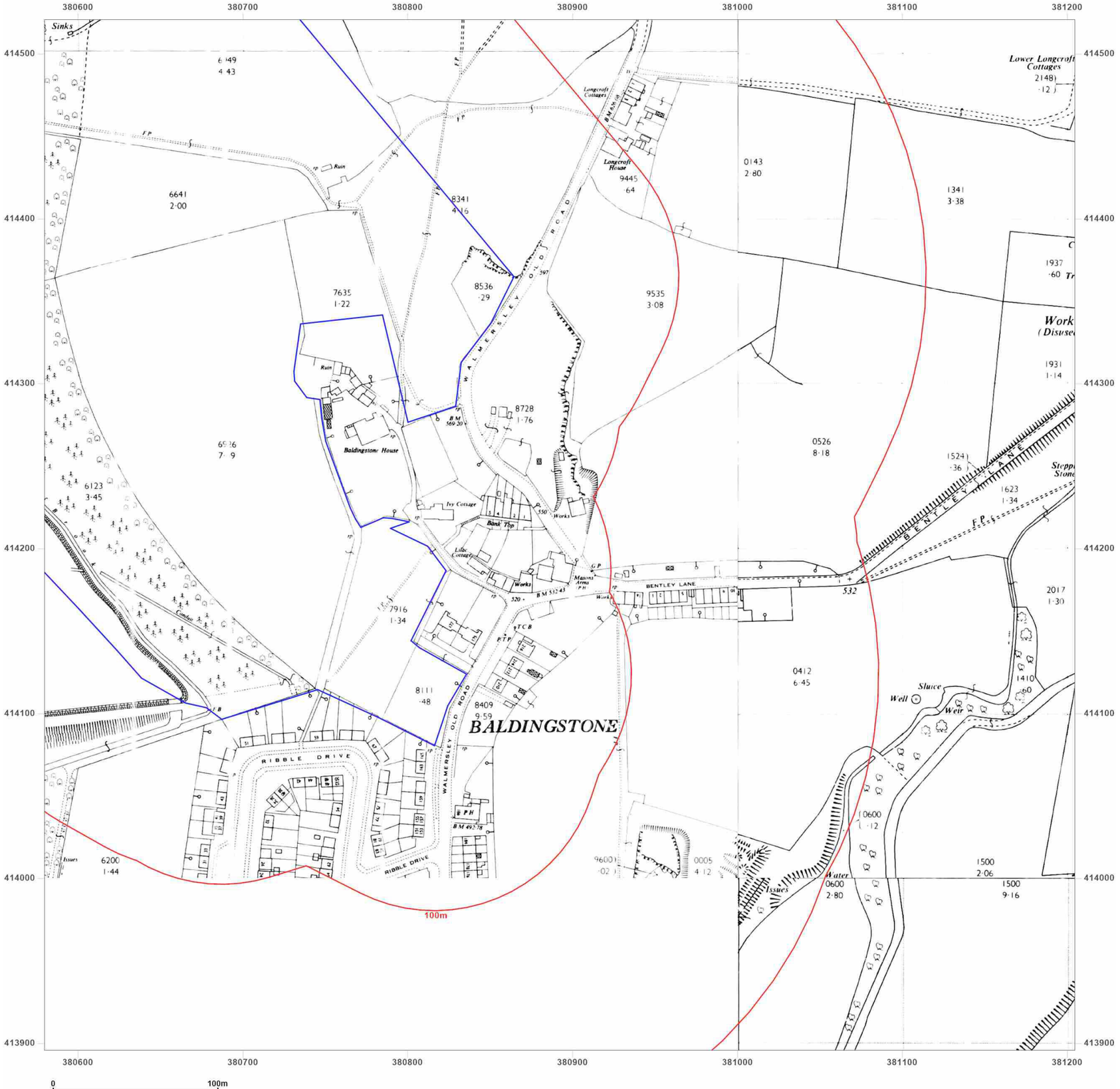
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

**Map Name:** National Grid
**Map date:** **1963-1964**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

**Map Name:** National Grid

**Map date:** **1963-1964**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
S

Surveyed 1962
Revised 1962
Edition 1964
~~Copyright 1964~~
Levelled 1956

~~Surveyed 1961~~
Revised 1961
Edition 1963
Copyright 1963
Levelled 1956

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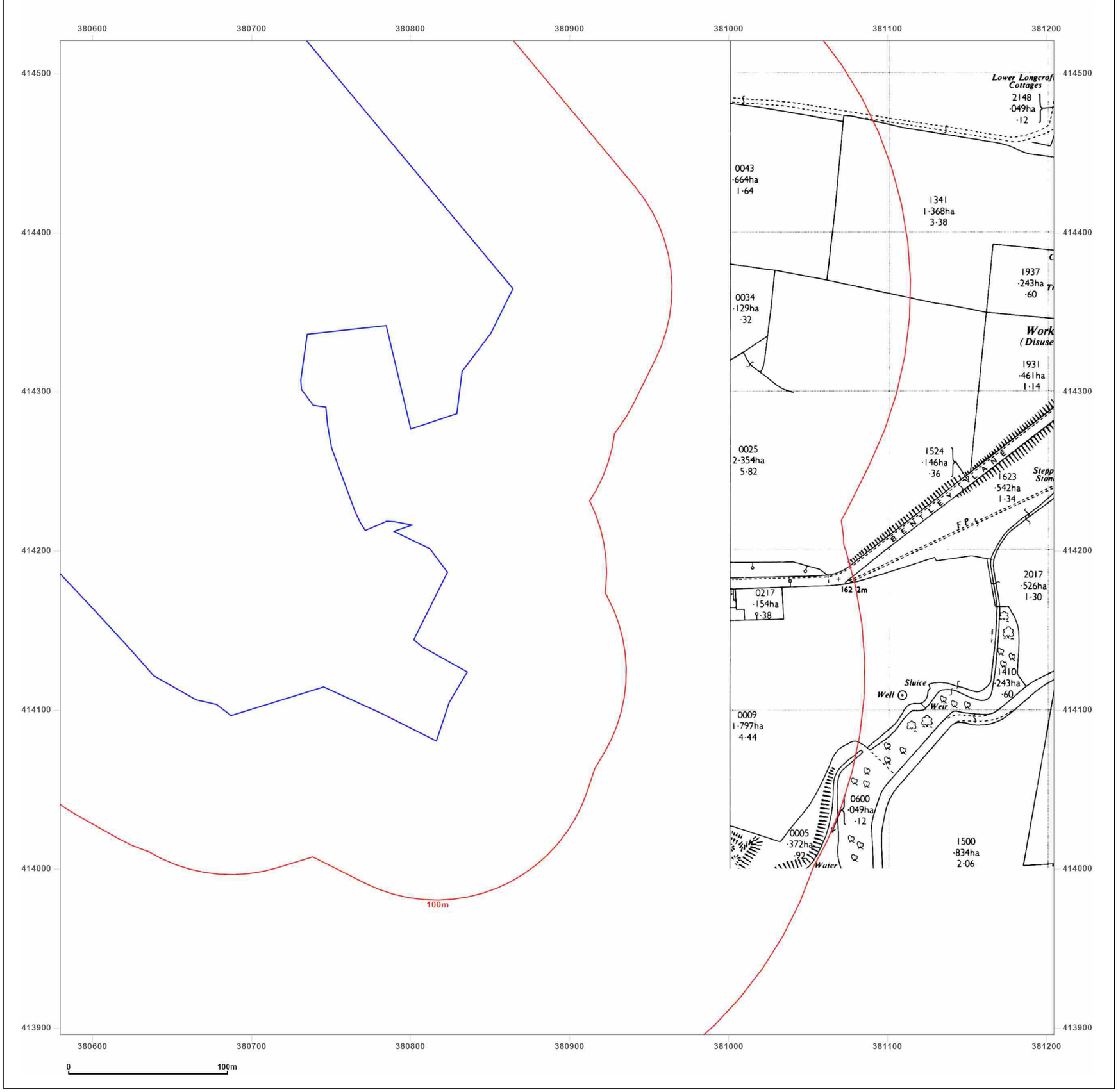
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

**Map Name:** National Grid

**Map date:** **1964**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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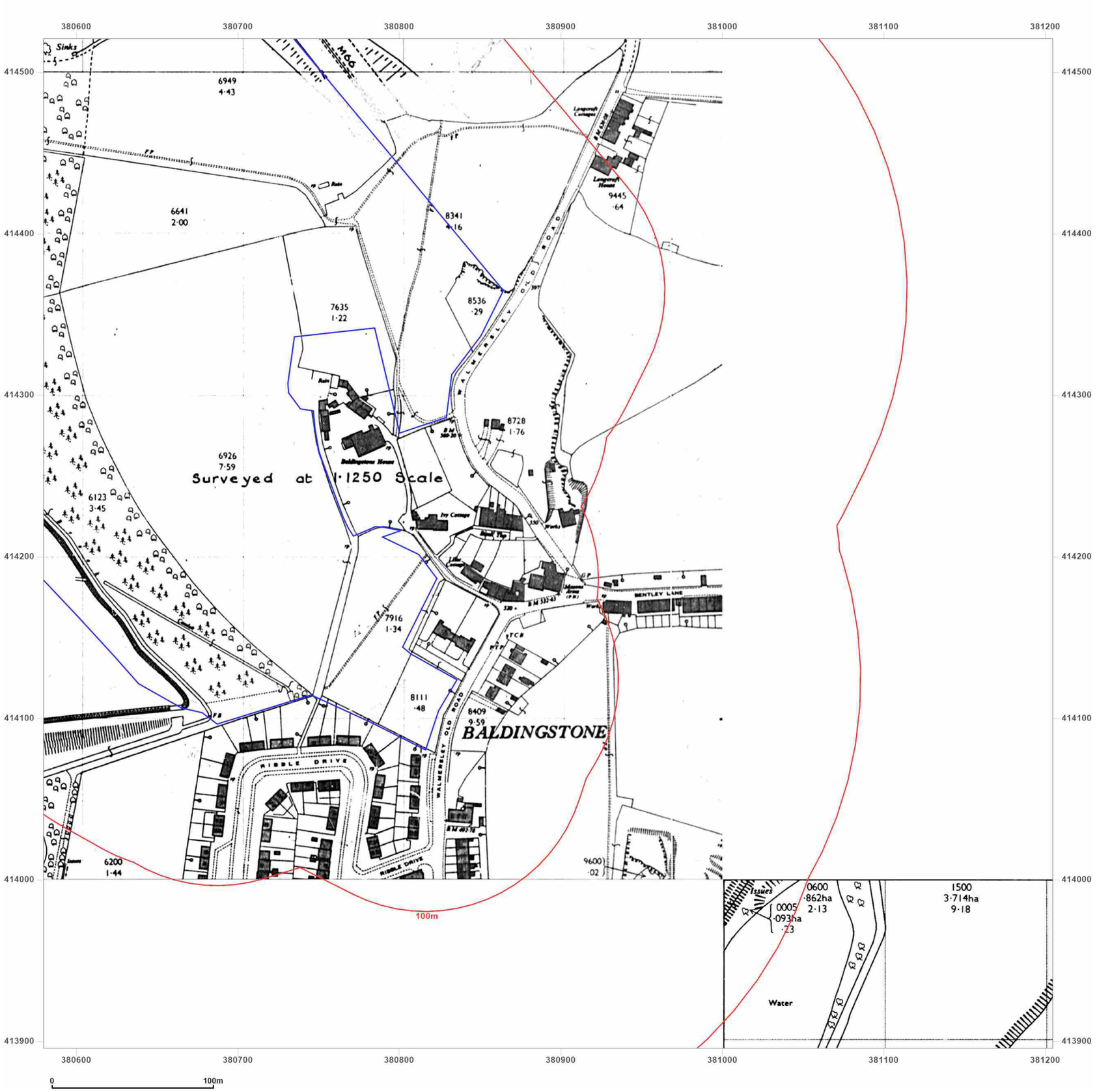
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

**Map Name:** National Grid

**Map date:** **1976-1980**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
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Surveyed 1956
Revised 1980
Edition N/A
Copyright 1980
Levelled 1956

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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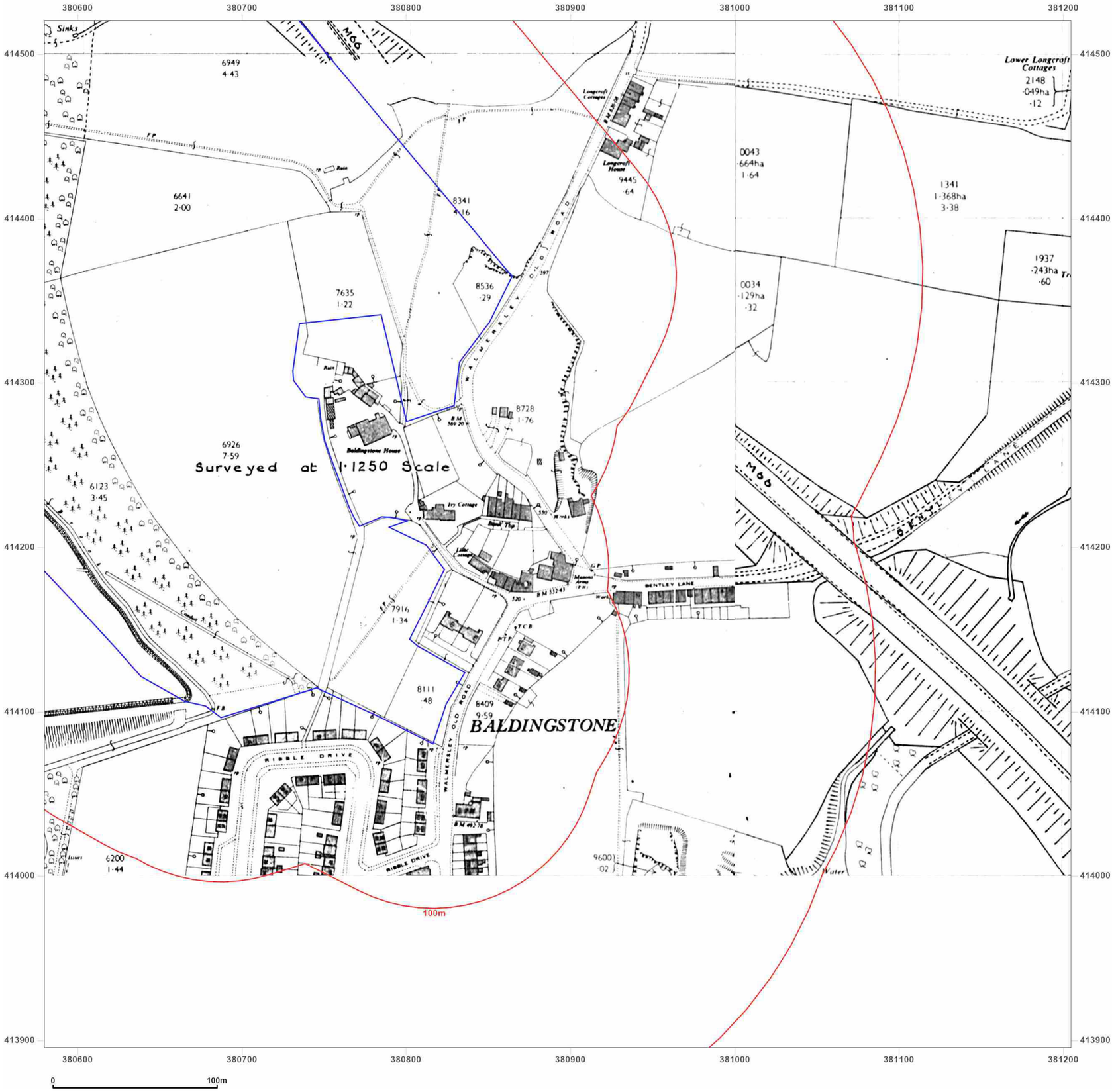
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

**Map Name:** National Grid

**Map date:** **1980-1984**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
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Surveyed 1956
Revised 1980
Edition N/A
Copyright 1980
Levelled 1956

Surveyed 1956
Revised 1984
Edition N/A
Copyright 1984
Levelled 1956

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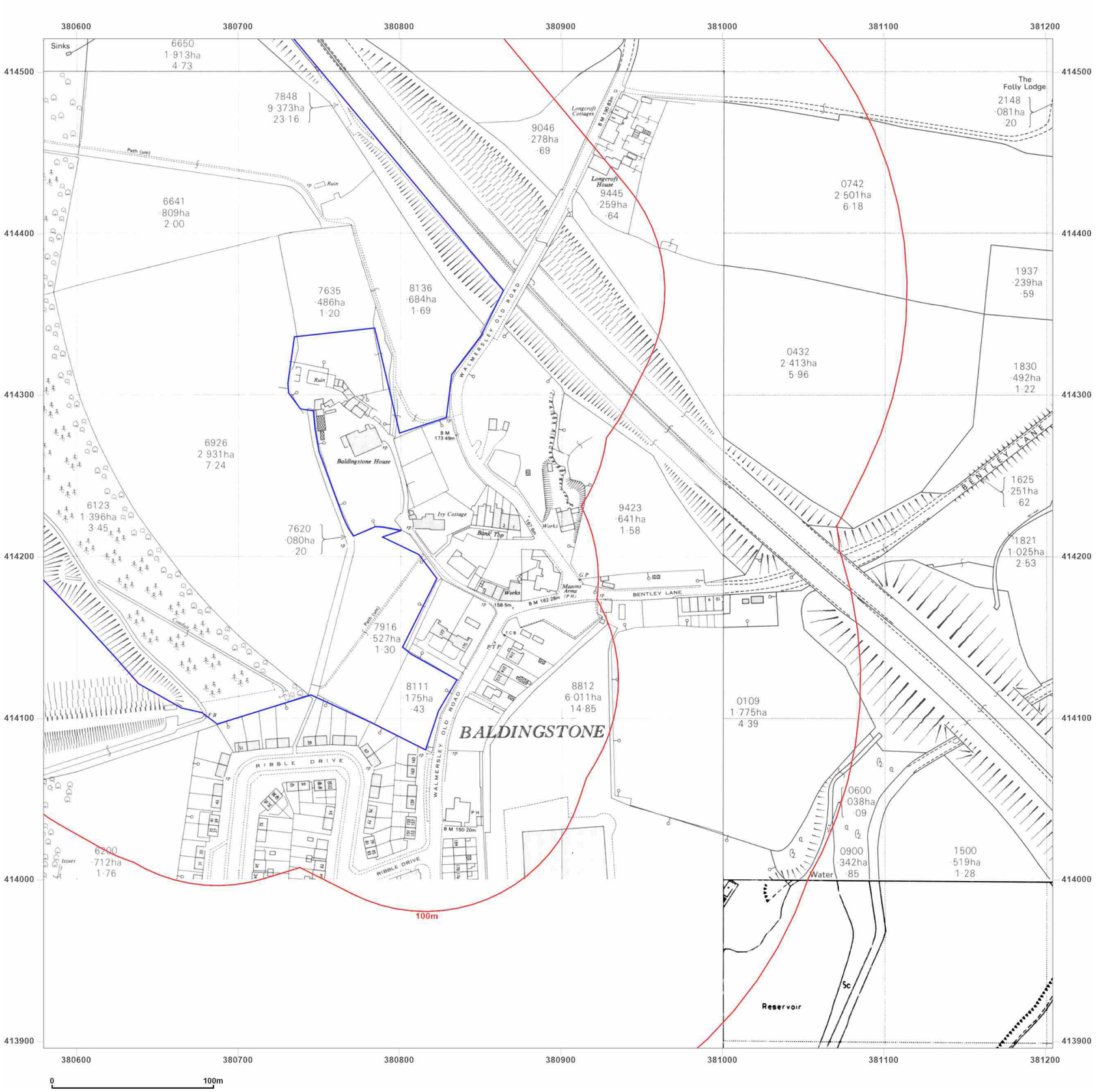
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**Site Details:**

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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

**Map Name:** National Grid

**Map date:** **1987-1992**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
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Surveyed 1959
Revised 1985
Edition N/A
~~Copyright 1987~~
Levelled 1956

Surveyed 1992
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

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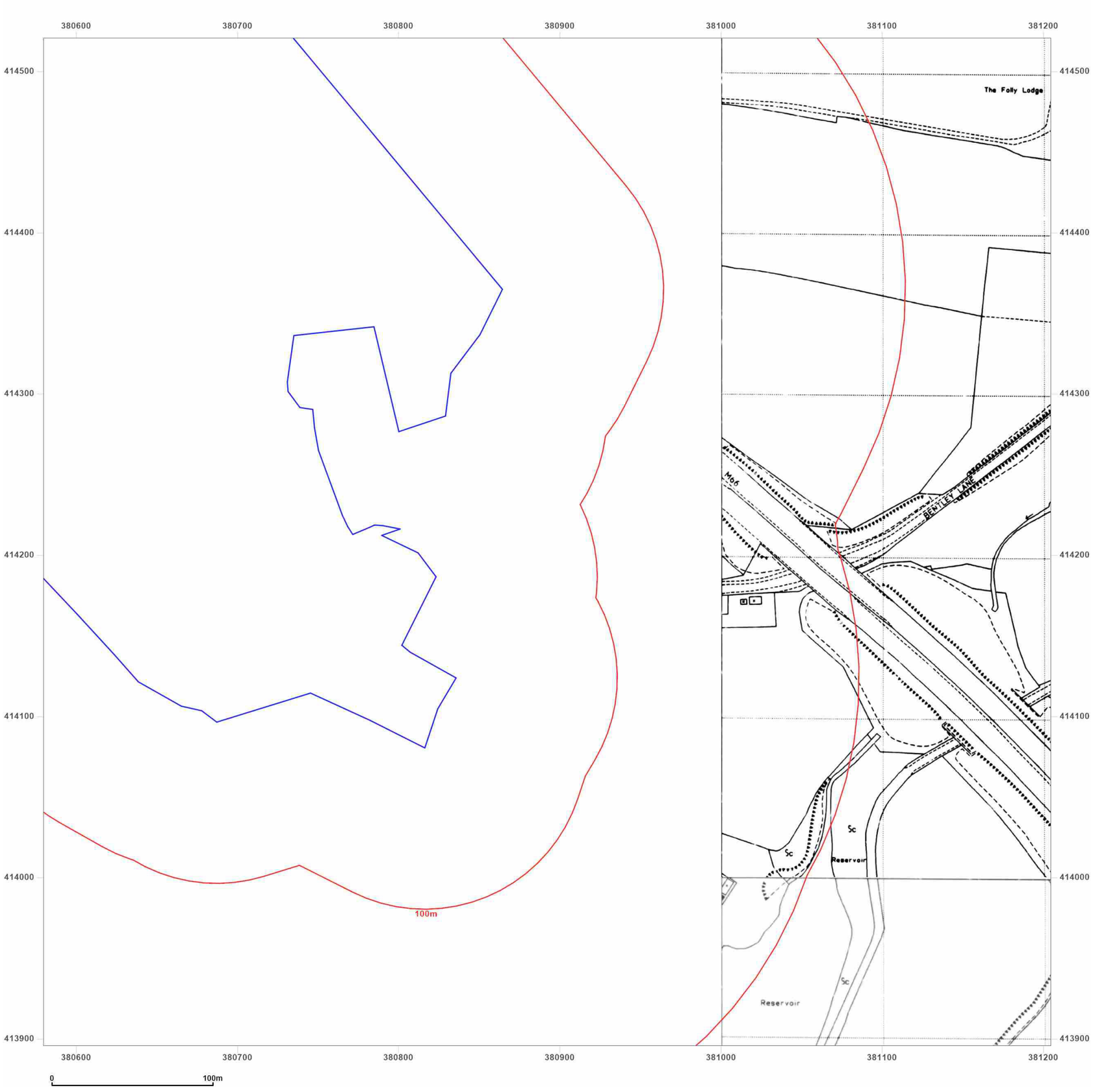
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

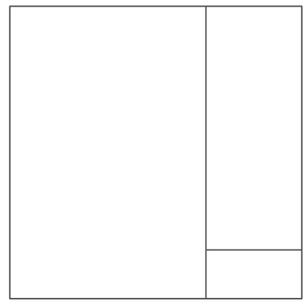
**Map Name:** National Grid

**Map date:** **1992**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
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Surveyed 1992
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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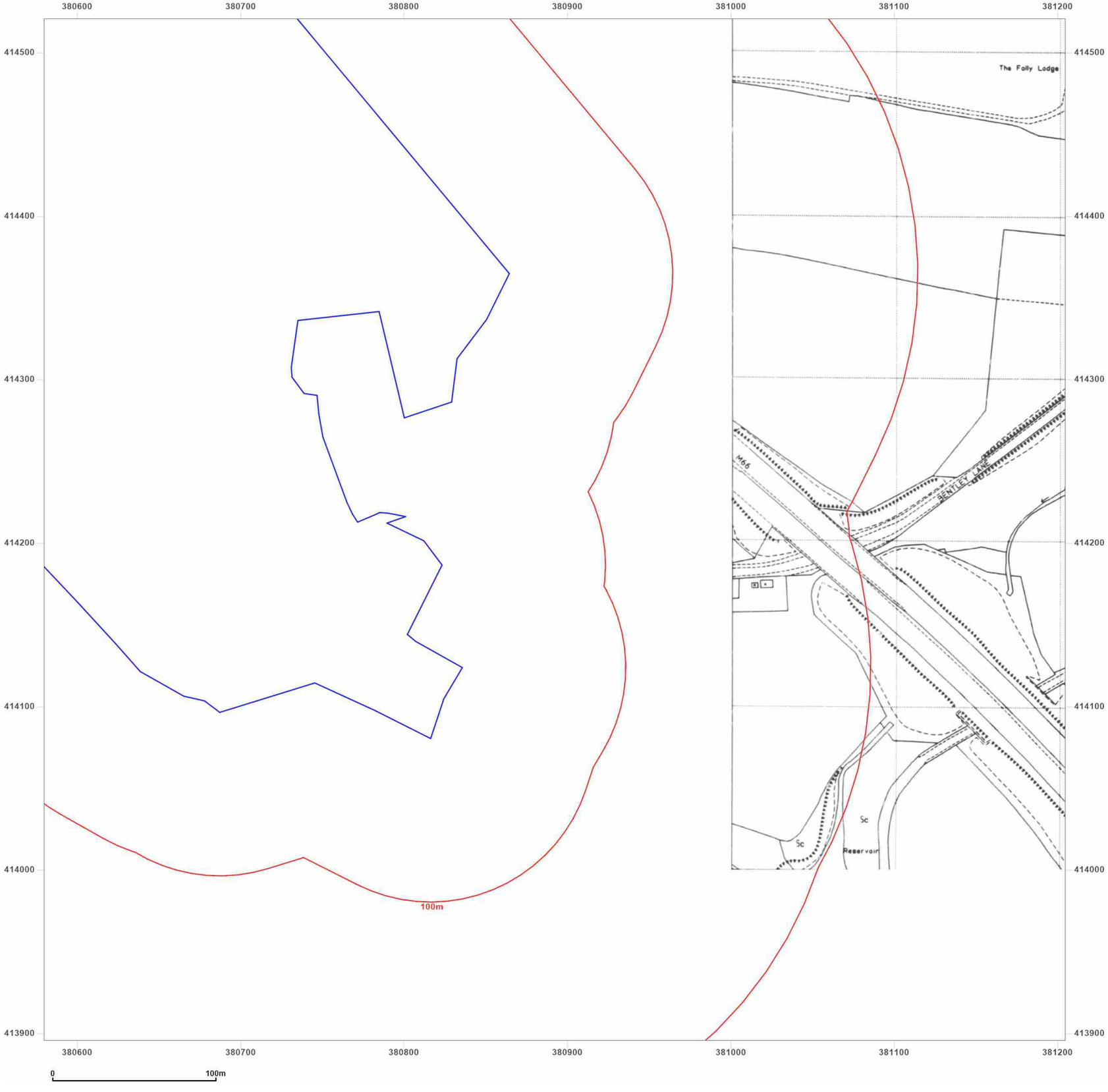
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_1
**Grid Ref:** 380892, 414208

**Map Name:** National Grid

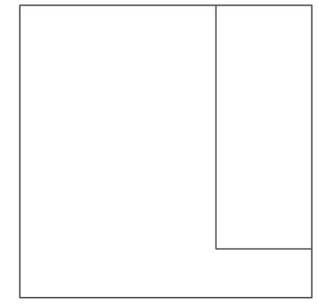
**Map date:** **1993**

**Scale:** 1:2,500

**Printed at:** 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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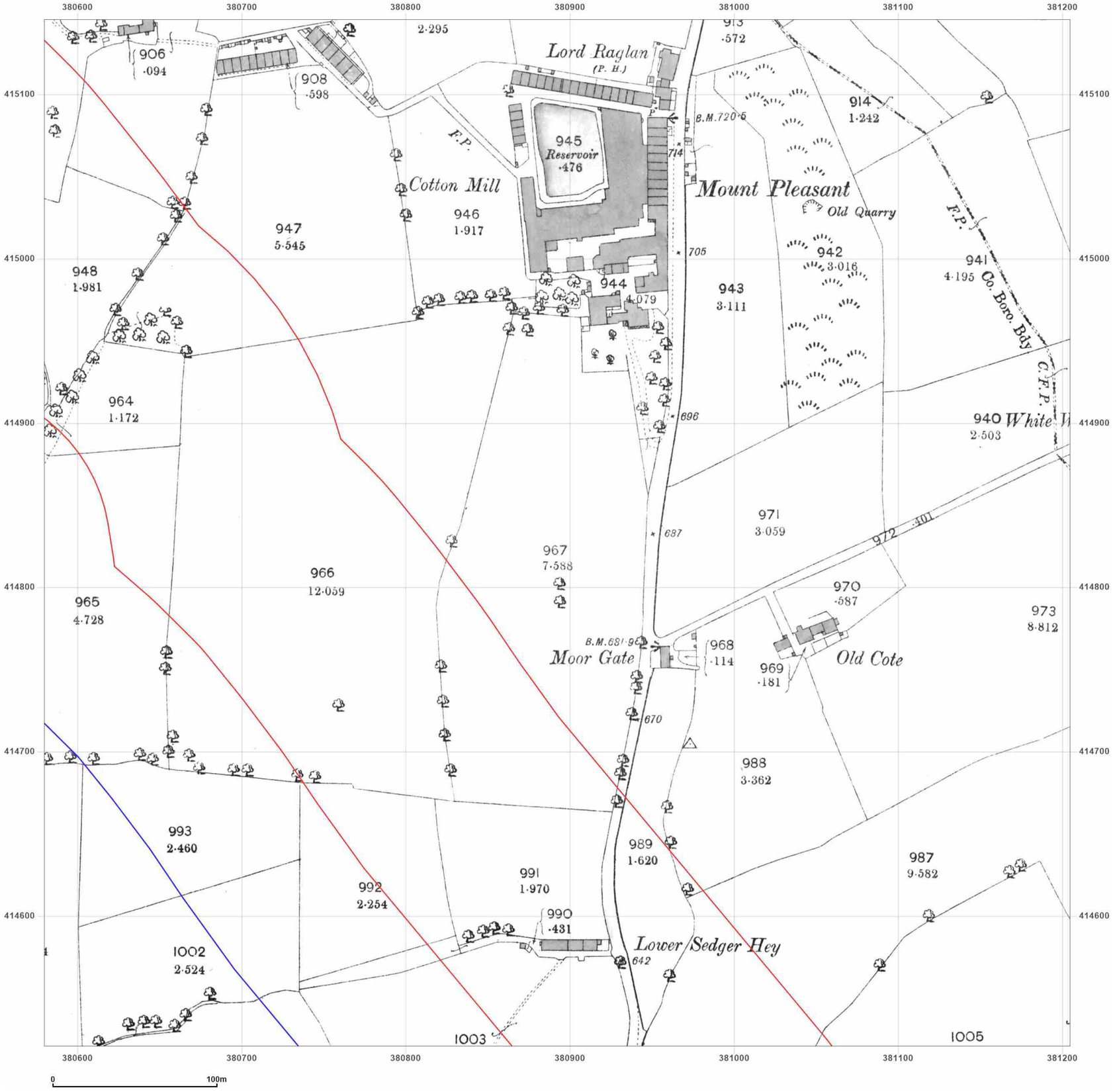
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Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_2
**Grid Ref:** 380892, 414833

**Map Name:** County Series
**Map date:** **1891**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
S

Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A


Groundsure INSIGHTS

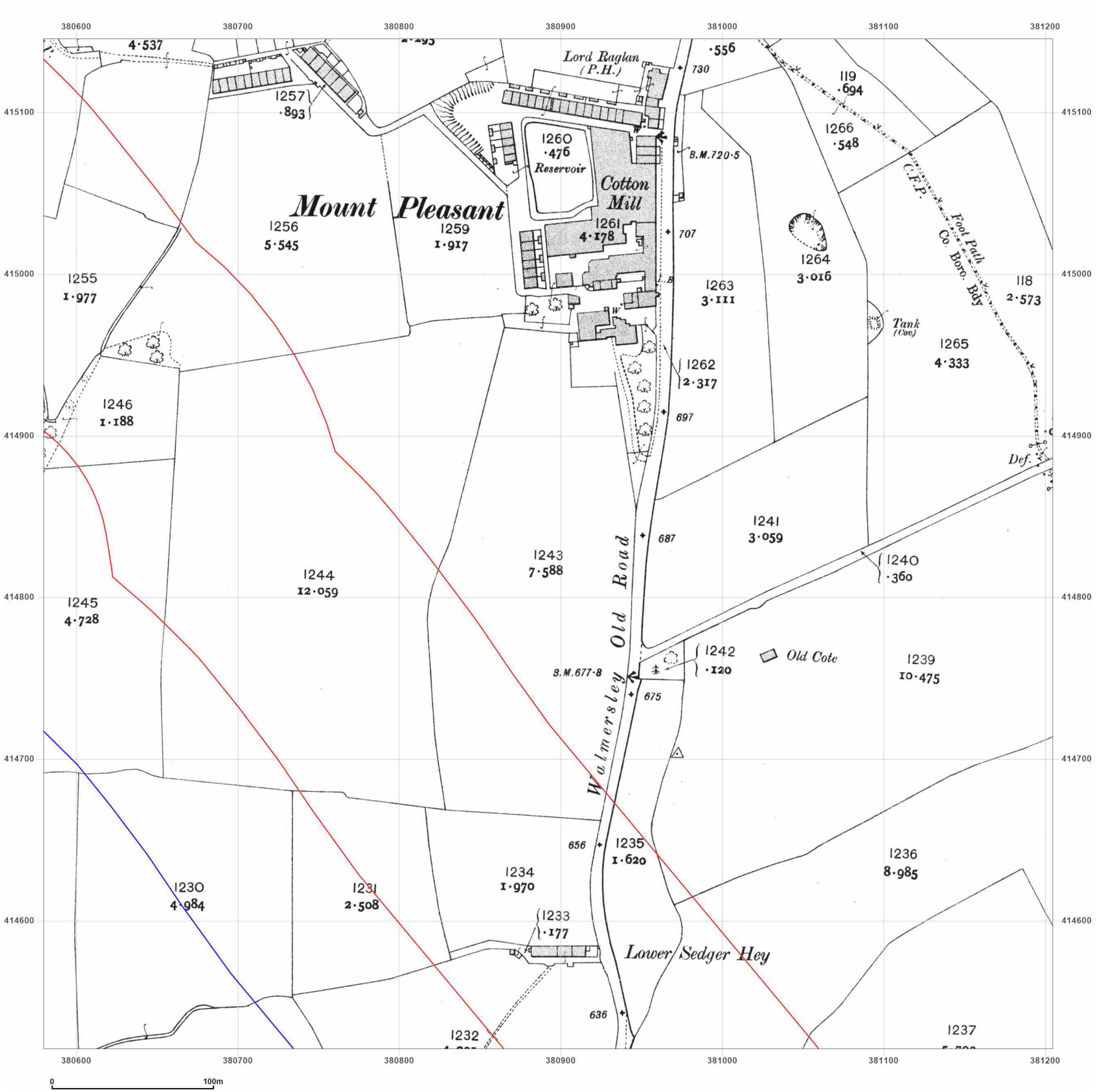
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_2
**Grid Ref:** 380892, 414833

**Map Name:** County Series
**Map date:** **1910**
**Scale:** 1:2,500
**Printed at:** 1:2,500

N
W E
S

Surveyed 1910
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

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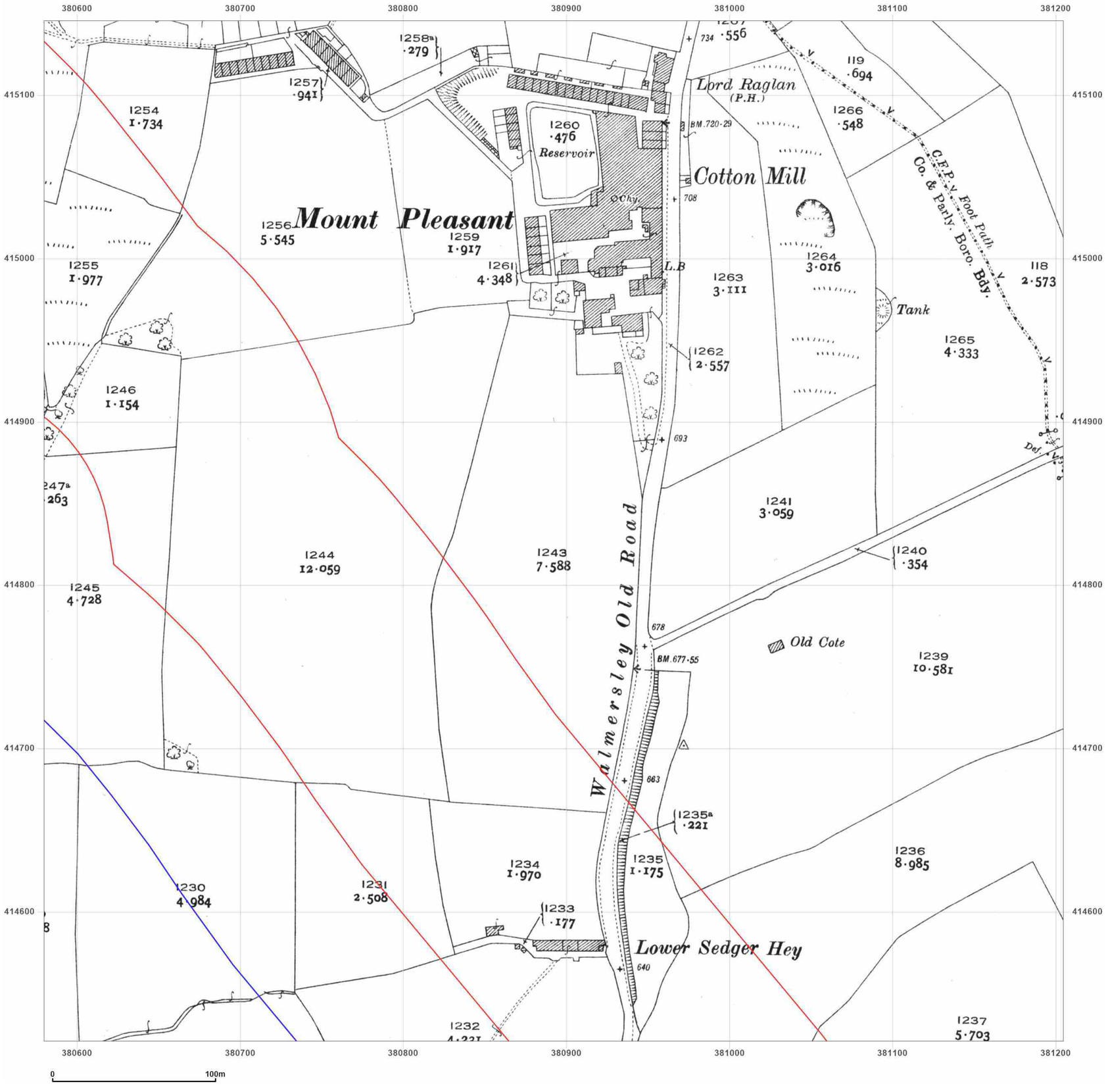
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_2
**Grid Ref:** 380892, 414833

**Map Name:** County Series

**Map date:** **1929**

**Scale:** 1:2,500

**Printed at:** 1:2,500

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Surveyed 1929
Revised 1929
Edition N/A
Copyright N/A
Levelled N/A

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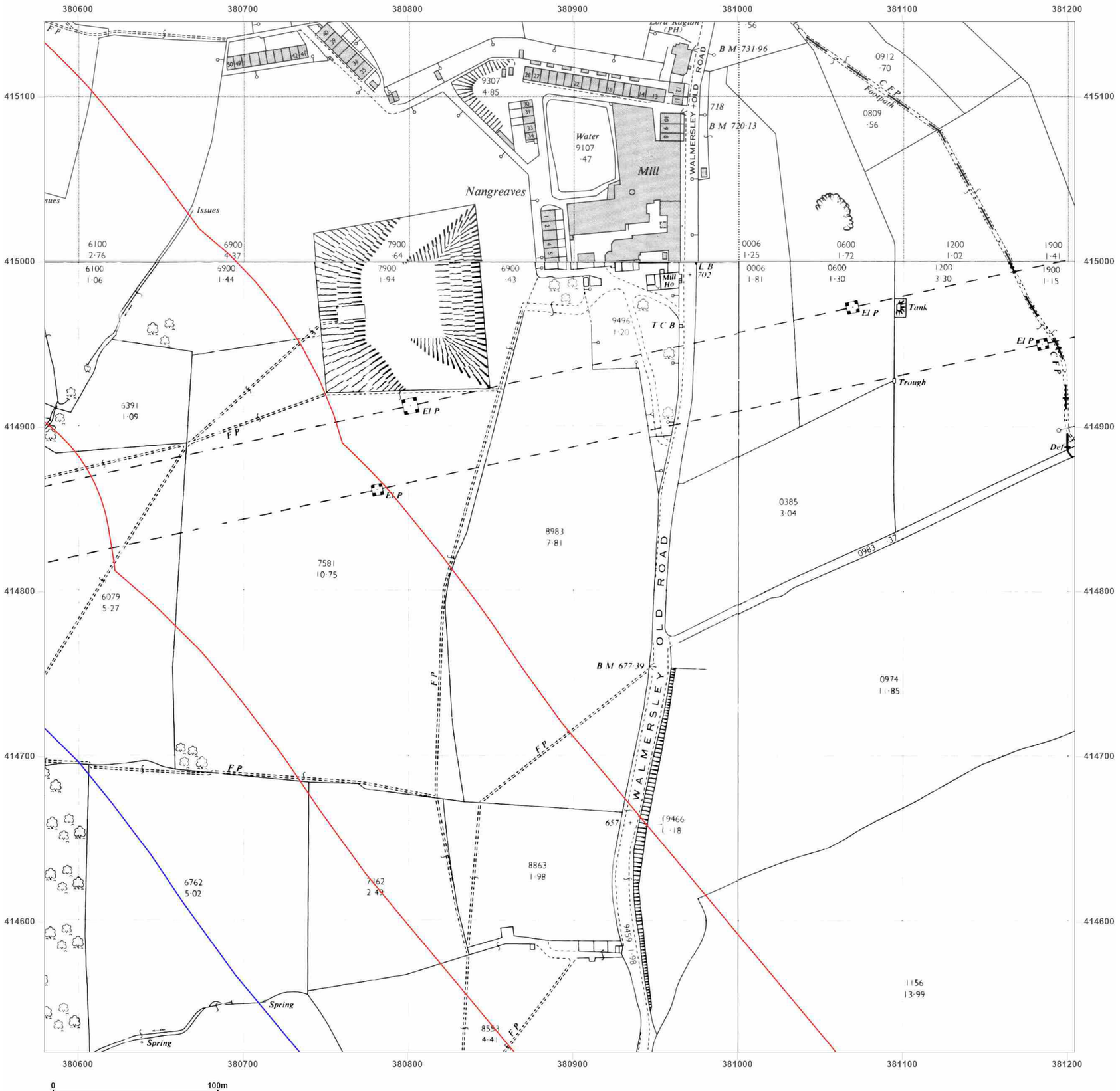
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_2
**Grid Ref:** 380892, 414833

**Map Name:** National Grid

**Map date:** **1963-1964**

**Scale:** 1:2,500

**Printed at:** 1:2,500

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Surveyed 1962
Revised 1962
Edition N/A
Copyright 1963
Levelled 1957

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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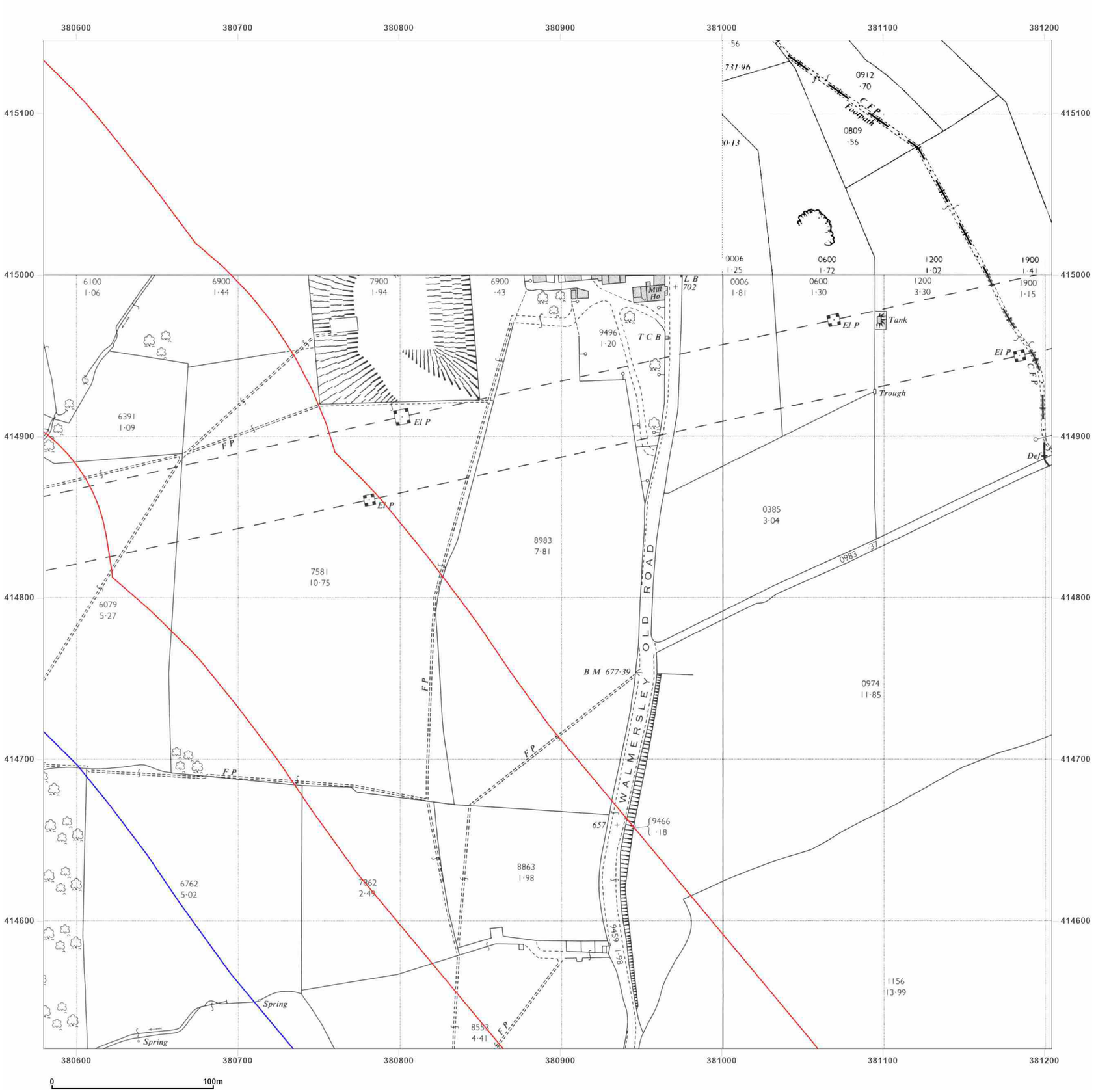
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_2
**Grid Ref:** 380892, 414833

**Map Name:** National Grid

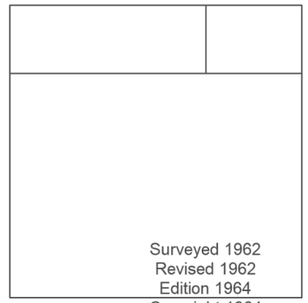
**Map date:** **1963-1964**

**Scale:** 1:2,500

**Printed at:** 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A




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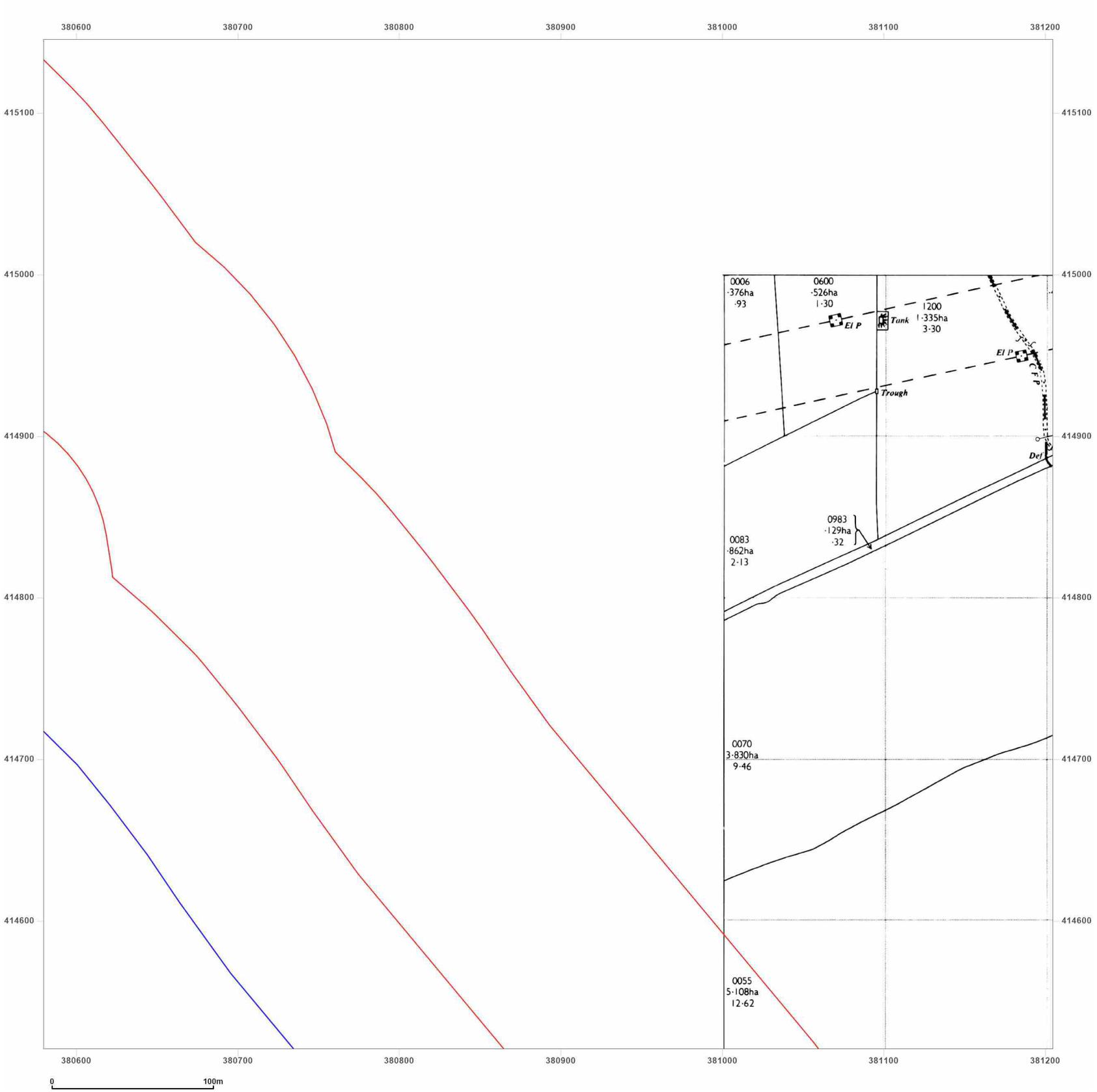
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_2
**Grid Ref:** 380892, 414833

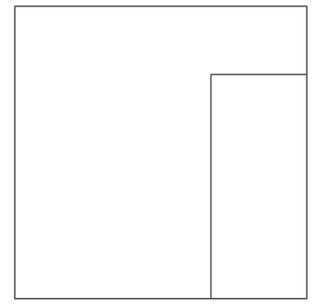
**Map Name:** National Grid

**Map date:** **1964**

**Scale:** 1:2,500

**Printed at:** 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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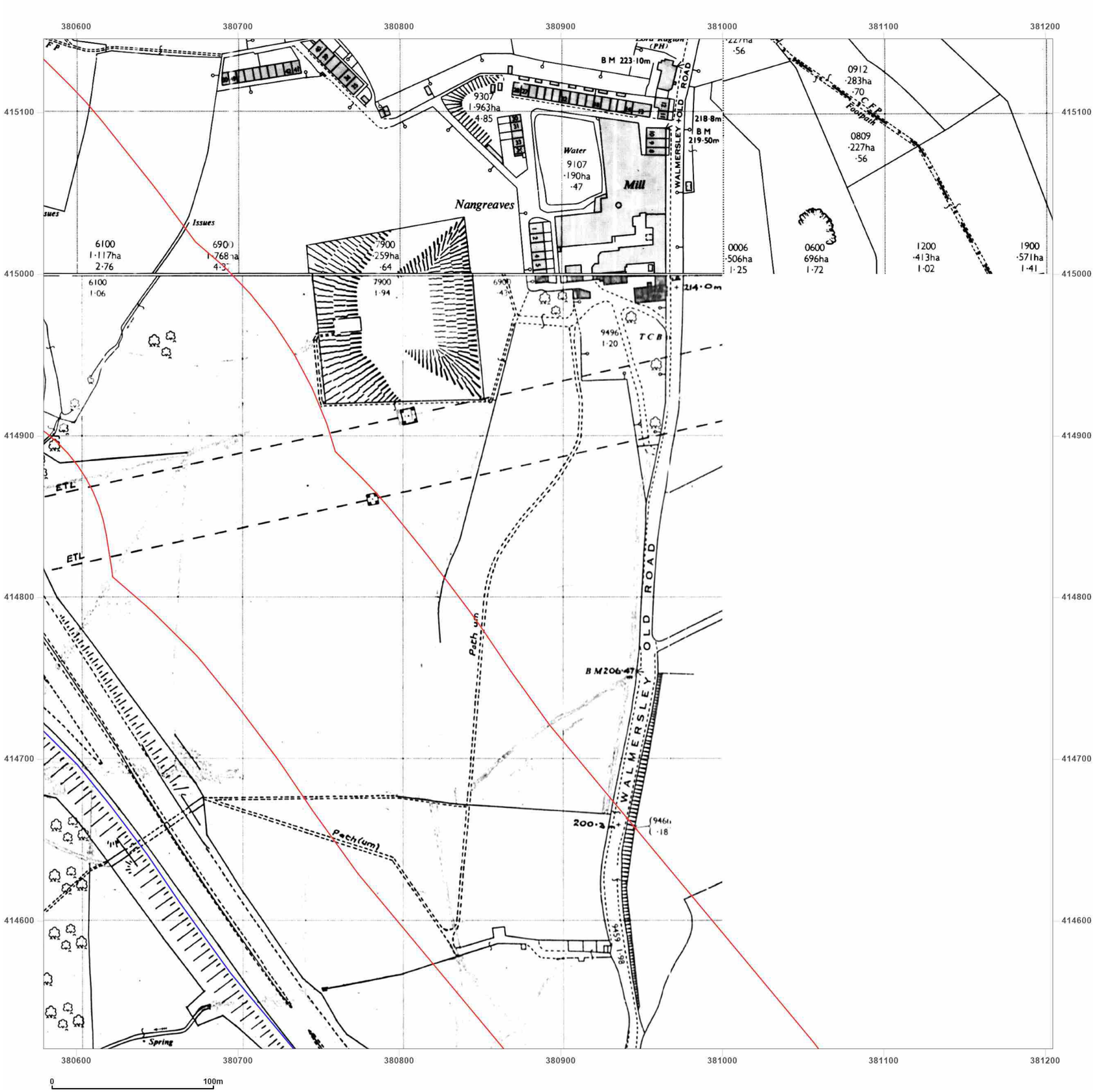
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**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_2
**Grid Ref:** 380892, 414833

**Map Name:** National Grid
**Map date:** **1978-1980**
**Scale:** 1:2,500
**Printed at:** 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1956
Revised 1980
Edition N/A
Copyright 1980
Levelled 1956

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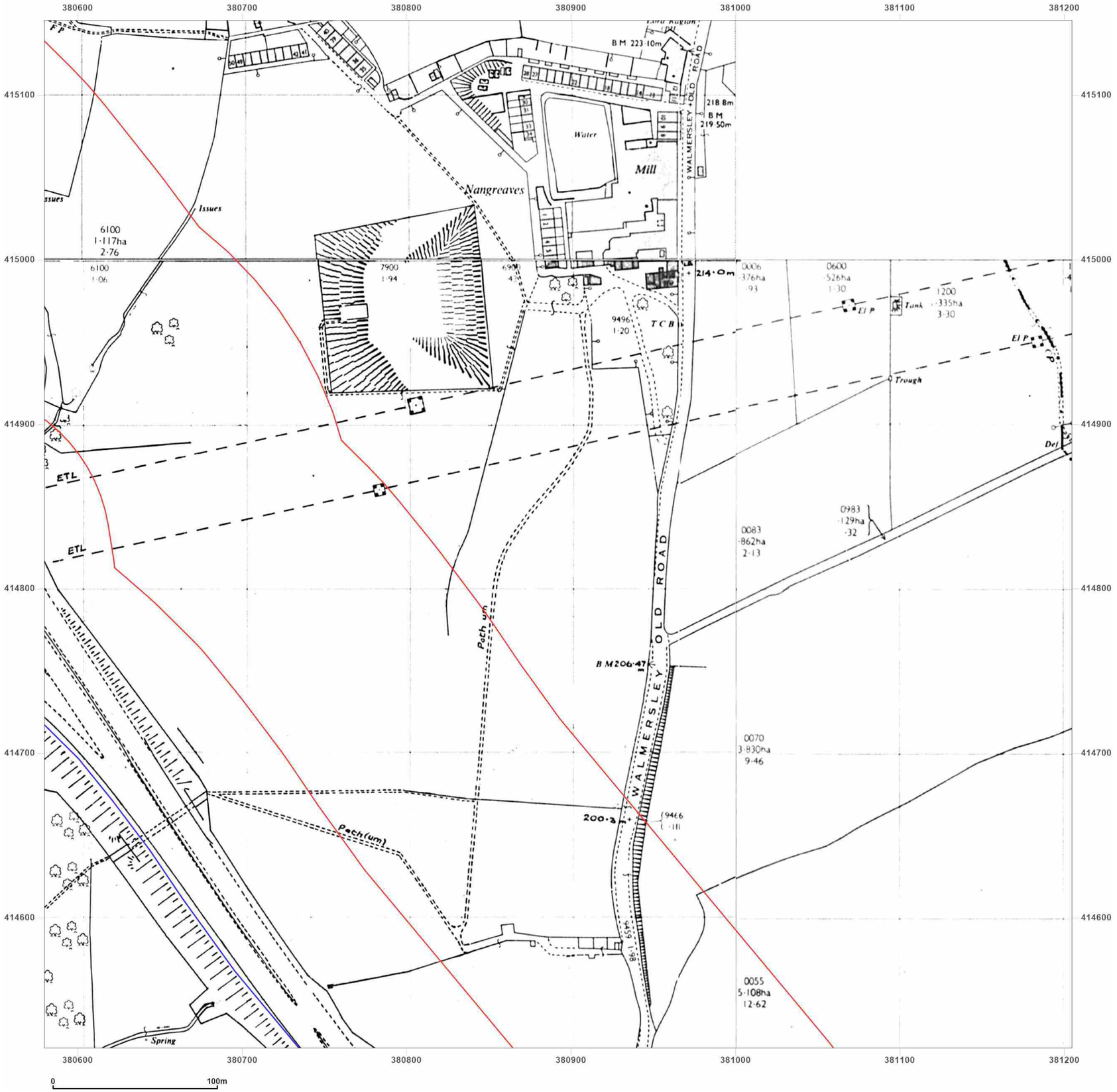
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**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_2
**Grid Ref:** 380892, 414833

**Map Name:** National Grid

**Map date:** **1980-1984**

**Scale:** 1:2,500

**Printed at:** 1:2,500

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Surveyed 1980
Revised 1980
Edition N/A
Copyright 1980
Levelled N/A

Surveyed 1956
Revised 1980
Edition N/A
Copyright 1980
Levelled 1956

Surveyed 1956
Revised 1984
Edition N/A
Copyright 1984
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_2
**Grid Ref:** 380892, 414833

**Map Name:** National Grid

**Map date:** **1987-1991**

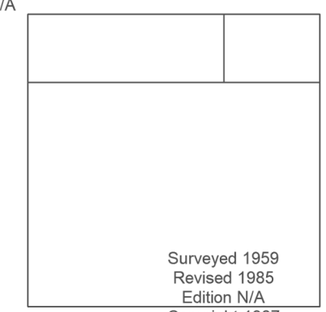
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**Printed at:** 1:2,500

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Surveyed 1989
Revised 1989
Edition N/A
Copyright 1991
Levelled N/A

Surveyed 1989
Revised 1989
Edition N/A
Copyright 1991
Levelled N/A




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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_2
**Grid Ref:** 380892, 414833

**Map Name:** National Grid

**Map date:** **1992**

**Scale:** 1:2,500

**Printed at:** 1:2,500

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Surveyed 1992
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

Surveyed 1992
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

Surveyed 1992
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

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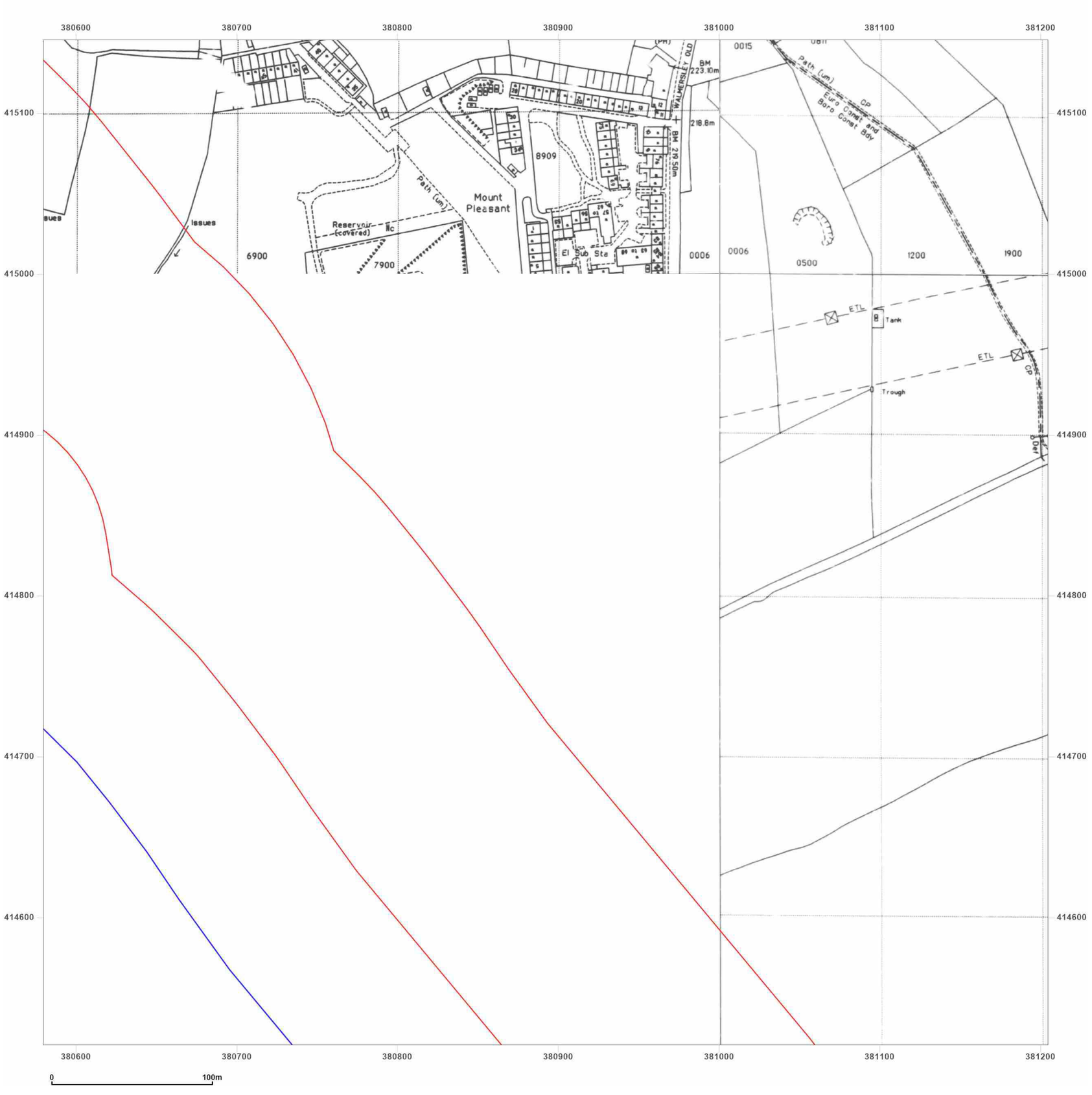
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_LS_2_2
**Grid Ref:** 380892, 414833

**Map Name:** National Grid
**Map date:** **1992-1993**
**Scale:** 1:2,500
**Printed at:** 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_1_1
**Grid Ref:** 380329, 414021

**Map Name:** National Grid

**Map date:** **1959-1960**

**Scale:** 1:1,250

**Printed at:** 1:2,000

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| Surveyed 1959<br>Revised 1959<br>Edition N/A<br>Copyright 1960<br>Levelled 1956 | Surveyed 1959<br>Revised 1959<br>Edition N/A<br>Copyright N/A<br>Levelled 1956 |

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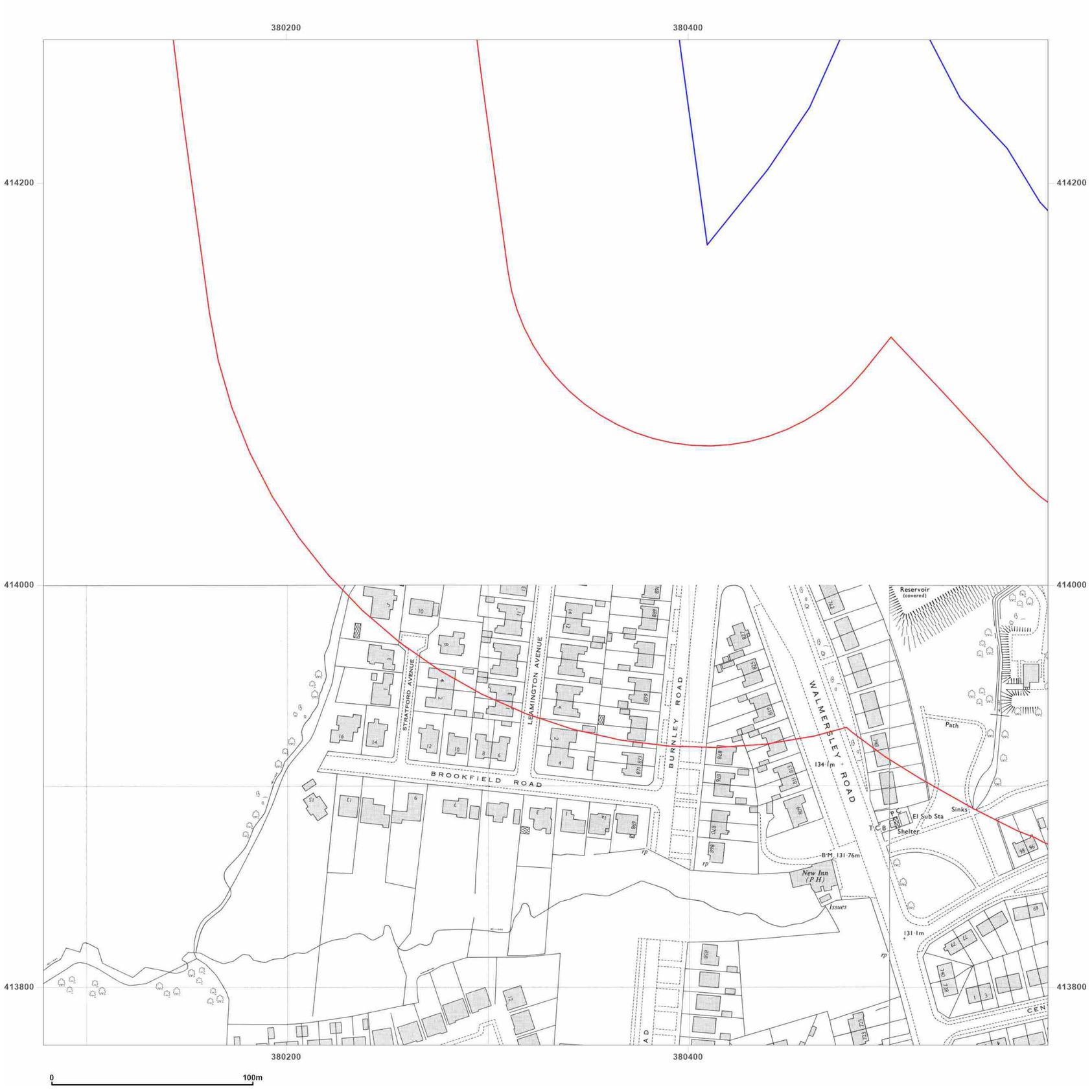
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**Site Details:**

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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_1_1
**Grid Ref:** 380329, 414021

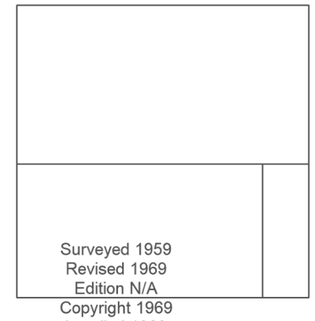
**Map Name:** National Grid

**Map date:** **1969-1971**

**Scale:** 1:1,250

**Printed at:** 1:2,000

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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_1_1
**Grid Ref:** 380329, 414021

**Map Name:** National Grid
**Map date:** **1981-1984**
**Scale:** 1:1,250
**Printed at:** 1:2,000

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Surveyed 1956
Revised 1984
Edition N/A
Copyright 1984
Levelled 1956

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1981
Levelled 1963

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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_1_1
**Grid Ref:** 380329, 414021

**Map Name:** National Grid
**Map date:** **1991-1992**
**Scale:** 1:1,250
**Printed at:** 1:2,000

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|---|---|
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| Surveyed 1992<br>Revised 1992<br>Edition N/A<br>Copyright N/A<br>Levelled N/A | Surveyed 1959<br>Revised 1970<br>Edition N/A<br>Copyright 1991<br>Levelled N/A |

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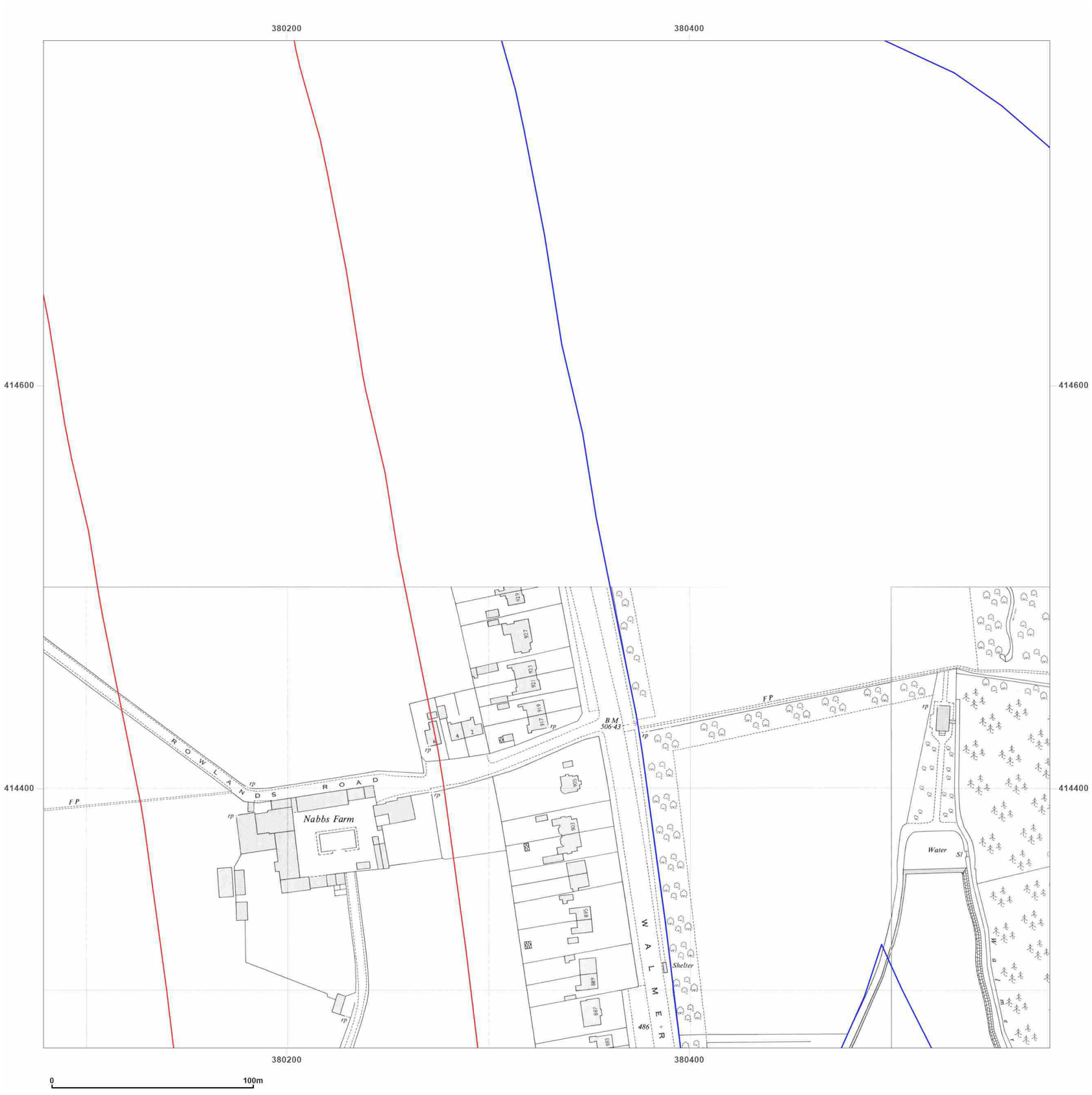
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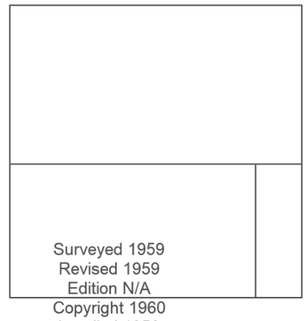
**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_1_2
**Grid Ref:** 380329, 414521

**Map Name:** National Grid
**Map date:** **1960**
**Scale:** 1:1,250
**Printed at:** 1:2,000

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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_1_2
**Grid Ref:** 380329, 414521

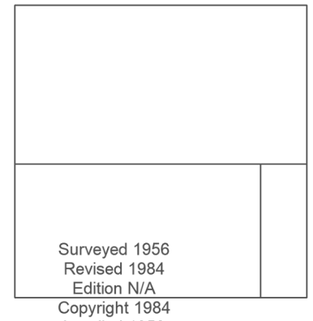
**Map Name:** National Grid

**Map date:** **1982-1984**

**Scale:** 1:1,250

**Printed at:** 1:2,000

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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_1_2
**Grid Ref:** 380329, 414521

**Map Name:** National Grid

**Map date:** **1992**

**Scale:** 1:1,250

**Printed at:** 1:2,000

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|---|---|
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| Surveyed 1992<br>Revised 1992<br>Edition N/A<br>Copyright N/A<br>Levelled N/A | Surveyed 1992<br>Revised 1992<br>Edition N/A<br>Copyright N/A<br>Levelled N/A |

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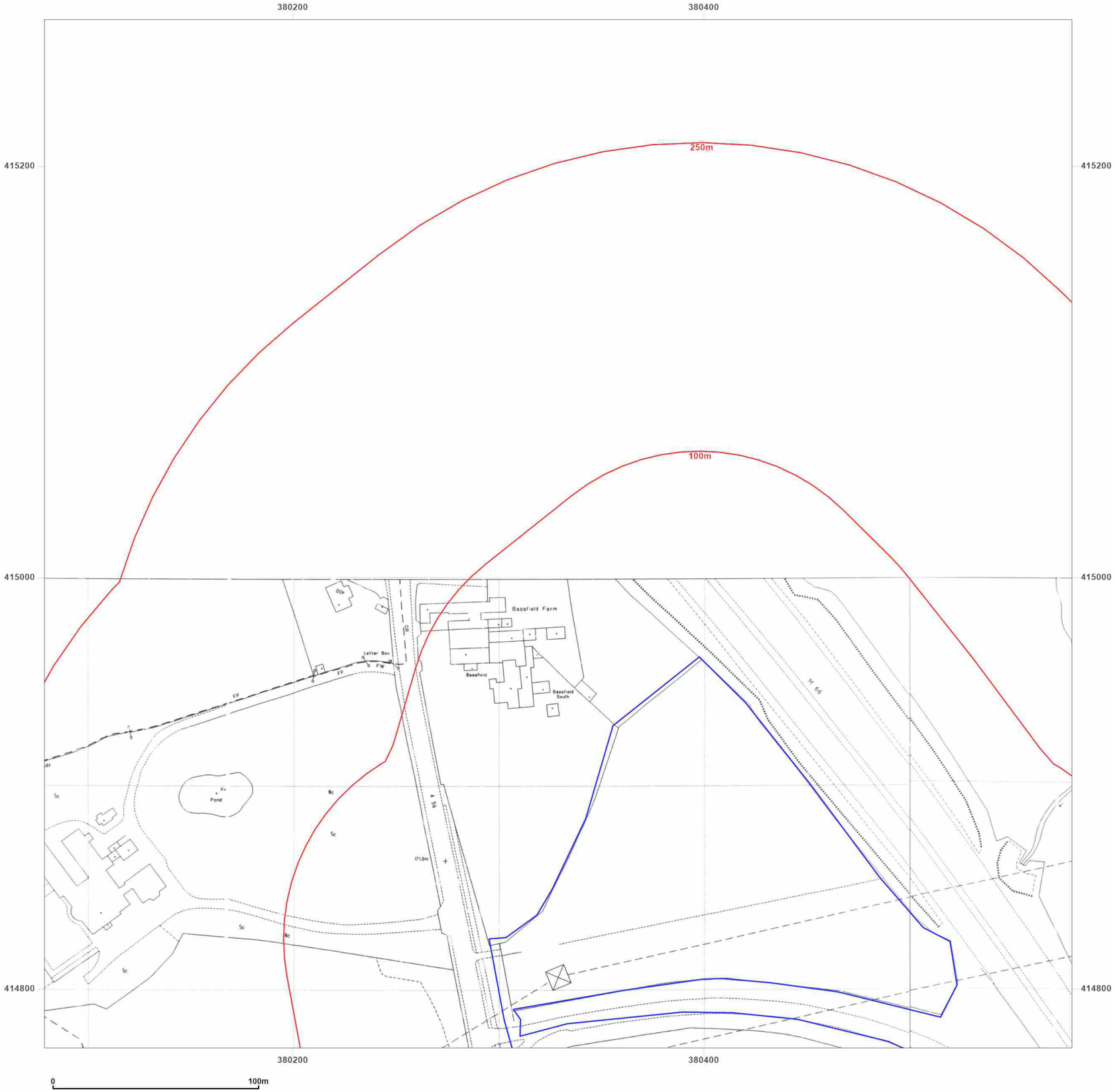
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_1_3
**Grid Ref:** 380329, 415021

**Map Name:** National Grid

**Map date:** **1992**

**Scale:** 1:1,250

**Printed at:** 1:2,000

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Edition N/A
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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_2_1
**Grid Ref:** 380829, 414021

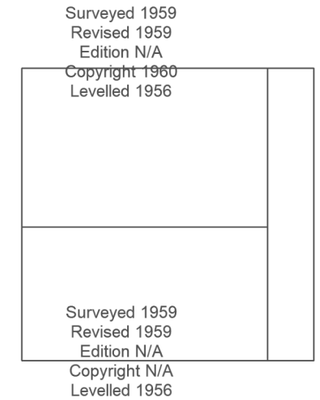
**Map Name:** National Grid

**Map date:** **1959-1960**

**Scale:** 1:1,250

**Printed at:** 1:2,000

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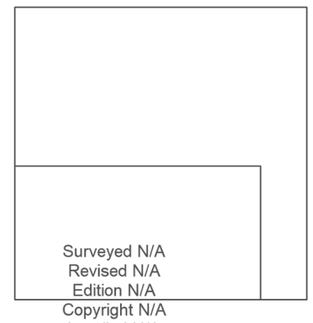
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Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_2_1
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**Map Name:** National Grid
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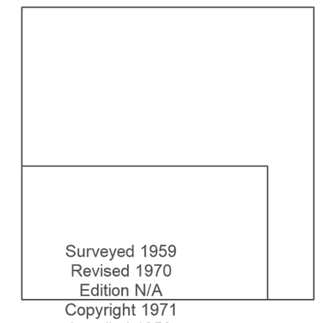
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Gin Hall, BURY, BL9 6RX

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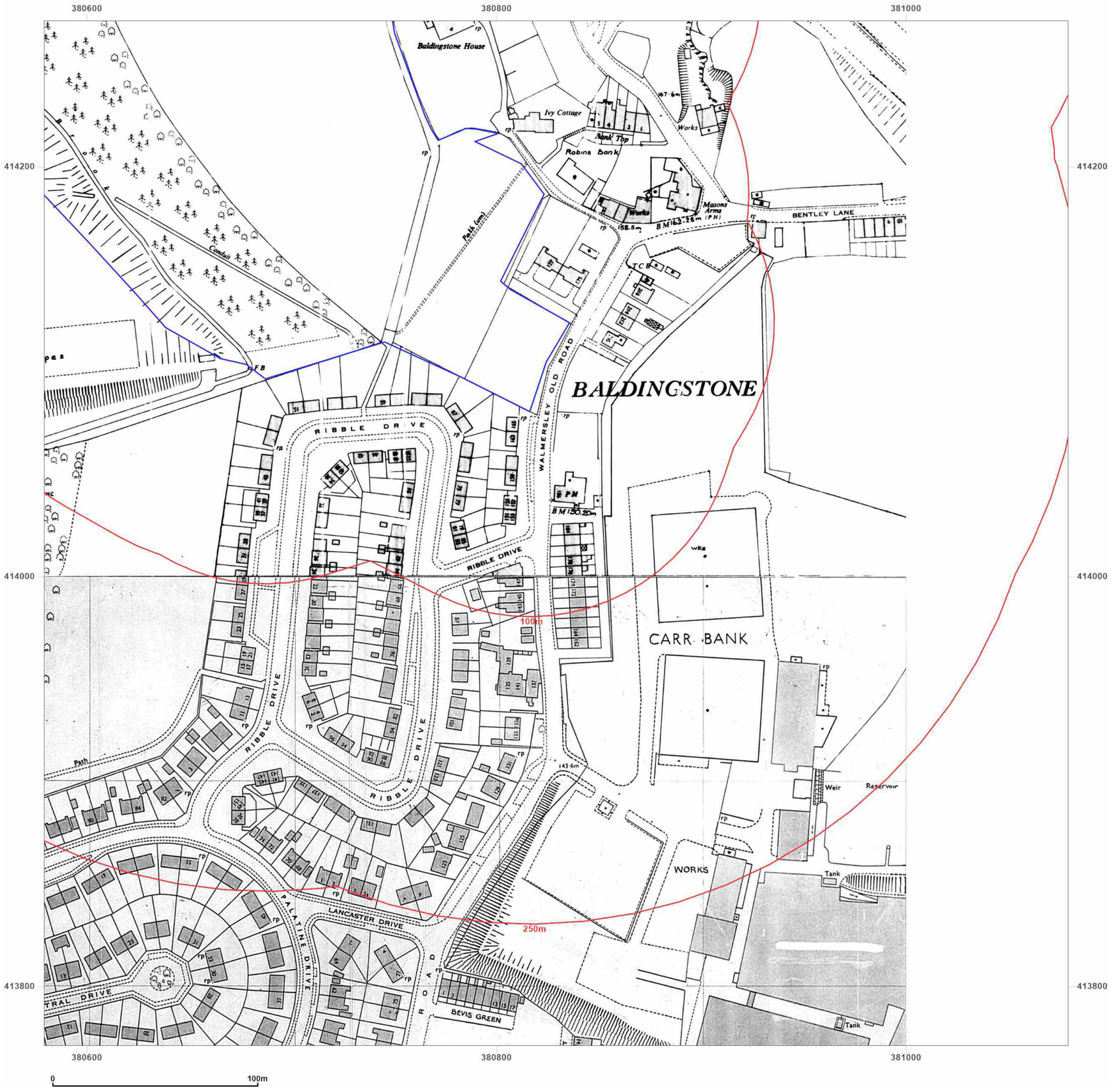
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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_2_1
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Surveyed N/A
Revised N/A
Edition N/A
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1981
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**Site Details:**

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**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_2_1
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**Printed at:** 1:2,000

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Revised 1992
Edition N/A
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Surveyed 1959
Revised 1970
Edition N/A
Copyright 1991
Levelled N/A

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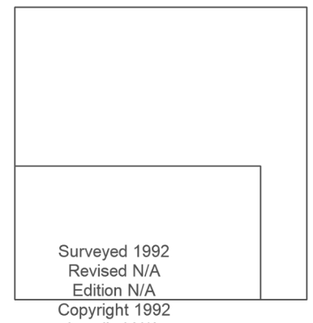
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**Map date:** **1992**
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**Site Details:**

Gin Hall, BURY, BL9 6RX

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**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_2_2
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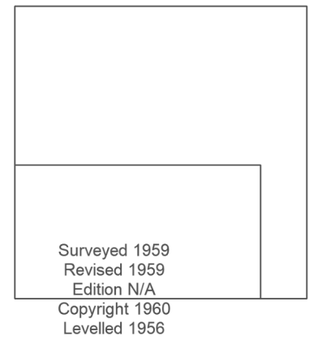
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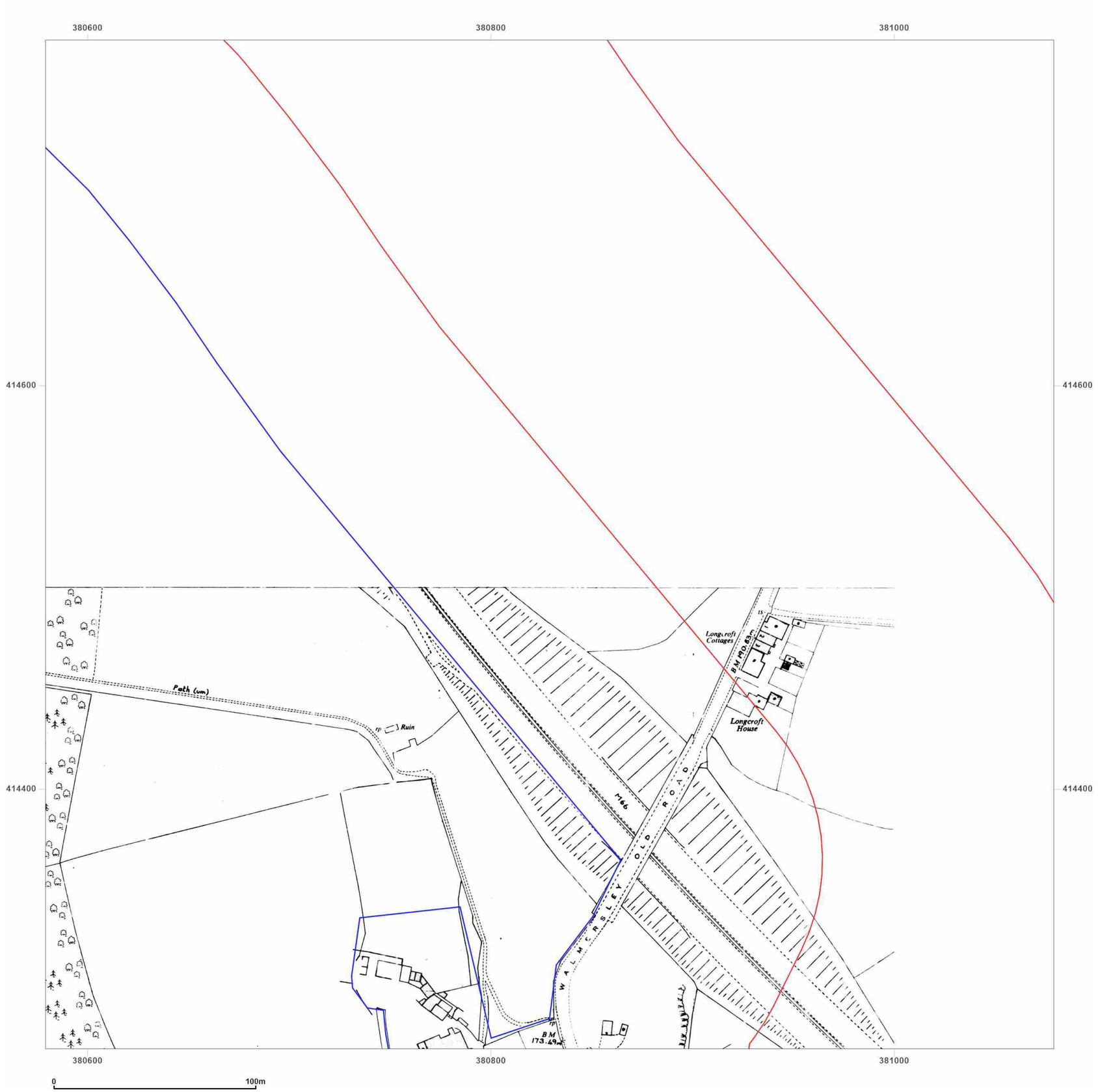
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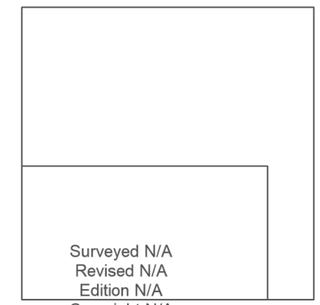
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Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
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**Map Name:** National Grid
**Map date:** **1982**
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_2_2
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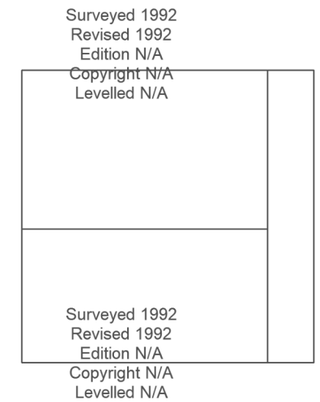
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**Scale:** 1:1,250

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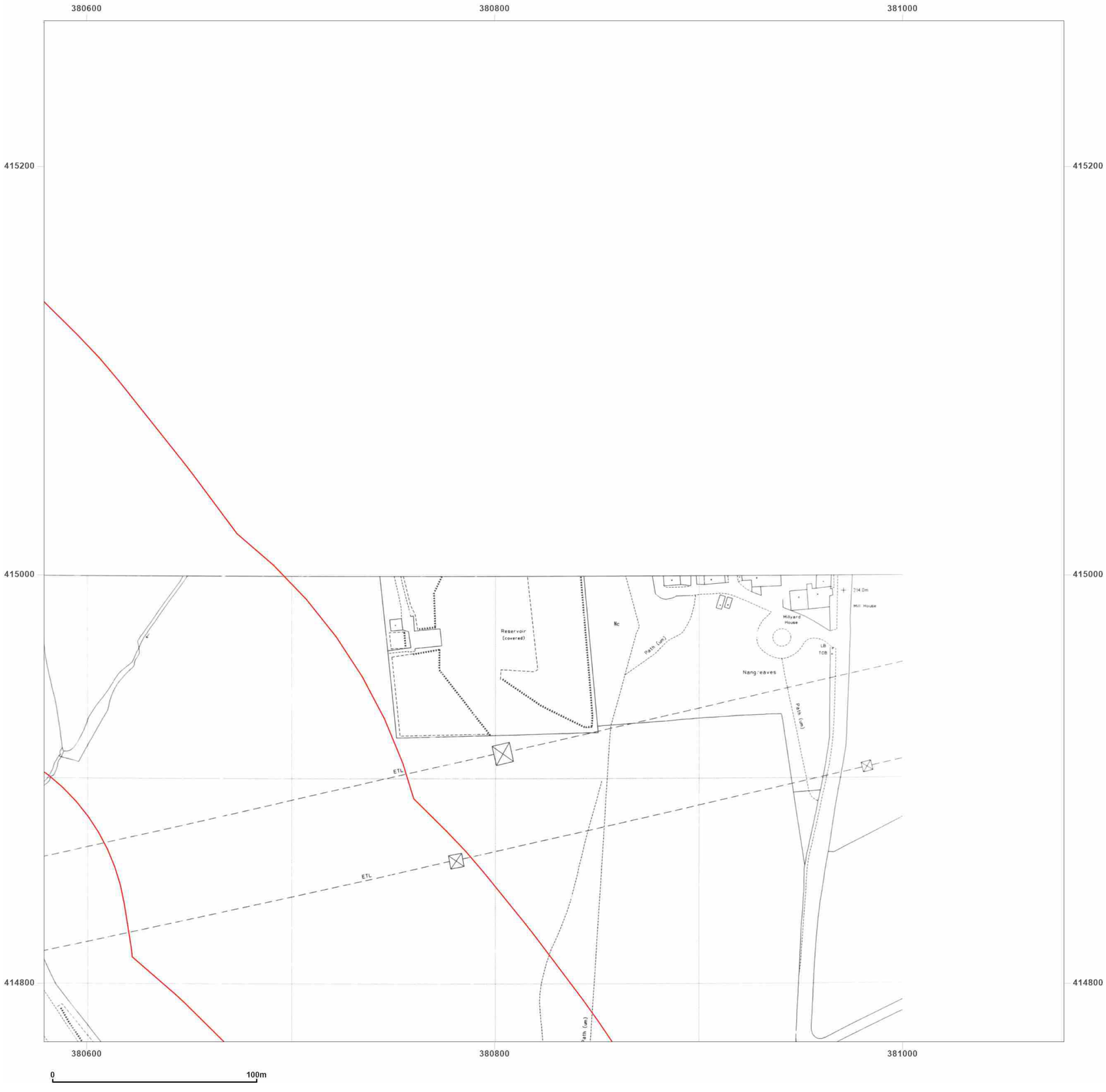
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**Site Details:**

Gin Hall, BURY, BL9 6RX

**Client Ref:** C4175/7000/MO
**Report Ref:** BRO-FEA-BTB-C1J-XVB_1250_2_3
**Grid Ref:** 380829, 415021

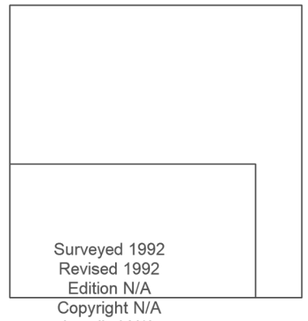
**Map Name:** National Grid

**Map date:** **1992**

**Scale:** 1:1,250

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# APPENDIX C

**Geo-Environmental Data Report**

Groundsure LOCATION INTELLIGENCE

# Enviro+Geo Insight

Gin Hall, BURY, BL9 6RX

## Order Details

**Date:** 24/10/2025

**Your ref:** C4175/7000/MO

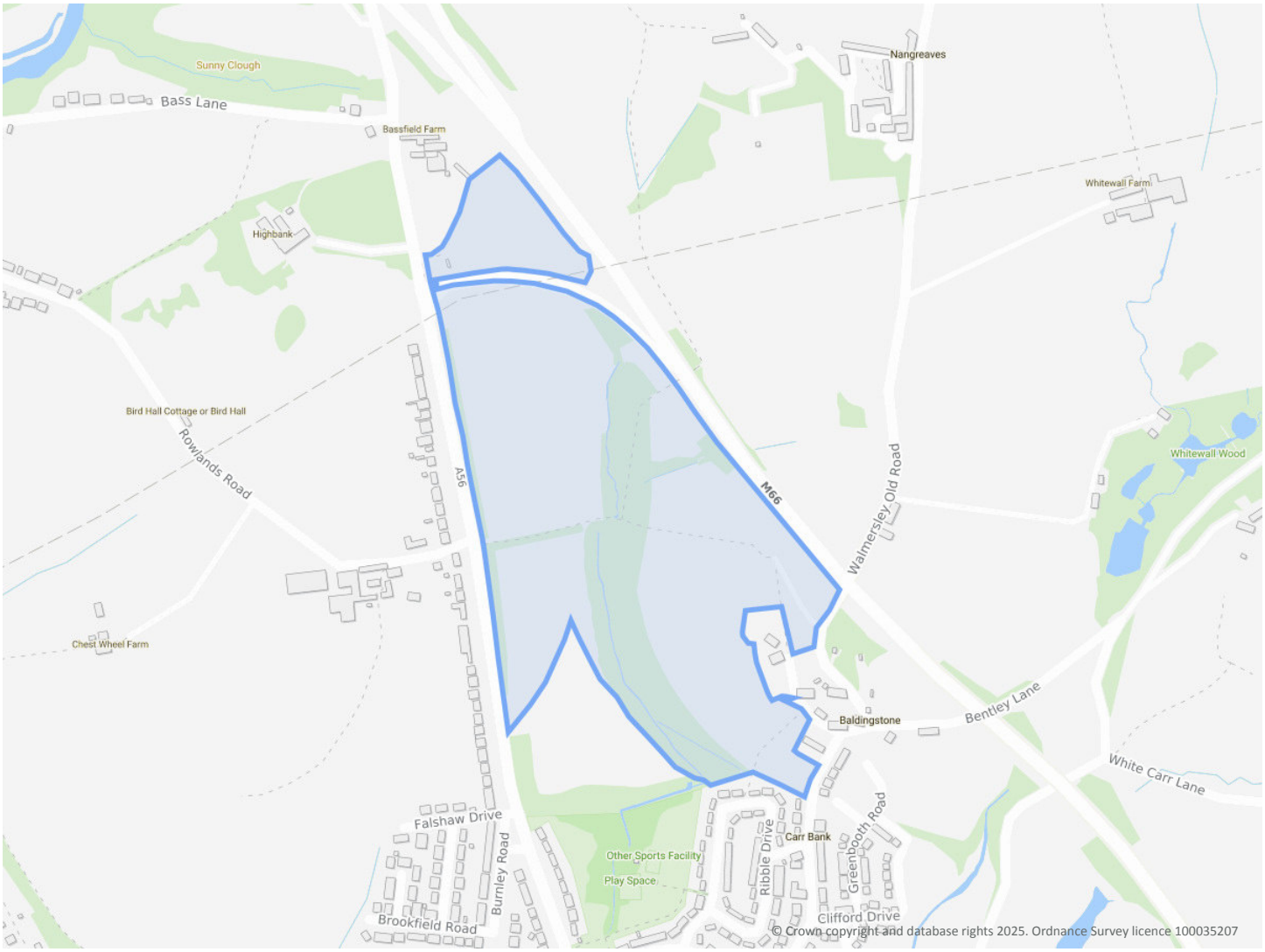
**Our Ref:** BRO-CIW-D7E-WG9-HWT

## Site Details

**Location:** 380553 414480

**Area:** 24.35 ha

**Authority:** Bury Metropolitan Borough Council ↗





**Summary of findings** p. 2 >

**OS MasterMap site plan** N/A: >10ha

**Aerial image** p. 9 >

Insight User Guide ↗



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# Summary of findings

| Page | Section | Past land use > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
|---|---|---|---|---|---|---|---|
| 14 > | 1.1 > | Historical industrial land uses > | 8 | 6 | 22 | 35 | - |
| 17 > | 1.2 > | Historical tanks > | 2 | 1 | 8 | 11 | - |
| 18 > | 1.3 > | Historical energy features > | 0 | 1 | 3 | 6 | - |
| 19 > | 1.4 > | Historical petrol stations > | 0 | 0 | 0 | 1 | - |
| 19 > | 1.5 > | Historical garages > | 0 | 0 | 0 | 1 | - |
| 20 | 1.6 | Historical military land | 0 | 0 | 0 | 0 | - |
| Page | Section | Past land use - un-grouped > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 21 > | 2.1 > | Historical industrial land uses > | 12 | 10 | 30 | 46 | - |
| 25 > | 2.2 > | Historical tanks > | 4 | 1 | 8 | 18 | - |
| 26 > | 2.3 > | Historical energy features > | 0 | 2 | 3 | 8 | - |
| 27 > | 2.4 > | Historical petrol stations > | 0 | 0 | 0 | 2 | - |
| 28 > | 2.5 > | Historical garages > | 0 | 0 | 0 | 1 | - |
| Page | Section | Waste and landfill > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 29 | 3.1 | Active or recent landfill | 0 | 0 | 0 | 0 | - |
| 29 | 3.2 | Historical landfill (BGS records) | 0 | 0 | 0 | 0 | - |
| 30 > | 3.3 > | Historical landfill (LA/mapping records) > | 0 | 0 | 3 | 0 | - |
| 30 > | 3.4 > | Historical landfill (EA/NRW records) > | 3 | 0 | 0 | 2 | - |
| 31 | 3.5 | Historical waste sites | 0 | 0 | 0 | 0 | - |
| 31 | 3.6 | Licensed waste sites | 0 | 0 | 0 | 0 | - |
| 32 > | 3.7 > | Waste exemptions > | 3 | 0 | 50 | 43 | - |
| Page | Section | Current industrial land use > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 39 > | 4.1 > | Recent industrial land uses > | 3 | 1 | 8 | - | - |
| 40 | 4.2 | National Geographic Database (NGD) - Current or recent tanks | 0 | 0 | 0 | - | - |
| 40 | 4.3 | Current or recent petrol stations | 0 | 0 | 0 | 0 | - |
| 41 | 4.4 | Electricity cables | 0 | 0 | 0 | 0 | - |
| 41 | 4.5 | Gas pipelines | 0 | 0 | 0 | 0 | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 41 | 4.6 | Sites determined as Contaminated Land | 0 | 0 | 0 | 0 | - |
| 41 | 4.7 | Control of Major Accident Hazards (COMAH) | 0 | 0 | 0 | 0 | - |
| 41 | 4.8 | Regulated explosive sites | 0 | 0 | 0 | 0 | - |
| 42 | 4.9 | Hazardous substance storage/usage | 0 | 0 | 0 | 0 | - |
| **42 >** | **4.10 >** | **Historical licensed industrial activities (IPC) >** | 0 | 0 | 0 | 3 | - |
| 42 | 4.11 | Licensed industrial activities (Part A(1)) | 0 | 0 | 0 | 0 | - |
| **43 >** | **4.12 >** | **Licensed pollutant release (Part A(2)/B) >** | 0 | 0 | 1 | 0 | - |
| 43 | 4.13 | Radioactive Substance Authorisations | 0 | 0 | 0 | 0 | - |
| **43 >** | **4.14 >** | **Licensed Discharges to controlled waters >** | 0 | 0 | 2 | 16 | - |
| 46 | 4.15 | Pollutant release to surface waters (Red List) | 0 | 0 | 0 | 0 | - |
| 46 | 4.16 | Pollutant release to public sewer | 0 | 0 | 0 | 0 | - |
| 46 | 4.17 | List 1 Dangerous Substances | 0 | 0 | 0 | 0 | - |
| 47 | 4.18 | List 2 Dangerous Substances | 0 | 0 | 0 | 0 | - |
| **47 >** | **4.19 >** | **Pollution Incidents (EA/NRW) >** | 1 | 0 | 1 | 1 | - |
| 47 | 4.20 | Pollution inventory substances | 0 | 0 | 0 | 0 | - |
| 48 | 4.21 | Pollution inventory waste transfers | 0 | 0 | 0 | 0 | - |
| 48 | 4.22 | Pollution inventory radioactive waste | 0 | 0 | 0 | 0 | - |

| Page | Section | **Hydrogeology >** | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
|---|---|---|---|---|---|---|---|
| **49 >** | **5.1 >** | **Superficial aquifer >** | Identified (within 500m) | | | | |
| **51 >** | **5.2 >** | **Bedrock aquifer >** | Identified (within 500m) | | | | |
| **53 >** | **5.3 >** | **Groundwater vulnerability >** | Identified (within 50m) | | | | |
| 54 | 5.4 | Groundwater vulnerability- soluble rock risk | None (within 0m) | | | | |
| 54 | 5.5 | Groundwater vulnerability- local information | None (within 0m) | | | | |
| **55 >** | **5.6 >** | **Groundwater abstractions >** | 0 | 0 | 0 | 0 | 37 |
| **65 >** | **5.7 >** | **Surface water abstractions >** | 0 | 0 | 2 | 0 | 7 |
| **67 >** | **5.8 >** | **Potable abstractions >** | 0 | 0 | 0 | 0 | 5 |
| 69 | 5.9 | Source Protection Zones | 0 | 0 | 0 | 0 | - |
| 69 | 5.10 | Source Protection Zones (confined aquifer) | 0 | 0 | 0 | 0 | - |

| Page | Section | **Hydrology >** | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 70 > | 6.1 > | Water Network (OS MasterMap) > | 10 | 3 | 15 | - | - |
| 73 > | 6.2 > | Surface water features > | 1 | 1 | 6 | - | - |
| 73 > | 6.3 > | WFD Surface water body catchments > | 1 | - | - | - | - |
| 73 > | 6.4 > | WFD Surface water bodies > | 0 | 0 | 0 | - | - |
| 74 > | 6.5 > | WFD Groundwater bodies > | 1 | - | - | - | - |

| Page | Section | River and coastal flooding | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
|---|---|---|---|---|---|---|---|
| 75 | 7.1 | Risk of flooding from rivers and the sea | None (within 50m) | | | | |
| 75 | 7.2 | Historical Flood Events | 0 | 0 | 0 | - | - |
| 75 | 7.3 | Flood Defences | 0 | 0 | 0 | - | - |
| 76 | 7.4 | Areas Benefiting from Flood Defences | 0 | 0 | 0 | - | - |
| 76 | 7.5 | Flood Storage Areas | 0 | 0 | 0 | - | - |
| 77 | 7.6 | Flood Zone 2 | None (within 50m) | | | | |
| 77 | 7.7 | Flood Zone 3 | None (within 50m) | | | | |

| Page | Section | Surface water flooding > | |
|---|---|---|---|
| 78 > | 8.1 > | Surface water flooding > | 1 in 30 year, Greater than 1.0m (within 50m) |

| Page | Section | Groundwater flooding > | |
|---|---|---|---|
| 80 > | 9.1 > | Groundwater flooding > | Low (within 50m) |

| Page | Section | Environmental designations > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
|---|---|---|---|---|---|---|---|
| 81 | 10.1 | Sites of Special Scientific Interest (SSSI) | 0 | 0 | 0 | 0 | 0 |
| 82 | 10.2 | Conserved wetland sites (Ramsar sites) | 0 | 0 | 0 | 0 | 0 |
| 82 | 10.3 | Special Areas of Conservation (SAC) | 0 | 0 | 0 | 0 | 0 |
| 82 | 10.4 | Special Protection Areas (SPA) | 0 | 0 | 0 | 0 | 0 |
| 82 | 10.5 | National Nature Reserves (NNR) | 0 | 0 | 0 | 0 | 0 |
| 83 > | 10.6 > | Local Nature Reserves (LNR) > | 0 | 0 | 0 | 0 | 1 |
| 83 > | 10.7 > | Designated Ancient Woodland > | 0 | 0 | 1 | 0 | 3 |
| 83 | 10.8 | Biosphere Reserves | 0 | 0 | 0 | 0 | 0 |
| 84 | 10.9 | Forest Parks | 0 | 0 | 0 | 0 | 0 |
| 84 | 10.10 | Marine Conservation Zones | 0 | 0 | 0 | 0 | 0 |
| 84 > | 10.11 > | Green Belt > | 1 | 0 | 0 | 1 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 84 | 10.12 | Proposed Ramsar sites | 0 | 0 | 0 | 0 | 0 |
| 85 | 10.13 | Possible Special Areas of Conservation (pSAC) | 0 | 0 | 0 | 0 | 0 |
| 85 | 10.14 | Potential Special Protection Areas (pSPA) | 0 | 0 | 0 | 0 | 0 |
| 85 | 10.15 | Nitrate Sensitive Areas | 0 | 0 | 0 | 0 | 0 |
| 85 | 10.16 | Nitrate Vulnerable Zones | 0 | 0 | 0 | 0 | 0 |
| 86 | 10.17 | SSSI Impact Risk Zones | 0 | - | - | - | - |
| 86 | 10.18 | SSSI Units | 0 | 0 | 0 | 0 | 0 |
| Page | Section | **Visual and cultural designations** > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 87 | 11.1 | World Heritage Sites | 0 | 0 | 0 | - | - |
| 88 | 11.2 | Area of Outstanding Natural Beauty | 0 | 0 | 0 | - | - |
| 88 | 11.3 | National Parks | 0 | 0 | 0 | - | - |
| **88** > | **11.4** > | **Listed Buildings** > | 0 | 1 | 0 | - | - |
| 89 | 11.5 | Conservation Areas | 0 | 0 | 0 | - | - |
| 89 | 11.6 | Scheduled Ancient Monuments | 0 | 0 | 0 | - | - |
| 89 | 11.7 | Registered Parks and Gardens | 0 | 0 | 0 | - | - |
| Page | Section | **Agricultural designations** > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| **90** > | **12.1** > | **Agricultural Land Classification** > | Grade 4 (within 250m) | | | | |
| 91 | 12.2 | Open Access Land | 0 | 0 | 0 | - | - |
| **91** > | **12.3** > | **Tree Felling Licences** > | 5 | 8 | 9 | - | - |
| **92** > | **12.4** > | **Environmental Stewardship Schemes** > | 0 | 0 | 1 | - | - |
| **92** > | **12.5** > | **Countryside Stewardship Schemes** > | 0 | 0 | 3 | - | - |
| Page | Section | **Habitat designations** > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| **93** > | **13.1** > | **Priority Habitat Inventory** > | 13 | 6 | 16 | - | - |
| 95 | 13.2 | Habitat Networks | 0 | 0 | 0 | - | - |
| 95 | 13.3 | Open Mosaic Habitat | 0 | 0 | 0 | - | - |
| 95 | 13.4 | Limestone Pavement Orders | 0 | 0 | 0 | - | - |
| Page | Section | **Geology 1:10,000 scale** > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| **96** > | **14.1** > | **10k Availability** > | Identified (within 500m) | | | | |
| **98** > | **14.2** > | **Artificial and made ground (10k)** > | 4 | 2 | 6 | 9 | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 100 > | 14.3 > | Superficial geology (10k) > | 1 | 1 | 0 | 4 | - |
| 101 | 14.4 | Landslip (10k) | 0 | 0 | 0 | 0 | - |
| 102 > | 14.5 > | Bedrock geology (10k) > | 8 | 5 | 10 | 33 | - |
| 105 > | 14.6 > | Bedrock faults and other linear features (10k) > | 3 | 1 | 5 | 29 | - |
| Page | Section | Geology 1:50,000 scale > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 107 > | 15.1 > | 50k Availability > | Identified (within 500m) | | | | |
| 108 > | 15.2 > | Artificial and made ground (50k) > | 1 | 0 | 1 | 0 | - |
| 109 > | 15.3 > | Artificial ground permeability (50k) > | 1 | 0 | - | - | - |
| 110 > | 15.4 > | Superficial geology (50k) > | 1 | 0 | 0 | 0 | - |
| 111 > | 15.5 > | Superficial permeability (50k) > | Identified (within 50m) | | | | |
| 111 | 15.6 | Landslip (50k) | 0 | 0 | 0 | 0 | - |
| 111 | 15.7 | Landslip permeability (50k) | None (within 50m) | | | | |
| 112 > | 15.8 > | Bedrock geology (50k) > | 7 | 4 | 5 | 10 | - |
| 114 > | 15.9 > | Bedrock permeability (50k) > | Identified (within 50m) | | | | |
| 114 > | 15.10 > | Bedrock faults and other linear features (50k) > | 4 | 0 | 3 | 7 | - |
| Page | Section | Boreholes > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 116 > | 16.1 > | BGS Boreholes > | 16 | 12 | 15 | - | - |
| Page | Section | Natural ground subsidence > | | | | | |
| 119 > | 17.1 > | Shrink swell clays > | Very low (within 50m) | | | | |
| 121 > | 17.2 > | Running sands > | Very low (within 50m) | | | | |
| 123 > | 17.3 > | Compressible deposits > | Very low (within 50m) | | | | |
| 125 > | 17.4 > | Collapsible deposits > | Very low (within 50m) | | | | |
| 126 > | 17.5 > | Landslides > | Moderate (within 50m) | | | | |
| 128 > | 17.6 > | Ground dissolution of soluble rocks > | Negligible (within 50m) | | | | |
| Page | Section | Mining and ground workings > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 130 > | 18.1 > | BritPits > | 0 | 1 | 3 | 0 | - |
| 132 > | 18.2 > | Surface ground workings > | 17 | 8 | 45 | - | - |
| 134 > | 18.3 > | Underground workings > | 0 | 0 | 1 | 1 | 13 |
| 135 | 18.4 | Underground mining extents | 0 | 0 | 0 | 0 | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 135 | 18.5 | Historical Mineral Planning Areas | 0 | 0 | 0 | 0 | - |
| **136 >** | **18.6 >** | **Non-coal mining >** | 1 | 1 | 0 | 2 | 0 |
| 136 | 18.7 | JPB mining areas | None (within 0m) | | | | |
| 137 | 18.8 | The Coal Authority non-coal mining | 0 | 0 | 0 | 0 | - |
| 137 | 18.9 | Researched mining | 0 | 0 | 0 | 0 | - |
| 137 | 18.10 | Mining record office plans | 0 | 0 | 0 | 0 | - |
| 137 | 18.11 | BGS mine plans | 0 | 0 | 0 | 0 | - |
| **138 >** | **18.12 >** | **Coal mining >** | Identified (within 0m) | | | | |
| 138 | 18.13 | Brine areas | None (within 0m) | | | | |
| 138 | 18.14 | Gypsum areas | None (within 0m) | | | | |
| 138 | 18.15 | Tin mining | None (within 0m) | | | | |
| 138 | 18.16 | Clay mining | None (within 0m) | | | | |

| Page | Section | Ground cavities and sinkholes | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
|---|---|---|---|---|---|---|---|
| 139 | 19.1 | Natural cavities | 0 | 0 | 0 | 0 | - |
| 139 | 19.2 | Mining cavities | 0 | 0 | 0 | 0 | 0 |
| 139 | 19.3 | Reported recent incidents | 0 | 0 | 0 | 0 | - |
| 139 | 19.4 | Historical incidents | 0 | 0 | 0 | 0 | - |

| Page | Section | **Radon >** |
|---|---|---|
| **141 >** | **20.1 >** | **Radon >** Between 1% and 3% (within 0m) |

| Page | Section | **Soil chemistry >** | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
|---|---|---|---|---|---|---|---|
| **143 >** | **21.1 >** | **BGS Estimated Background Soil Chemistry >** | 14 | 3 | - | - | - |
| 144 | 21.2 | BGS Estimated Urban Soil Chemistry | 0 | 0 | - | - | - |
| 144 | 21.3 | BGS Measured Urban Soil Chemistry | 0 | 0 | - | - | - |

| Page | Section | Railway infrastructure and projects | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
|---|---|---|---|---|---|---|---|
| 145 | 22.1 | Underground railways (London) | 0 | 0 | 0 | - | - |
| 145 | 22.2 | Underground railways (Non-London) | 0 | 0 | 0 | - | - |
| 145 | 22.3 | Railway tunnels | 0 | 0 | 0 | - | - |
| 145 | 22.4 | Historical railway and tunnel features | 0 | 0 | 0 | - | - |
| 145 | 22.5 | Royal Mail tunnels | 0 | 0 | 0 | - | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 146 | 22.6 | Historical railways | 0 | 0 | 0 | - | - |
| 146 | 22.7 | Railways | 0 | 0 | 0 | - | - |
| 146 | 22.8 | Crossrail 2 | 0 | 0 | 0 | 0 | - |
| 146 | 22.9 | HS2 | 0 | 0 | 0 | 0 | - |

## Recent aerial photograph




Capture Date: 07/04/2023

Site Area: 24.35ha

# Recent site history - 2019 aerial photograph




Capture Date: 23/05/2019

Site Area: 24.35ha

# Recent site history - 2001 aerial photograph




Capture Date: 07/05/2001

Site Area: 24.35ha

# Recent site history - 2000 aerial photograph




Capture Date: 07/05/2000

Site Area: 24.35ha

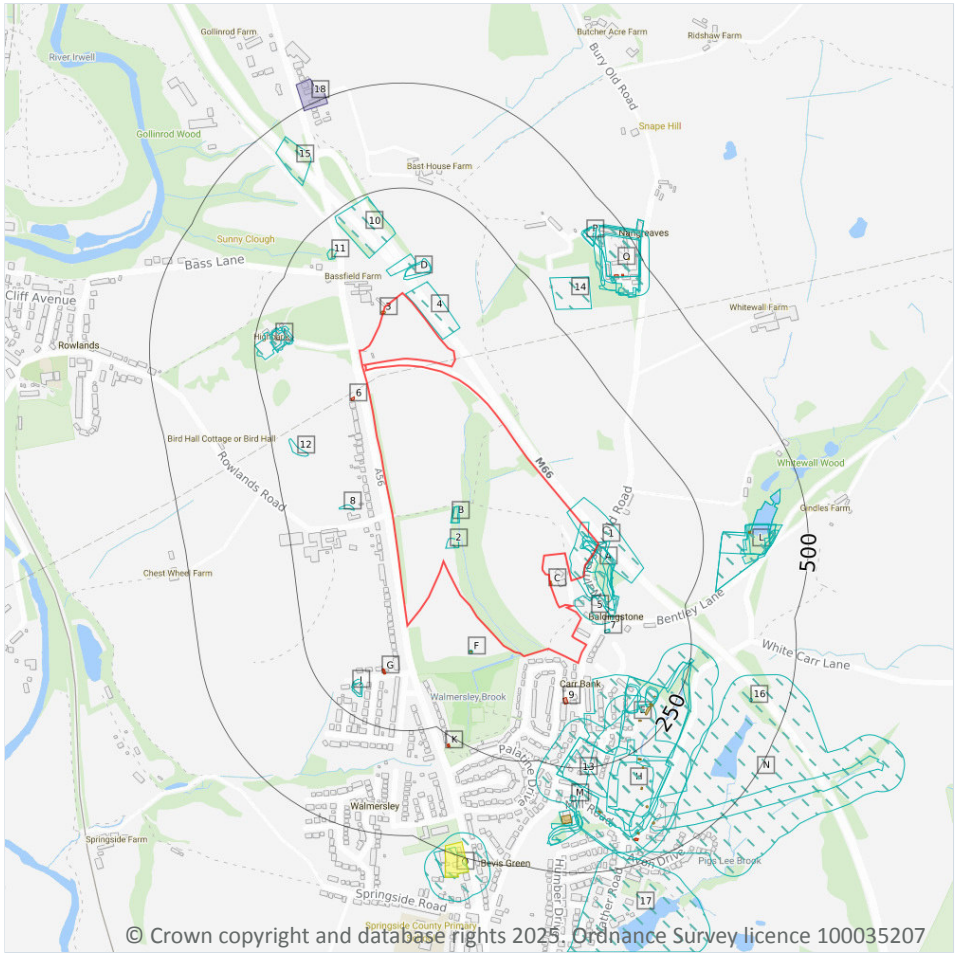
# Recent site history - 1999 aerial photograph




Capture Date: 10/09/1999

Site Area: 24.35ha

# 1 Past land use




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## 1.1 Historical industrial land uses

| Records within 500m | 71 |
|---|---|

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14 >**

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| **1** | **On site** | **Cuttings** | **1983** | **653041** |

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| **2** | **On site** | **Filter Bed** | **1891 - 1938** | **769242** |
| **A** | **On site** | **Unspecified Old Quarry** | **1908** | **659513** |
| **A** | **On site** | **Sandstone Quarry** | **1851** | **667305** |
| **A** | **On site** | **Unspecified Quarry** | **1938 - 1956** | **772939** |
| **A** | **On site** | **Unspecified Quarry** | **1891** | **795644** |
| **B** | **On site** | **Pumping Station** | **1928** | **728040** |
| **B** | **On site** | **Pumping Station** | **1938** | **798422** |
| 4 | 2m NE | Cuttings | 1983 | 653040 |
| 5 | 7m NE | Unspecified Works | 1967 - 1983 | 797930 |
| D | 33m N | Unspecified Pit | 1928 - 1938 | 794065 |
| D | 40m N | Unspecified Pit | 1949 - 1987 | 777649 |
| A | 46m SE | Unspecified Ground Workings | 1983 | 660842 |
| D | 48m NW | Cuttings | 1992 | 653276 |
| E | 52m SE | Unspecified Works | 1983 | 791750 |
| 7 | 53m NE | Smithy | 1851 | 680296 |
| F | 63m SW | Unspecified Tank | 1983 | 697580 |
| 8 | 87m W | Sandstone Quarry | 1851 | 667496 |
| 10 | 114m NW | Cuttings | 1992 | 653481 |
| H | 120m SE | Print Works | 1928 - 1938 | 750372 |
| H | 125m E | Unspecified Works | 1967 - 1983 | 774156 |
| E | 129m SE | Unspecified Quarry | 1938 - 1956 | 743929 |
| E | 130m SE | Unspecified Quarry | 1928 | 754815 |
| H | 133m S | Unspecified Disused Mills | 1908 | 654435 |
| H | 155m SE | Print Works | 1956 | 716131 |
| I | 159m W | Incurables Hospital | 1938 - 1956 | 757577 |
| I | 162m W | Hospital | 1908 - 1928 | 749609 |
| 11 | 166m NW | Refuse Heap | 1928 - 1938 | 761418 |
| 12 | 168m W | Sandstone Quarry | 1851 | 667528 |

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| J | 171m SW | Unspecified Pit | 1956 | 783018 |
| J | 174m SW | Unspecified Pit | 1928 - 1938 | 728227 |
| E | 175m E | Unspecified Heap | 1938 - 1956 | 781252 |
| E | 177m E | Unspecified Heap | 1928 | 801735 |
| I | 178m W | Hospital | 1891 | 744489 |
| 13 | 206m S | Unspecified Heap | 1983 | 688432 |
| H | 218m SE | Unspecified Mills | 1891 | 670028 |
| H | 257m SE | Cotton Mill | 1851 | 654810 |
| 14 | 263m E | Unspecified Heap | 1967 - 1983 | 749777 |
| L | 289m E | Bleach Works | 1928 - 1938 | 757825 |
| L | 290m E | Disused Bleach Works | 1956 | 678556 |
| L | 290m E | Unspecified Commercial/Industrial | 1967 - 1983 | 741596 |
| M | 315m S | Smithy | 1908 | 680297 |
| H | 328m SE | Chimney | 1851 | 701945 |
| L | 339m E | Bleach Works | 1891 | 752525 |
| N | 343m SE | Colliery | 1891 | 690217 |
| L | 344m E | Unspecified Disused Works | 1908 | 692789 |
| 15 | 348m NW | Cuttings | 1992 | 653480 |
| M | 350m S | Disused Sewage Tanks | 1938 - 1956 | 776915 |
| M | 353m S | Unspecified Heap | 1938 - 1956 | 721237 |
| L | 359m E | Bleach Mill | 1851 | 665199 |
| H | 360m S | Unspecified Mill | 1851 | 673480 |
| M | 361m S | Unspecified Ground Workings | 1928 | 660998 |
| H | 369m S | Unspecified Tank | 1956 | 697582 |
| O | 379m NE | Cotton Mill | 1891 | 654664 |
| M | 380m S | Disused Sewage Tanks | 1928 | 709629 |
| O | 387m NE | Unspecified Mill | 1908 - 1928 | 786855 |
| H | 389m S | Unspecified Tank | 1956 | 697581 |

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| O | 396m NE | Cotton Mills | 1851 | 673118 |
| O | 405m NE | Unspecified Mill | 1938 | 779319 |
| O | 406m NE | Unspecified Mill | 1949 | 734878 |
| O | 406m NE | Unspecified Mill | 1967 - 1987 | 789497 |
| L | 407m E | Unspecified Heap | 1938 | 688866 |
| 16 | 409m E | Old Coal Shaft | 1908 | 657978 |
| O | 410m NE | Unspecified Tank | 1851 | 697812 |
| P | 411m NE | Unspecified Heap | 1908 - 1928 | 767186 |
| P | 413m NE | Unspecified Heap | 1938 | 741987 |
| N | 415m SE | Tramway Sidings | 1891 | 704696 |
| H | 420m S | Unspecified Tank | 1928 - 1938 | 750759 |
| Q | 442m S | Brewery | 1891 - 1908 | 786000 |
| 17 | 461m S | Bleach and Dye works | 1908 | 665938 |
| Q | 483m S | Unspecified Works | 1967 - 1983 | 750824 |

*This data is sourced from Ordnance Survey / Groundsure.*

## 1.2 Historical tanks

| **Records within 500m** | **22** |
|---|---|

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14 >**

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| **3** | **On site** | **Unspecified Tank** | **1964 - 1980** | **104216** |
| **C** | **On site** | **Unspecified Tank** | **1910** | **86886** |
| C | 1m E | Unspecified Tank | 1910 | 86887 |
| F | 66m SW | Unspecified Tank | 1964 | 93430 |

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| F | 66m SW | Unspecified Tank | 1987 | 98792 |
| F | 66m SW | Unspecified Tank | 1960 | 94801 |
| F | 66m SW | Unspecified Tank | 1992 | 91716 |
| E | 195m SE | Tanks | 1991 | 81644 |
| E | 197m SE | Tanks | 1991 | 81645 |
| E | 198m SE | Unspecified Tank | 1992 | 83980 |
| E | 199m SE | Tanks | 1991 | 81646 |
| H | 269m SE | Unspecified Tank | 1971 | 98703 |
| H | 269m SE | Unspecified Tank | 1981 - 1991 | 94723 |
| H | 291m SE | Unspecified Tank | 1891 | 86884 |
| H | 332m SE | Unspecified Tank | 1971 - 1991 | 101079 |
| H | 355m S | Unspecified Tank | 1991 | 86892 |
| L | 359m E | Unspecified Tank | 1964 - 1984 | 105364 |
| M | 362m S | Disused Sewage Tanks | 1930 - 1937 | 95763 |
| H | 377m SE | Unspecified Tank | 1891 | 86883 |
| H | 419m SE | Unspecified Tank | 1959 - 1963 | 102234 |
| H | 428m S | Unspecified Tank | 1930 - 1937 | 103980 |
| O | 469m NE | Unspecified Tank | 1963 | 85298 |

*This data is sourced from Ordnance Survey / Groundsure.*

## 1.3 Historical energy features

| **Records within 500m** | **10** |
|---|---|

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14 >**

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| 6 | 37m W | Electricity Substation | 1987 - 1992 | 58291 |
| 9 | 87m S | Electricity Substation | 1991 | 48567 |
| G | 117m SW | Electricity Substation | 1984 | 52118 |
| G | 118m SW | Electricity Substation | 1992 | 55274 |
| K | 267m SW | Electricity Substation | 1981 - 1991 | 51807 |
| K | 268m SW | Electricity Substation | 1971 | 52383 |
| O | 421m NE | Electricity Substation | 1992 | 47194 |
| O | 439m NE | Electricity Substation | 1991 | 48563 |
| H | 439m S | Electricity Substation | 1971 | 64359 |
| H | 440m S | Electricity Substation | 1981 - 1991 | 50302 |

*This data is sourced from Ordnance Survey / Groundsure.*

## 1.4 Historical petrol stations

| **Records within 500m** | **1** |
|---|---|

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14 >**

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| Q | 466m S | Petroleum Works | 1971 - 1981 | 1444 |

*This data is sourced from Ordnance Survey / Groundsure.*

## 1.5 Historical garages

| **Records within 500m** | **1** |
|---|---|

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14 >**

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| 18 | 485m N | Garage | 1963 | 16148 |

*This data is sourced from Ordnance Survey / Groundsure.*

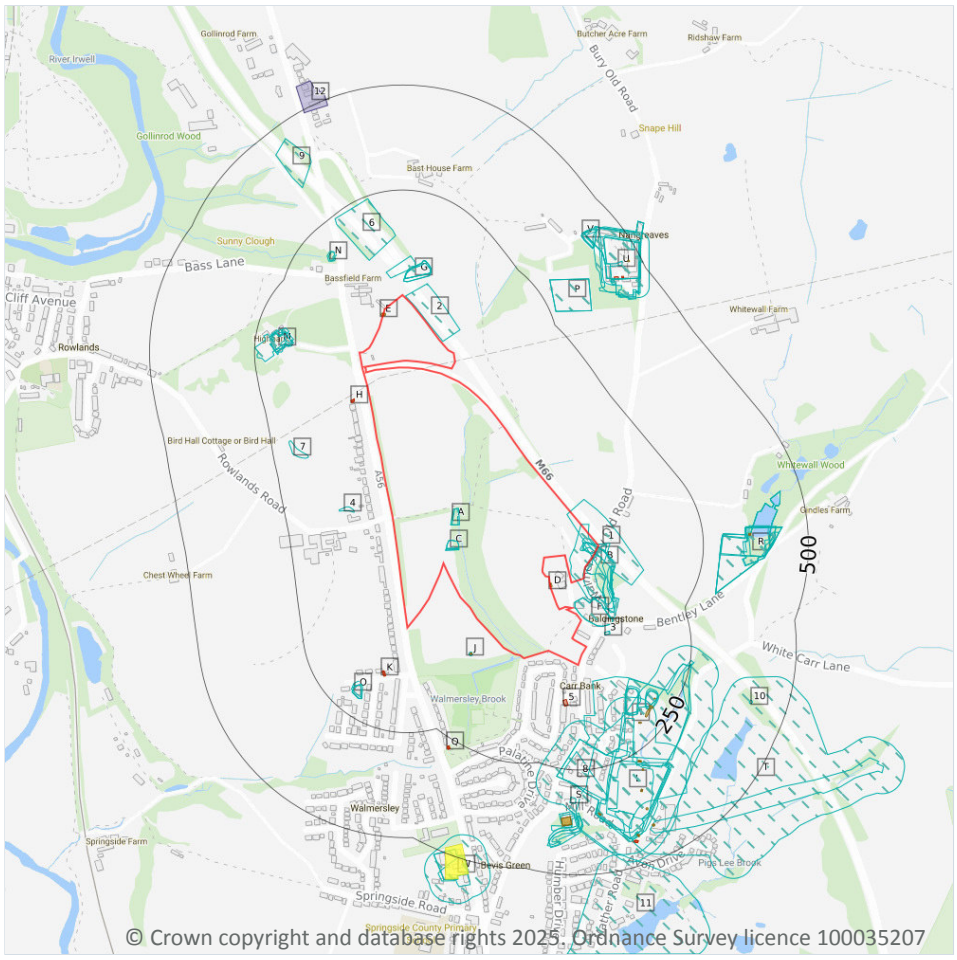
## 1.6 Historical military land

| **Records within 500m** | **0** |
|---|---|

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

*This data is sourced from Ordnance Survey / Groundsure / other sources.*

# 2 Past land use - un-grouped



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## 2.1 Historical industrial land uses

| Records within 500m | 98 |
|---|---|

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21 >**

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| **1** | **On site** | **Cuttings** | **1983** | **653041** |
| **A** | **On site** | **Pumping Station** | **1928** | **728040** |
| **A** | **On site** | **Pumping Station** | **1938** | **798422** |

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| **B** | **On site** | **Unspecified Quarry** | **1956** | **772939** |
| **B** | **On site** | **Unspecified Quarry** | **1938** | **772939** |
| **B** | **On site** | **Unspecified Old Quarry** | **1908** | **659513** |
| **B** | **On site** | **Unspecified Quarry** | **1891** | **795644** |
| **B** | **On site** | **Sandstone Quarry** | **1851** | **667305** |
| **C** | **On site** | **Filter Bed** | **1938** | **769242** |
| **C** | **On site** | **Filter Bed** | **1928** | **769242** |
| **C** | **On site** | **Filter Bed** | **1908** | **769242** |
| **C** | **On site** | **Filter Bed** | **1891** | **769242** |
| 2 | 2m NE | Cuttings | 1983 | 653040 |
| F | 7m NE | Unspecified Works | 1983 | 797930 |
| F | 7m NE | Unspecified Works | 1967 | 797930 |
| G | 33m N | Unspecified Pit | 1928 | 794065 |
| G | 33m N | Unspecified Pit | 1938 | 794065 |
| G | 40m N | Unspecified Pit | 1967 | 777649 |
| G | 40m N | Unspecified Pit | 1949 | 777649 |
| G | 40m N | Unspecified Pit | 1987 | 777649 |
| B | 46m SE | Unspecified Ground Workings | 1983 | 660842 |
| G | 48m NW | Cuttings | 1992 | 653276 |
| I | 52m SE | Unspecified Works | 1983 | 791750 |
| 3 | 53m NE | Smithy | 1851 | 680296 |
| J | 63m SW | Unspecified Tank | 1983 | 697580 |
| 4 | 87m W | Sandstone Quarry | 1851 | 667496 |
| 6 | 114m NW | Cuttings | 1992 | 653481 |
| L | 120m SE | Print Works | 1938 | 750372 |
| L | 125m E | Unspecified Works | 1967 | 774156 |
| I | 129m SE | Unspecified Quarry | 1956 | 743929 |
| I | 130m SE | Unspecified Quarry | 1928 | 754815 |

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| I | 132m SE | Unspecified Quarry | 1938 | 743929 |
| L | 133m S | Unspecified Disused Mills | 1908 | 654435 |
| L | 155m SE | Print Works | 1956 | 716131 |
| M | 159m W | Incurables Hospital | 1938 | 757577 |
| M | 160m W | Incurables Hospital | 1956 | 757577 |
| M | 162m W | Hospital | 1928 | 749609 |
| M | 162m W | Hospital | 1908 | 749609 |
| N | 166m NW | Refuse Heap | 1938 | 761418 |
| 7 | 168m W | Sandstone Quarry | 1851 | 667528 |
| L | 169m SE | Print Works | 1928 | 750372 |
| N | 169m NW | Refuse Heap | 1928 | 761418 |
| O | 171m SW | Unspecified Pit | 1956 | 783018 |
| O | 174m SW | Unspecified Pit | 1938 | 728227 |
| I | 175m E | Unspecified Heap | 1956 | 781252 |
| O | 177m SW | Unspecified Pit | 1928 | 728227 |
| I | 177m E | Unspecified Heap | 1928 | 801735 |
| M | 178m W | Hospital | 1891 | 744489 |
| I | 179m SE | Unspecified Heap | 1938 | 781252 |
| 8 | 206m S | Unspecified Heap | 1983 | 688432 |
| L | 218m SE | Unspecified Mills | 1891 | 670028 |
| L | 236m S | Unspecified Works | 1983 | 774156 |
| L | 257m SE | Cotton Mill | 1851 | 654810 |
| P | 263m E | Unspecified Heap | 1983 | 749777 |
| P | 263m E | Unspecified Heap | 1967 | 749777 |
| R | 289m E | Bleach Works | 1928 | 757825 |
| R | 290m E | Unspecified Commercial/Industrial | 1983 | 741596 |
| R | 290m E | Disused Bleach Works | 1956 | 678556 |
| R | 290m E | Unspecified Commercial/Industrial | 1967 | 741596 |

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| R | 292m E | Bleach Works | 1938 | 757825 |
| S | 315m S | Smithy | 1908 | 680297 |
| L | 328m SE | Chimney | 1851 | 701945 |
| R | 339m E | Bleach Works | 1891 | 752525 |
| T | 343m SE | Colliery | 1891 | 690217 |
| R | 344m E | Unspecified Disused Works | 1908 | 692789 |
| 9 | 348m NW | Cuttings | 1992 | 653480 |
| S | 350m S | Disused Sewage Tanks | 1956 | 776915 |
| S | 353m S | Unspecified Heap | 1956 | 721237 |
| S | 354m S | Disused Sewage Tanks | 1938 | 776915 |
| S | 358m S | Unspecified Heap | 1938 | 721237 |
| R | 359m E | Bleach Mill | 1851 | 665199 |
| L | 360m S | Unspecified Mill | 1851 | 673480 |
| S | 361m S | Unspecified Ground Workings | 1928 | 660998 |
| L | 369m S | Unspecified Tank | 1956 | 697582 |
| U | 379m NE | Cotton Mill | 1891 | 654664 |
| S | 380m S | Disused Sewage Tanks | 1928 | 709629 |
| U | 387m NE | Unspecified Mill | 1928 | 786855 |
| L | 389m S | Unspecified Tank | 1956 | 697581 |
| U | 396m NE | Cotton Mills | 1851 | 673118 |
| U | 405m NE | Unspecified Mill | 1908 | 786855 |
| U | 405m NE | Unspecified Mill | 1938 | 779319 |
| U | 406m NE | Unspecified Mill | 1967 | 789497 |
| U | 406m NE | Unspecified Mill | 1949 | 734878 |
| U | 406m NE | Unspecified Mill | 1987 | 789497 |
| R | 407m E | Unspecified Heap | 1938 | 688866 |
| 10 | 409m E | Old Coal Shaft | 1908 | 657978 |
| U | 410m NE | Unspecified Tank | 1851 | 697812 |

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| V | 411m NE | Unspecified Heap | 1928 | 767186 |
| V | 411m NE | Unspecified Heap | 1908 | 767186 |
| V | 413m NE | Unspecified Heap | 1938 | 741987 |
| T | 415m SE | Tramway Sidings | 1891 | 704696 |
| L | 420m S | Unspecified Tank | 1938 | 750759 |
| L | 422m S | Unspecified Tank | 1928 | 750759 |
| W | 442m S | Brewery | 1891 | 786000 |
| 11 | 461m S | Bleach and Dye works | 1908 | 665938 |
| W | 483m S | Unspecified Works | 1983 | 750824 |
| W | 483m S | Unspecified Works | 1967 | 750824 |
| W | 491m S | Brewery | 1908 | 786000 |

*This data is sourced from Ordnance Survey / Groundsure.*

## 2.2 Historical tanks

| **Records within 500m** | **31** |
|---|---|

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21 >**

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| **D** | **On site** | **Unspecified Tank** | **1910** | **86886** |
| **E** | **On site** | **Unspecified Tank** | **1964** | **104216** |
| **E** | **On site** | **Unspecified Tank** | **1980** | **104216** |
| **E** | **On site** | **Unspecified Tank** | **1980** | **104216** |
| D | 1m E | Unspecified Tank | 1910 | 86887 |
| J | 66m SW | Unspecified Tank | 1987 | 98792 |
| J | 66m SW | Unspecified Tank | 1964 | 93430 |
| J | 66m SW | Unspecified Tank | 1960 | 94801 |
| J | 66m SW | Unspecified Tank | 1992 | 91716 |

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| I | 195m SE | Tanks | 1991 | 81644 |
| I | 197m SE | Tanks | 1991 | 81645 |
| I | 198m SE | Unspecified Tank | 1992 | 83980 |
| I | 199m SE | Tanks | 1991 | 81646 |
| L | 269m SE | Unspecified Tank | 1971 | 98703 |
| L | 269m SE | Unspecified Tank | 1981 | 94723 |
| L | 269m SE | Unspecified Tank | 1991 | 94723 |
| L | 291m SE | Unspecified Tank | 1891 | 86884 |
| L | 332m SE | Unspecified Tank | 1981 | 101079 |
| L | 332m SE | Unspecified Tank | 1991 | 101079 |
| L | 332m SE | Unspecified Tank | 1971 | 101079 |
| L | 355m S | Unspecified Tank | 1991 | 86892 |
| R | 359m E | Unspecified Tank | 1984 | 105364 |
| R | 360m E | Unspecified Tank | 1964 | 105364 |
| S | 362m S | Disused Sewage Tanks | 1930 | 95763 |
| S | 362m S | Disused Sewage Tanks | 1937 | 95763 |
| L | 377m SE | Unspecified Tank | 1891 | 86883 |
| L | 419m SE | Unspecified Tank | 1963 | 102234 |
| L | 419m SE | Unspecified Tank | 1959 | 102234 |
| L | 428m S | Unspecified Tank | 1930 | 103980 |
| L | 428m S | Unspecified Tank | 1937 | 103980 |
| U | 469m NE | Unspecified Tank | 1963 | 85298 |

*This data is sourced from Ordnance Survey / Groundsure.*

## 2.3 Historical energy features

| Records within 500m | 13 |
|---|---|

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21 >**

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| H | 37m W | Electricity Substation | 1987 | 58291 |
| H | 37m W | Electricity Substation | 1992 | 58291 |
| 5 | 87m S | Electricity Substation | 1991 | 48567 |
| K | 117m SW | Electricity Substation | 1984 | 52118 |
| K | 118m SW | Electricity Substation | 1992 | 55274 |
| Q | 267m SW | Electricity Substation | 1981 | 51807 |
| Q | 267m SW | Electricity Substation | 1991 | 51807 |
| Q | 268m SW | Electricity Substation | 1971 | 52383 |
| U | 421m NE | Electricity Substation | 1992 | 47194 |
| U | 439m NE | Electricity Substation | 1991 | 48563 |
| L | 439m S | Electricity Substation | 1971 | 64359 |
| L | 440m S | Electricity Substation | 1981 | 50302 |
| L | 440m S | Electricity Substation | 1991 | 50302 |

*This data is sourced from Ordnance Survey / Groundsure.*

## 2.4 Historical petrol stations

| **Records within 500m** | **2** |
|---|---|

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21 >**

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| W | 466m S | Petroleum Works | 1971 | 1444 |
| W | 466m S | Petroleum Works | 1981 | 1444 |

*This data is sourced from Ordnance Survey / Groundsure.*

## 2.5 Historical garages

| Records within 500m | 1 |
|---|---|

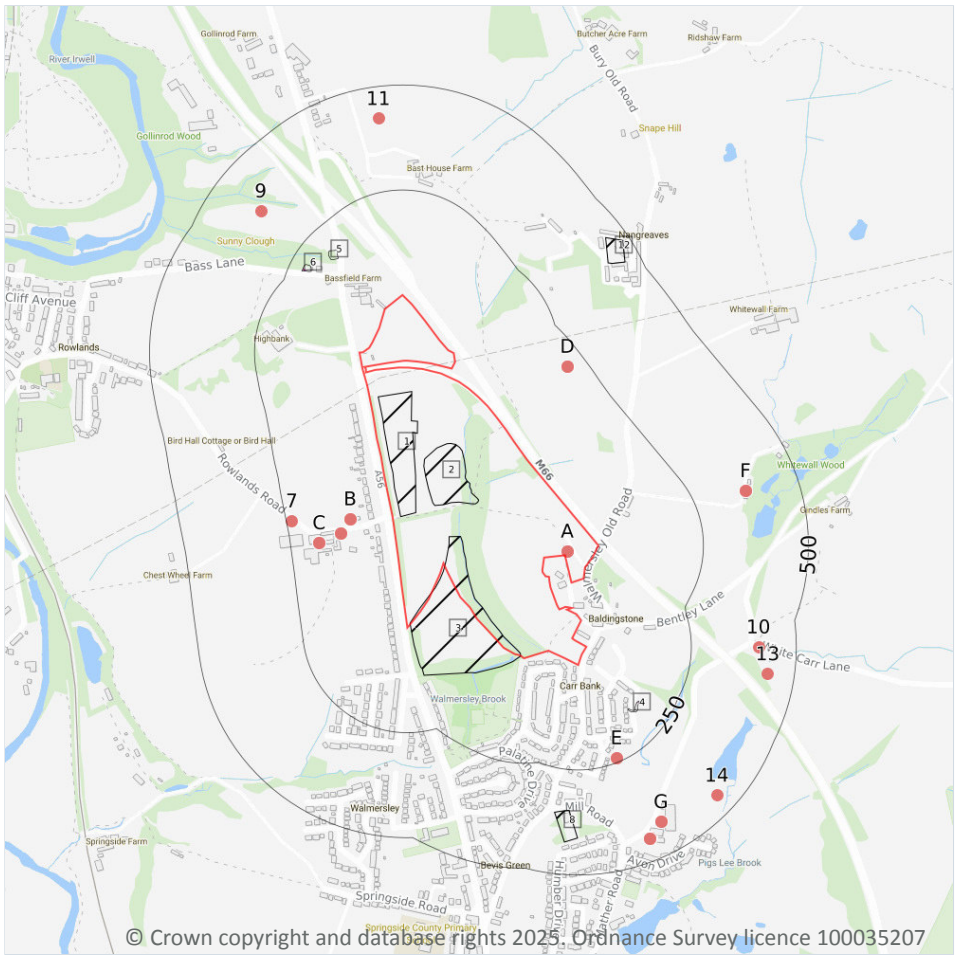
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21 >**

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| 12 | 485m N | Garage | 1963 | 16148 |

*This data is sourced from Ordnance Survey / Groundsure.*

# 3 Waste and landfill




## 3.1 Active or recent landfill

| Records within 500m | 0 |
|---|---|

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 3.2 Historical landfill (BGS records)

| Records within 500m | 0 |
|---|---|

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

*This data is sourced from the British Geological Survey.*

## 3.3 Historical landfill (LA/mapping records)

| Records within 500m | 3 |
|---|---|

Landfill sites identified from Local Authority records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 29 >**

| ID | Location | Site address | Source | Data type |
|---|---|---|---|---|
| 4 | 158m SE | Refuse Tip | 1970 mapping | Polygon |
| 5 | 164m NW | Refuse Tip | 1962 mapping | Polygon |
| 6 | 197m NW | Refuse Tip | 1962 mapping | Polygon |

*This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.*

## 3.4 Historical landfill (EA/NRW records)

| Records within 500m | 5 |
|---|---|

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

Features are displayed on the Waste and landfill map on **page 29 >**

| ID | Location | Details | | |
|---|---|---|---|---|
| **1** | **On site** | **Site Address: Field North Of Gin Hall, Bury<br>Licence Holder Address: c/o Clare Tooling System Ltd, Excelsior Works, Hulme Hall Road, Manchester** | **Waste Licence: Yes<br>Site Reference: WML/0479/M02/T01, C038<br>Waste Type: Inert<br>Environmental Permitting Regulations (Waste) Reference: -<br>Licence Issue: 23/07/1987<br>Licence Surrender: -** | **Operator: -<br>Licence Holder: Search Quick Limited<br>First Recorded 01/08/1987<br>Last Recorded: -** |
| **2** | **On site** | **Site Address: Field North Of Gin Hall, Bury<br>Licence Holder Address: c/o Clare Tooling System Ltd, Excelsior Works, Hulme Hall Road, Manchester** | **Waste Licence: Yes<br>Site Reference: WML/0479/M02/T01, C038<br>Waste Type: Inert<br>Environmental Permitting Regulations (Waste) Reference: -<br>Licence Issue: 23/07/1987<br>Licence Surrender: -** | **Operator: -<br>Licence Holder: Search Quick Limited<br>First Recorded 01/08/1987<br>Last Recorded: -** |

| ID | Location | Details | | |
|---|---|---|---|---|
| **3** | **On site** | **Site Address: Gin Hall, Walmersley Road, Boldington, Bury<br>Licence Holder Address: c/o Mr L Smith, Butcher Acre Farm, Bury Old Road, Nangreaves, Bury** | **Waste Licence: Yes<br>Site Reference: C017, RD/LIC/395/85<br>Waste Type: Inert, Industrial, Commercial, Household<br>Environmental Permitting Regulations (Waste) Reference: -<br>Licence Issue: 15/11/1985<br>Licence Surrender: 14/02/1993** | **Operator: -<br>Licence Holder: Chiprealm Services<br>First Recorded 31/12/1985<br>Last Recorded: 31/12/1992** |
| 8 | 347m S | Site Address: Mill Road, Walmersley, Greater Manchester<br>Licence Holder Address: - | Waste Licence: -<br>Site Reference: C111<br>Waste Type: -<br>Environmental Permitting Regulations (Waste) Reference: -<br>Licence Issue: -<br>Licence Surrender: - | Operator: -<br>Licence Holder: -<br>First Recorded -<br>Last Recorded: - |
| 12 | 426m NE | Site Address: Mount Pleasant Mill, Off Walmersley Old Road, Ramsbottom, Greater Manchester<br>Licence Holder Address: - | Waste Licence: -<br>Site Reference: C023<br>Waste Type: -<br>Environmental Permitting Regulations (Waste) Reference: -<br>Licence Issue: -<br>Licence Surrender: - | Operator: -<br>Licence Holder: -<br>First Recorded -<br>Last Recorded: - |

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 3.5 Historical waste sites

| **Records within 500m** | **0** |
|---|---|

Waste site records derived from Local Authority planning records and high detail historical mapping.

*This data is sourced from Ordnance Survey/Groundsure and Local Authority records.*

## 3.6 Licensed waste sites

| **Records within 500m** | **0** |
|---|---|

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 3.7 Waste exemptions

| Records within 500m | 96 |
|---|---|

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 29 >**

| ID | Location | Site | Reference | Category | Sub-Category | Description |
|---|---|---|---|---|---|---|
| **A** | **On site** | **-** | **WEX235120** | **Storing waste exemption** | **On a farm** | **Storage of sludge** |
| **A** | **On site** | **-** | **WEX151558** | **Storing waste exemption** | **On a farm** | **Storage of sludge** |
| **A** | **On site** | **-** | **WEX319996** | **Storing waste exemption** | **On a farm** | **Storage of sludge** |
| B | 100m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX449783 | Using waste exemption | On a farm | Burning of waste as a fuel in a small appliance |
| B | 100m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX449783 | Storing waste exemption | On a farm | Storage of waste in a secure place |
| B | 100m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX449783 | Disposing of waste exemption | On a farm | Deposit of waste from dredging of inland waters |
| B | 100m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX449783 | Using waste exemption | On a farm | Spreading waste on agricultural land to confer benefit |
| B | 100m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX449783 | Disposing of waste exemption | On a farm | Burning waste in the open |
| B | 100m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX449783 | Using waste exemption | On a farm | Use of waste in construction |
| B | 128m W | Nabbs Farm Rowlands Road Bury Lancashire Bl9 5lj | EPR/CH0877CL/A001 | Disposing of waste exemption | Agricultural waste only | Deposit of waste from dredging of inland waters |
| B | 128m W | Nabbs Farm Rowlands Road Bury Lancashire Bl9 5lj | EPR/CH0877CL/A001 | Treating waste exemption | Agricultural waste only | Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising |
| B | 128m W | Nabbs Farm Rowlands Road Bury Lancashire Bl9 5lj | EPR/CH0877CL/A001 | Using waste exemption | Agricultural waste only | Use of waste in construction |

| ID | Location | Site | Reference | Category | Sub-Category | Description |
|---|---|---|---|---|---|---|
| B | 128m W | Nabbs Farm Rowlands Road Bury Lancashire Bl9 5lj | EPR/CH0877CL /A001 | Using waste exemption | Agricultural waste only | Burning of waste as a fuel in a small appliance |
| B | 128m W | Nabbs Farm Rowlands Road Bury Lancashire Bl9 5lj | EPR/CH0877CL /A001 | Using waste exemption | Agricultural waste only | Use of waste for a specified purpose |
| B | 128m W | Nabbs Farm Rowlands Road Bury Lancashire Bl9 5lj | EPR/CH0877CL /A001 | Disposing of waste exemption | Agricultural waste only | Deposit of agricultural waste consisting of plant tissue under a Plant Health notice |
| B | 128m W | Nabbs Farm Rowlands Road Bury Lancashire Bl9 5lj | EPR/CH0877CL /A001 | Disposing of waste exemption | Agricultural waste only | Burning waste in the open |
| B | 128m W | Nabbs Farm Rowlands Road Bury Lancashire Bl9 5lj | EPR/CH0877CL /A001 | Using waste exemption | Agricultural waste only | Spreading waste on agricultural land to confer benefit |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX183362 | Using waste exemption | On a farm | Use of waste in construction |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX183362 | Disposing of waste exemption | On a farm | Deposit of waste from dredging of inland waters |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX183362 | Storing waste exemption | On a farm | Storage of waste in a secure place |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX183362 | Treating waste exemption | On a farm | Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX183362 | Using waste exemption | On a farm | Burning of waste as a fuel in a small appliance |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX145675 | Using waste exemption | On a farm | Use of waste for a specified purpose |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX183362 | Disposing of waste exemption | On a farm | Burning waste in the open |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX183362 | Using waste exemption | On a farm | Spreading waste on agricultural land to confer benefit |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX183362 | Treating waste exemption | On a farm | Screening and blending of waste |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX183362 | Treating waste exemption | On a farm | Recovery of scrap metal |

| ID | Location | Site | Reference | Category | Sub-Category | Description |
|---|---|---|---|---|---|---|
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX024227 | Disposing of waste exemption | On a farm | Burning waste in the open |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX024227 | Treating waste exemption | On a farm | Screening and blending of waste |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX024227 | Treating waste exemption | On a farm | Recovery of scrap metal |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX024227 | Using waste exemption | On a farm | Spreading waste on agricultural land to confer benefit |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX024227 | Disposing of waste exemption | On a farm | Deposit of waste from dredging of inland waters |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX024227 | Storing waste exemption | On a farm | Storage of waste in a secure place |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX024227 | Treating waste exemption | On a farm | Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX024227 | Using waste exemption | On a farm | Use of waste in construction |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX024227 | Using waste exemption | On a farm | Burning of waste as a fuel in a small appliance |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX315902 | Treating waste exemption | On a farm | Recovery of scrap metal |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX315902 | Treating waste exemption | On a farm | Screening and blending of waste |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX315902 | Treating waste exemption | On a farm | Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX315902 | Disposing of waste exemption | On a farm | Burning waste in the open |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX315902 | Using waste exemption | On a farm | Spreading waste on agricultural land to confer benefit |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX315902 | Storing waste exemption | On a farm | Storage of waste in a secure place |

| ID | Location | Site | Reference | Category | Sub-Category | Description |
|---|---|---|---|---|---|---|
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX315902 | Disposing of waste exemption | On a farm | Deposit of waste from dredging of inland waters |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX315902 | Using waste exemption | On a farm | Burning of waste as a fuel in a small appliance |
| C | 182m W | Nabbs Farm, Rowlands Road, Bury, Bl9 5lj | WEX315902 | Using waste exemption | On a farm | Use of waste in construction |
| D | 206m NE | - | WEX160386 | Storing waste exemption | On a farm | Storage of sludge |
| D | 206m NE | - | WEX235123 | Storing waste exemption | On a farm | Storage of sludge |
| D | 206m NE | - | WEX195293 | Storing waste exemption | On a farm | Storage of sludge |
| D | 206m NE | - | WEX282477 | Storing waste exemption | On a farm | Storage of sludge |
| D | 206m NE | - | WEX319998 | Storing waste exemption | On a farm | Storage of sludge |
| 7 | 238m W | - | WEX214676 | Using waste exemption | On a farm | Use of waste in construction |
| E | 240m S | - | WEX235560 | Using waste exemption | Not on a farm | Use of waste in construction |
| E | 240m S | - | WEX235560 | Treating waste exemption | Not on a farm | Screening and blending of waste |
| F | 373m E | Whitewall Farm Walmersley Old Road Bury Lancashire Bl9 6sx | EPR/GF0700SD/A001 | Storing waste exemption | Agricultural waste only | Storage of waste in secure containers |
| F | 373m E | Whitewall Farm Walmersley Old Road Bury Lancashire Bl9 6sx | EPR/GF0700SD/A001 | Using waste exemption | Agricultural waste only | Use of waste in construction |
| F | 373m E | Whitewall Farm Walmersley Old Road Bury Lancashire Bl9 6sx | EPR/GF0700SD/A001 | Using waste exemption | Agricultural waste only | Use of waste for a specified purpose |
| F | 373m E | Whitewall Farm Walmersley Old Road Bury Lancashire Bl9 6sx | EPR/GF0700SD/A001 | Using waste exemption | Agricultural waste only | Spreading waste on agricultural land to confer benefit |
| F | 373m E | - | WEX110121 | Using waste exemption | On a farm | Spreading waste on agricultural land to confer benefit |

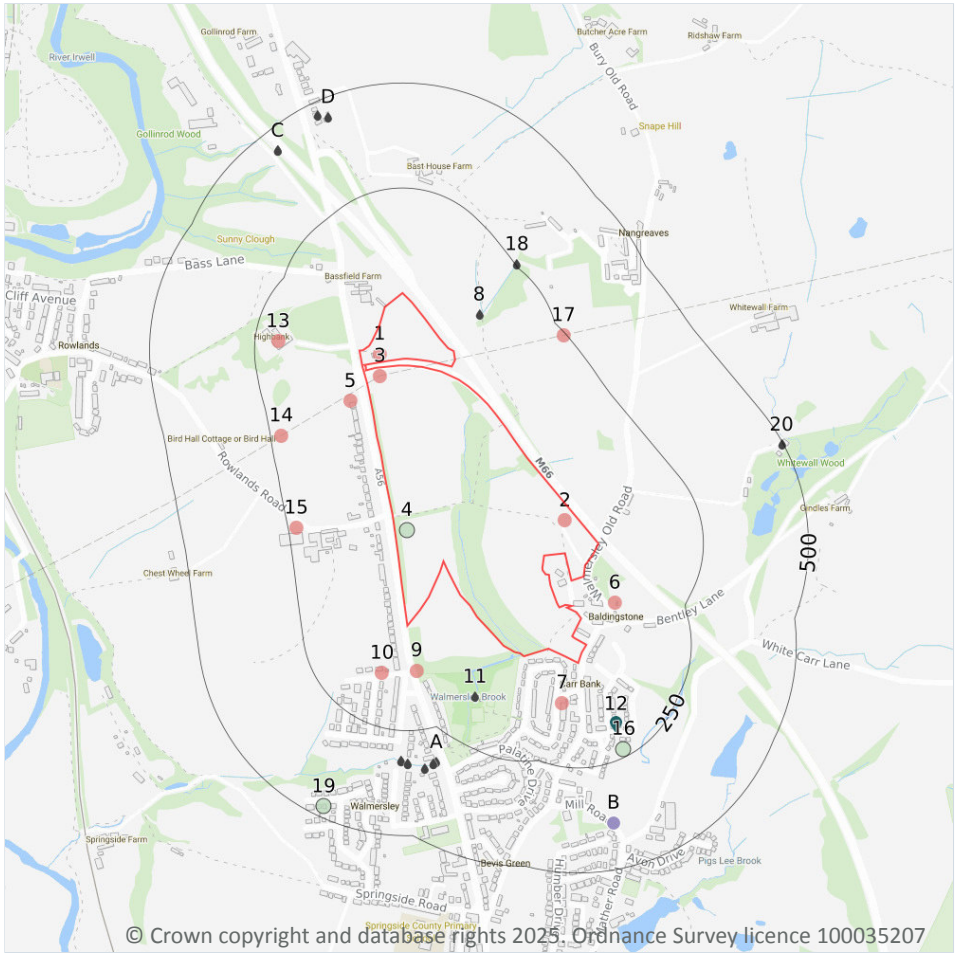
| ID | Location | Site | Reference | Category | Sub-Category | Description |
|---|---|---|---|---|---|---|
| F | 373m E | - | WEX110121 | Storing waste exemption | On a farm | Storage of waste in secure containers |
| F | 373m E | - | WEX110121 | Using waste exemption | On a farm | Use of waste in construction |
| F | 373m E | - | WEX110121 | Using waste exemption | On a farm | Use of waste for a specified purpose |
| 9 | 376m NW | - | WEX235117 | Storing waste exemption | On a farm | Storage of sludge |
| 10 | 410m E | - | WEX430534 | Using waste exemption | On a farm | Use of waste in construction |
| 11 | 423m N | - | WEX235122 | Storing waste exemption | On a farm | Storage of sludge |
| G | 423m SE | - | WEX450607 | Using waste exemption | On a farm | Burning of waste as a fuel in a small appliance |
| G | 423m SE | - | WEX450607 | Disposing of waste exemption | On a farm | Deposit of waste from dredging of inland waters |
| G | 423m SE | - | WEX450607 | Using waste exemption | On a farm | Spreading waste on agricultural land to confer benefit |
| G | 423m SE | - | WEX450607 | Disposing of waste exemption | On a farm | Burning waste in the open |
| G | 423m SE | - | WEX450607 | Using waste exemption | On a farm | Use of waste for a specified purpose |
| G | 423m SE | - | WEX450607 | Using waste exemption | On a farm | Use of waste in construction |
| 13 | 437m E | - | WEX450804 | Using waste exemption | On a farm | Use of waste in construction |
| G | 447m SE | Cross Hall Farm Mather Road Bl9 6rb | EPR/WE5783PS/A001 | Disposing of waste exemption | Agricultural waste only | Deposit of waste from dredging of inland waters |
| G | 447m SE | Cross Hall Farm Mather Road Bl9 6rb | EPR/WE5783PS/A001 | Using waste exemption | Agricultural waste only | Burning of waste as a fuel in a small appliance |
| G | 447m SE | Cross Hall Farm Mather Road Bl9 6rb | EPR/WE5783PS/A001 | Using waste exemption | Both agricultural and non-agricultural waste | Use of waste in construction |

| ID | Location | Site | Reference | Category | Sub-Category | Description |
|---|---|---|---|---|---|---|
| G | 447m SE | Cross Hall Farm Mather Road Bl9 6rb | EPR/WE5783PS/A001 | Using waste exemption | Both agricultural and non-agricultural waste | Use of waste for a specified purpose |
| G | 447m SE | Cross Hall Farm Mather Road Bl9 6rb | EPR/WE5783PS/A001 | Disposing of waste exemption | Agricultural waste only | Burning waste in the open |
| G | 447m SE | Cross Hall Farm Mather Road Bl9 6rb | EPR/WE5783PS/A001 | Using waste exemption | Agricultural waste only | Spreading waste on agricultural land to confer benefit |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX183392 | Using waste exemption | On a farm | Use of waste in construction |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX183392 | Using waste exemption | On a farm | Burning of waste as a fuel in a small appliance |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX183392 | Disposing of waste exemption | On a farm | Deposit of waste from dredging of inland waters |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX183392 | Using waste exemption | On a farm | Use of waste for a specified purpose |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX183392 | Using waste exemption | On a farm | Spreading waste on agricultural land to confer benefit |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX183392 | Disposing of waste exemption | On a farm | Burning waste in the open |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX025695 | Disposing of waste exemption | On a farm | Burning waste in the open |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX025695 | Using waste exemption | On a farm | Spreading waste on agricultural land to confer benefit |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX025695 | Disposing of waste exemption | On a farm | Deposit of waste from dredging of inland waters |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX025695 | Using waste exemption | On a farm | Use of waste in construction |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX025695 | Using waste exemption | On a farm | Burning of waste as a fuel in a small appliance |

| ID | Location | Site | Reference | Category | Sub-Category | Description |
|---|---|---|---|---|---|---|
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX025695 | Using waste exemption | On a farm | Use of waste for a specified purpose |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX313187 | Using waste exemption | On a farm | Burning of waste as a fuel in a small appliance |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX313187 | Using waste exemption | On a farm | Use of waste for a specified purpose |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX313187 | Using waste exemption | On a farm | Use of waste in construction |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX313187 | Disposing of waste exemption | On a farm | Deposit of waste from dredging of inland waters |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX313187 | Using waste exemption | On a farm | Spreading waste on agricultural land to confer benefit |
| G | 448m S | Cross Hall Farm, Mather Road, Bury, Bl9 6rb | WEX313187 | Disposing of waste exemption | On a farm | Burning waste in the open |
| 14 | 454m SE | - | WEX371764 | Using waste exemption | On a farm | Use of waste in construction |

*This data is sourced from the Environment Agency and Natural Resources Wales.*

# 4 Current industrial land use




Site Outline

Search buffers in metres (m)

Recent industrial land uses

Historical licensed industrial activities

Licensed pollutant release (Part A(2)/B)

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

## 4.1 Recent industrial land uses

| Records within 250m | 12 |
|---|---|

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 39 >**

| ID | Location | Company | Address | Activity | Category |
|---|---|---|---|---|---|
| **1** | **On site** | **Mast (Telecommunication)** | **Greater Manchester, BL9** | **Telecommunications Features** | **Infrastructure and Facilities** |
| **2** | **On site** | **Mast (Telecommunication)** | **Greater Manchester, BL9** | **Telecommunications Features** | **Infrastructure and Facilities** |

| ID | Location | Company | Address | Activity | Category |
|---|---|---|---|---|---|
| **3** | **On site** | **Pylon** | **Greater Manchester, BL9** | **Electrical Features** | **Infrastructure and Facilities** |
| 5 | 48m W | Electricity Sub Station | Greater Manchester, BL9 | Electrical Features | Infrastructure and Facilities |
| 6 | 88m NE | Works | Greater Manchester, BL9 | Unspecified Works Or Factories | Industrial Features |
| 7 | 102m S | Electricity Sub Station | Greater Manchester, BL9 | Electrical Features | Infrastructure and Facilities |
| 9 | 109m S | Mast | Greater Manchester, BL9 | Telecommunications Features | Infrastructure and Facilities |
| 10 | 128m SW | Electricity Sub Station | Greater Manchester, BL9 | Electrical Features | Infrastructure and Facilities |
| 13 | 196m W | The Priory Highbank Centre | The Priory Highbank Centre, Walmersley Road, Bury, Greater Manchester, BL9 5LX | Hospitals | Health Practitioners and Establishments |
| 14 | 225m W | Pylon | Greater Manchester, BL9 | Electrical Features | Infrastructure and Facilities |
| 15 | 231m W | Slurry Bed | Greater Manchester, BL9 | Waste Storage, Processing and Disposal | Infrastructure and Facilities |
| 17 | 244m NE | Pylon | Greater Manchester, BL9 | Electrical Features | Infrastructure and Facilities |

*This data is sourced from Ordnance Survey.*

## 4.2 National Geographic Database (NGD) - Current or recent tanks

| **Records within 250m** | **0** |
|---|---|

Current or recent tanks identified from the Ordnance Survey NGD.

*This data is sourced from Ordnance Survey.*

## 4.3 Current or recent petrol stations

| **Records within 500m** | **0** |
|---|---|

Open, closed, under development and obsolete petrol stations.

*This data is sourced from Experian.*

## 4.4 Electricity cables

| Records within 500m | 0 |
|---|---|

High voltage underground electricity transmission cables.

*This data is sourced from National Grid.*

## 4.5 Gas pipelines

| Records within 500m | 0 |
|---|---|

High pressure underground gas transmission pipelines.

*This data is sourced from National Grid.*

## 4.6 Sites determined as Contaminated Land

| Records within 500m | 0 |
|---|---|

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

*This data is sourced from Local Authority records.*

## 4.7 Control of Major Accident Hazards (COMAH)

| Records within 500m | 0 |
|---|---|

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

*This data is sourced from the Health and Safety Executive.*

## 4.8 Regulated explosive sites

| Records within 500m | 0 |
|---|---|

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

*This data is sourced from the Health and Safety Executive.*

## 4.9 Hazardous substance storage/usage

| Records within 500m | 0 |
|---|---|

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

*This data is sourced from Local Authority records.*

## 4.10 Historical licensed industrial activities (IPC)

| Records within 500m | 3 |
|---|---|

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

Features are displayed on the Current industrial land use map on **page 39 >**

| ID | Location | Details | |
|---|---|---|---|
| B | 390m S | Operator: Tetrosyl Ltd<br>Address: Bevis Green Works, Walmersley, Bury, Lancashire, BL9 6RE<br>Process: Recovery Processes<br>Permit Number: AG7865 | Original Permit Number: IPCAPP<br>Date Approved: 2-9-1993<br>Effective Date: 2-9-1993<br>Status: Superseded By Variation |
| B | 390m S | Operator: Tetrosyl Ltd<br>Address: Bevis Green Works, Walmersley, Bury, Lancashire, BL9 6RE<br>Process: Recovery Processes<br>Permit Number: AR9974 | Original Permit Number: IPCMAJVAR<br>Date Approved: 6-10-1997<br>Effective Date: 6-10-1997<br>Status: Superseded By Variation |
| B | 390m S | Operator: Tetrosyl Ltd<br>Address: Bevis Green Works, Walmersley, Bury, Lancashire, BL9 6RE<br>Process: Recovery Processes<br>Permit Number: BD1768 | Original Permit Number: IPCMINVAR<br>Date Approved: 24-11-1998<br>Effective Date: 30-11-1998<br>Status: Revoked |

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 4.11 Licensed industrial activities (Part A(1))

| Records within 500m | 0 |
|---|---|

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 4.12 Licensed pollutant release (Part A(2)/B)

| Records within 500m | 1 |
|---|---|

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 39 >**

| ID | Location | Address | Details | |
|---|---|---|---|---|
| 12 | 171m SE | Tetrosyl Limited, Bevis Green Works, Bevis Green, Bury, BL9 7NY | Process: Coating Processes<br>Status: Current Permit<br>Permit Type: Part B | Enforcement: No Enforcements Notified<br>Date of enforcement: No Enforcements Notified<br>Comment: No Enforcements Notified |

*This data is sourced from Local Authority records.*

## 4.13 Radioactive Substance Authorisations

| Records within 500m | 0 |
|---|---|

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 4.14 Licensed Discharges to controlled waters

| Records within 500m | 18 |
|---|---|

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 39 >**

| ID | Location | Address | Details | |
|---|---|---|---|---|
| 8 | 106m NE | NANGREAVES SERVICE RESERVOIR, RAMSBOTTOM, GREATER MANCHESTER | Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY<br>Permit Number: 016982481<br>Permit Version: 1<br>Receiving Water: TRIB IRWELL | Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY)<br>Issue date: -<br>Effective Date: 07/06/1992<br>Revocation Date: - |
| 11 | 139m SW | GIN HALL SERVICE RES, WALMERSLEY, GREATER MANCHESTER | Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - WATER COMPANY (WTW)<br>Permit Number: 016982875<br>Permit Version: 1<br>Receiving Water: WALMERSLEY BROOK | Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995)<br>Issue date: -<br>Effective Date: 30/03/1995<br>Revocation Date: 18/04/2007 |

| ID | Location | Address | Details | |
|---|---|---|---|---|
| 18 | 253m NE | NCH RES DEVELOPMENT SWO, MOUNT PLEASANT, NANGREAVES, BURY, GREATER MANCHESTER | Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER<br>Permit Number: 016991275<br>Permit Version: 1<br>Receiving Water: COASTAL TRIB FOR DA 68/69 | Status: REVOKED - UNSPECIFIED<br>Issue date: -<br>Effective Date: 13/05/1988<br>Revocation Date: 01/11/1994 |
| A | 321m SW | 807 WALMERSLEY ROAD (BURY) CSO, 807 WALMERSLEY ROAD, BURY, GREATER MANCHESTER, BL9 5JW | Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY<br>Permit Number: 016982618<br>Permit Version: 3<br>Receiving Water: WALMERSELY BROOK | Status: VARIED UNDER EPR 2010<br>Issue date: 12/04/2021<br>Effective Date: 12/04/2021<br>Revocation Date: - |
| A | 323m S | BURNLEY ROAD CSO 099BL, BURNLEY ROAD, BURY, LANCASHIRE, BL9 5JY | Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY<br>Permit Number: 01BRY0006<br>Permit Version: 3<br>Receiving Water: WALMERSLEY BROOK | Status: VARIED UNDER EPR 2010<br>Issue date: 05/02/2016<br>Effective Date: 05/02/2016<br>Revocation Date: 24/06/2018 |
| A | 323m S | BURNLEY ROAD CSO 099BL, BURNLEY ROAD, BURY, LANCASHIRE, BL9 5JY | Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY<br>Permit Number: 01BRY0006<br>Permit Version: 4<br>Receiving Water: WALMERSLEY BROOK | Status: VARIED UNDER EPR 2010<br>Issue date: 25/06/2018<br>Effective Date: 25/06/2018<br>Revocation Date: - |
| A | 328m SW | 807 WALMERSLEY ROAD (BURY) CSO, 807 WALMERSLEY ROAD, BURY, GREATER MANCHESTER, BL9 5JW | Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY<br>Permit Number: 016982618<br>Permit Version: 1<br>Receiving Water: WALMERSELY BROOK | Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY)<br>Issue date: -<br>Effective Date: 30/09/1994<br>Revocation Date: 31/10/2012 |
| A | 328m SW | 807 WALMERSLEY ROAD (BURY) CSO, 807 WALMERSLEY ROAD, BURY, GREATER MANCHESTER, BL9 5JW | Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY<br>Permit Number: 016982618<br>Permit Version: 2<br>Receiving Water: WALMERSELY BROOK | Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995)<br>Issue date: 19/03/2010<br>Effective Date: 01/11/2012<br>Revocation Date: 11/04/2021 |

| ID | Location | Address | Details | |
|---|---|---|---|---|
| A | 328m SW | 807 WALMERSLEY ROAD (BURY) CSO, 807 WALMERSLEY ROAD, BURY, GREATER MANCHESTER, BL9 5JW | Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY<br>Permit Number: 01BRY0116<br>Permit Version: 1<br>Receiving Water: WALMERSLEY BROOK | Status: CONSENT REVOKED OR REVISED - NEW CONSENT ISSUED (37(1))<br>Issue date: -<br>Effective Date: 01/01/1995<br>Revocation Date: 01/01/1995 |
| A | 329m S | BURNLEY ROAD CSO 099BL, BURNLEY ROAD, BURY, LANCASHIRE, BL9 5JY | Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY<br>Permit Number: 01BRY0006<br>Permit Version: 1<br>Receiving Water: STREAM | Status: VARIED UNDER EPR 2010<br>Issue date: -<br>Effective Date: 01/01/1995<br>Revocation Date: 02/09/2010 |
| A | 329m S | BURNLEY ROAD CSO 099BL, BURNLEY ROAD, BURY, LANCASHIRE, BL9 5JY | Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY<br>Permit Number: 01BRY0006<br>Permit Version: 2<br>Receiving Water: STREAM | Status: VARIED UNDER EPR 2010<br>Issue date: 03/09/2010<br>Effective Date: 03/09/2010<br>Revocation Date: 04/02/2016 |
| A | 342m S | SAMUEL NEELY, BURY, GREATER MANCHESTER | Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER<br>Permit Number: 016992004<br>Permit Version: 1<br>Receiving Water: WALMERSLEY BROOK | Status: REVOKED - UNSPECIFIED<br>Issue date: -<br>Effective Date: 22/05/1986<br>Revocation Date: 01/11/1994 |
| C | 450m NW | RED HALL HOTEL & RESTAURANT, 5 DWELLINGS & AN OFFICE BUILDING, MANCHESTER ROAD, WALMERSLEY, GREATER MANCHESTER | Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY<br>Permit Number: 016991083<br>Permit Version: 1<br>Receiving Water: TRIB RIVER IRWELL | Status: REVOKED - UNSPECIFIED<br>Issue date: -<br>Effective Date: 31/01/1986<br>Revocation Date: 07/12/1997 |
| C | 450m NW | RED HALL HOTEL & RESTAURANT, 5 DWELLINGS & AN OFFICE BUILDING, MANCHESTER ROAD, WALMERSLEY, GREATER MANCHESTER | Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY<br>Permit Number: 016991083<br>Permit Version: 2<br>Receiving Water: TRIB RIVER IRWELL | Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY)<br>Issue date: -<br>Effective Date: 08/12/1997<br>Revocation Date: 07/11/1999 |
| C | 450m NW | RED HALL HOTEL & RESTAURANT, 5 DWELLINGS & AN OFFICE BUILDING, MANCHESTER ROAD, WALMERSLEY, GREATER MANCHESTER | Effluent Type: SEWAGE & TRADE COMBINED - UNSPECIFIED<br>Permit Number: 016991083<br>Permit Version: 3<br>Receiving Water: TRIB RIVER IRWELL | Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995)<br>Issue date: -<br>Effective Date: 08/11/1999<br>Revocation Date: - |

| ID | Location | Address | Details | |
|---|---|---|---|---|
| D | 455m NW | HIGHER GOLLINROD BUNGALOW, MANCHESTER RD, WALMERSLEY, BURY, LANCASHIRE, BL9 5NA | Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY<br>Permit Number: 016992382<br>Permit Version: 1<br>Receiving Water: RIVER IRWELL | Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY)<br>Issue date: 01/10/1996<br>Effective Date: 01/10/1996<br>Revocation Date: - |
| D | 469m NW | WESTGATE, MANCHESTER RD, WALMERSLEY, BURY, LANCASHIRE, BL9 5NA | Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY<br>Permit Number: 0168/948<br>Permit Version: 1<br>Receiving Water: RIVER IRWELL | Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY)<br>Issue date: 11/11/1968<br>Effective Date: 11/11/1968<br>Revocation Date: - |
| 20 | 495m NE | 1 -5 WHITEWELL WOOD COTTAGES, WALMERSLEY OLD RD, BURY, GREATER MANCHESTER | Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY<br>Permit Number: 016991408<br>Permit Version: 1<br>Receiving Water: COASTAL TRIB FOR DA 68/69 | Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY)<br>Issue date: -<br>Effective Date: 19/05/1989<br>Revocation Date: - |

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 4.15 Pollutant release to surface waters (Red List)

| **Records within 500m** | **0** |
|---|---|

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 4.16 Pollutant release to public sewer

| **Records within 500m** | **0** |
|---|---|

Discharges of Special Category Effluents to the public sewer.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 4.17 List 1 Dangerous Substances

| **Records within 500m** | **0** |
|---|---|

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 4.18 List 2 Dangerous Substances

| Records within 500m | 0 |
|---|---|

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 4.19 Pollution Incidents (EA/NRW)

| Records within 500m | 3 |
|---|---|

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 39 >**

| ID | Location | Details | |
|---|---|---|---|
| **4** | **On site** | **Incident Date: 12/02/2002**<br>**Incident Identification: 57923**<br>**Pollutant: Inert Materials and Wastes**<br>**Pollutant Description: Construction and Demolition Materials and Wastes** | **Water Impact: Category 4 (No Impact)**<br>**Land Impact: Category 3 (Minor)**<br>**Air Impact: Category 4 (No Impact)** |
| 16 | 231m SE | Incident Date: 02/03/2021<br>Incident Identification: 1899107<br>Pollutant: Inert Materials and Wastes<br>Pollutant Description: Soils and Clay | Water Impact: Category 2 (Significant)<br>Land Impact: Category 3 (Minor)<br>Air Impact: Category 4 (No Impact) |
| 19 | 474m SW | Incident Date: 28/04/2003<br>Incident Identification: 154602<br>Pollutant: Sewage Materials<br>Pollutant Description: Other Sewage Material | Water Impact: Category 3 (Minor)<br>Land Impact: Category 4 (No Impact)<br>Air Impact: Category 4 (No Impact) |

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 4.20 Pollution inventory substances

| Records within 500m | 0 |
|---|---|

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

*This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.*

## 4.21 Pollution inventory waste transfers

| Records within 500m | 0 |
|---|---|

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

*This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.*

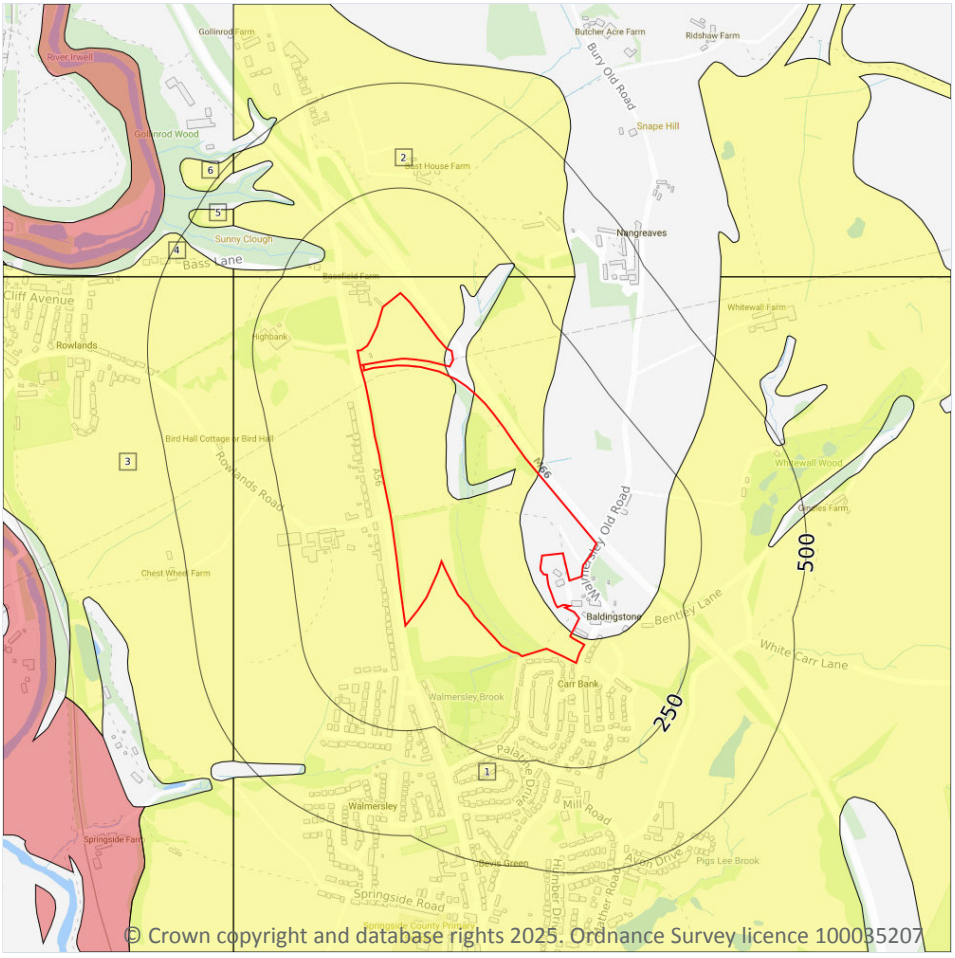
## 4.22 Pollution inventory radioactive waste

| Records within 500m | 0 |
|---|---|

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

*This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.*

# 5 Hydrogeology - Superficial aquifer




## 5.1 Superficial aquifer

| Records within 500m | 6 |
|---|---|

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 49 >**

| ID | Location | Designation | Description |
|---|---|---|---|
| **1** | **On site** | **Secondary Undifferentiated** | **Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type** |
| 2 | 39m N | Secondary Undifferentiated | Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type |

| ID | Location | Designation | Description |
|---|---|---|---|
| 3 | 295m W | Secondary Undifferentiated | Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type |
| 4 | 344m NW | Secondary Undifferentiated | Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type |
| 5 | 405m NW | Secondary Undifferentiated | Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type |
| 6 | 478m NW | Secondary Undifferentiated | Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type |

*This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.*

# Bedrock aquifer




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## 5.2 Bedrock aquifer

| Records within 500m | 4 |
|---|---|

Aquifer status of groundwater held within bedrock geology.

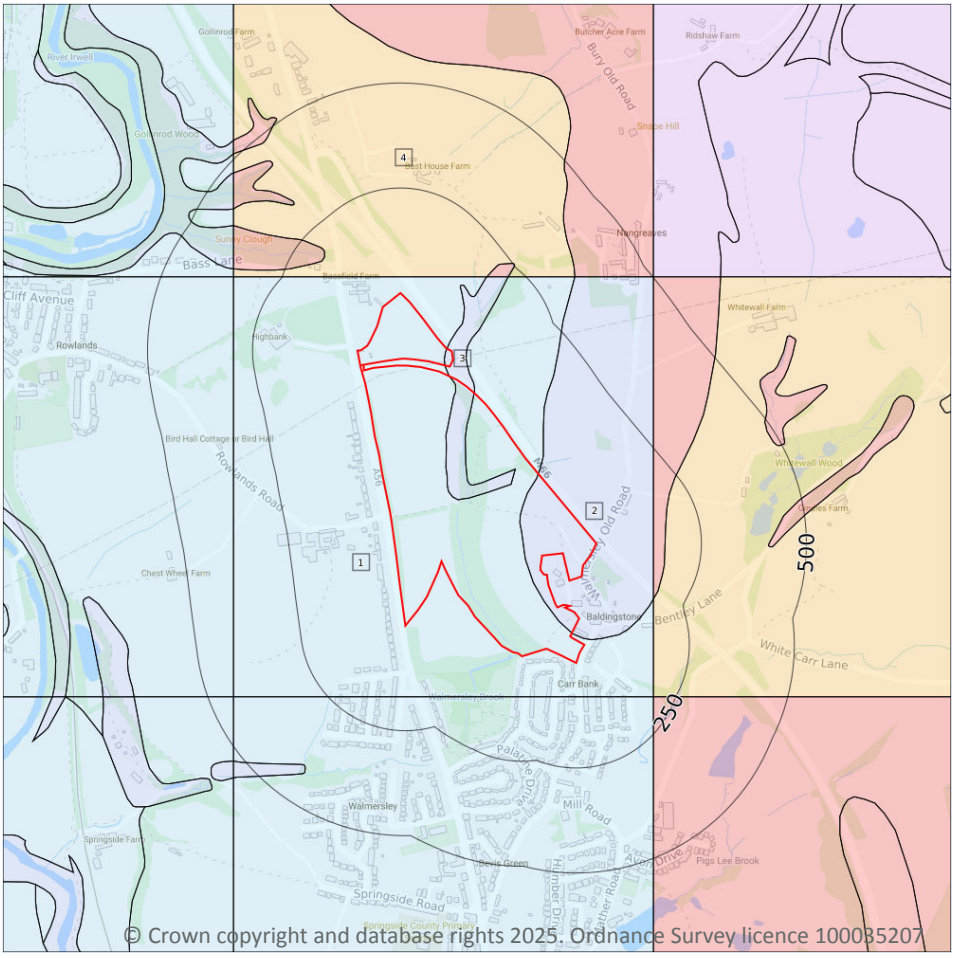
Features are displayed on the Bedrock aquifer map on **page 51 >**

| ID | Location | Designation | Description |
|---|---|---|---|
| **1** | **On site** | **Secondary A** | **Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers** |
| 2 | 39m N | Secondary A | Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers |

| ID | Location | Designation | Description |
|---|---|---|---|
| 3 | 295m W | Secondary A | Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers |
| 4 | 344m NW | Secondary A | Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers |

*This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.*

# Groundwater vulnerability




## 5.3 Groundwater vulnerability

| Records within 50m | 4 |
|---|---|

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 53 >**

| ID | Location | Summary | Soil / surface | Superficial geology | Bedrock geology |
|---|---|---|---|---|---|
| **1** | **On site** | **Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer** | **Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year** | **Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: High** | **Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures** |
| **2** | **On site** | **Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer** | **Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year** | **Vulnerability: - Aquifer type: - Thickness: >10m Patchiness value: >90% Recharge potential: High** | **Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures** |
| **3** | **On site** | **Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer** | **Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year** | **Vulnerability: - Aquifer type: - Thickness: >10m Patchiness value: >90% Recharge potential: High** | **Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures** |
| 4 | 39m N | Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer | Leaching class: High Infiltration value: >70% Dilution value: >550mm/year | Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: High | Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures |

*This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.*

## 5.4 Groundwater vulnerability- soluble rock risk

| Records on site | 0 |
|---|---|

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

*This data is sourced from the British Geological Survey and the Environment Agency.*

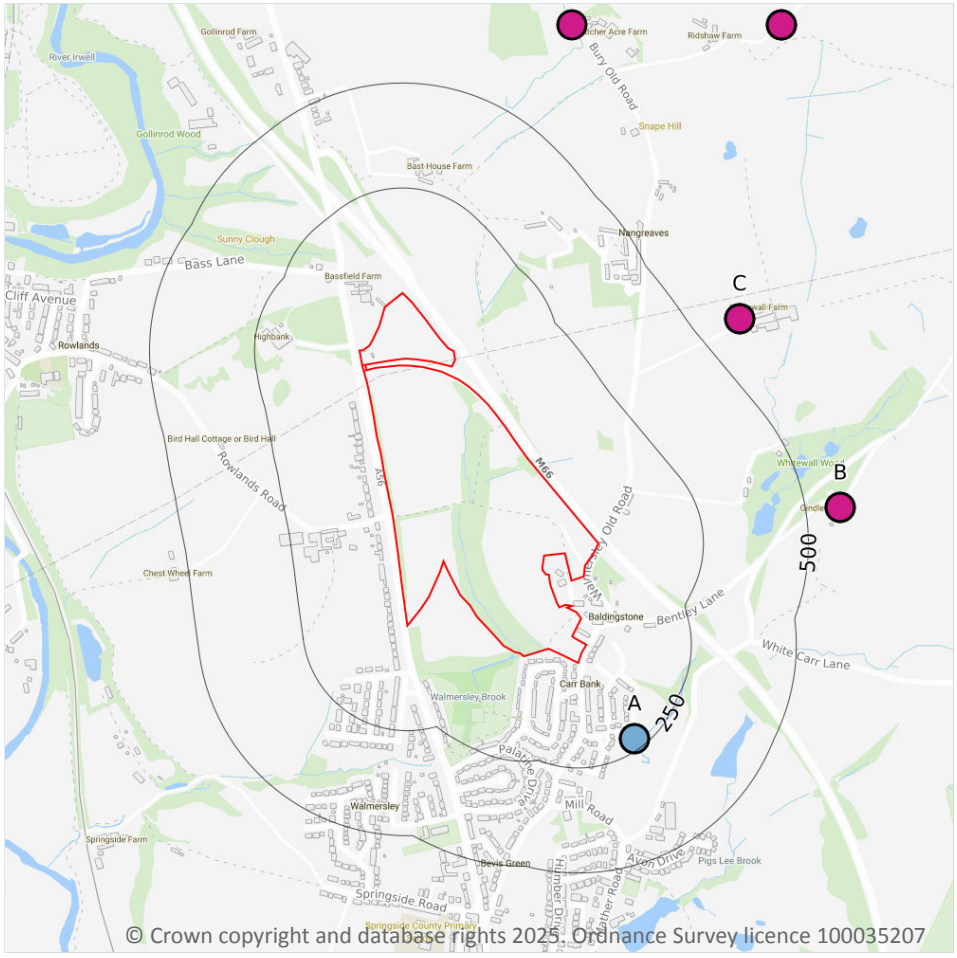
## 5.5 Groundwater vulnerability- local information

| Records on site | 0 |
|---|---|

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk ↗.

*This data is sourced from the British Geological Survey and the Environment Agency.*

# Abstractions and Source Protection Zones




Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

## 5.6 Groundwater abstractions

| Records within 2000m | 37 |
|---|---|

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 55 >**

| ID | Location | Details | |
|---|---|---|---|
| B | 582m E | Status: Historical<br>Licence No: 2569001249<br>Details: Raw Water Supply<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE AT GINDLES COTTAGE, WALMERSLEY, BURY"<br>Data Type: Point<br>Name: ENTWISTLE<br>Easting: 381440<br>Northing: 414450 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 29/02/1996<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 29/02/1996<br>Version End Date: - |
| B | 582m E | Status: Historical<br>Licence No: 2569001249<br>Details: Raw Water Supply<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT GINDLES COTTAGE, WALMERSLEY, BURY<br>Data Type: Point<br>Name: ENTWISTLE<br>Easting: 381440<br>Northing: 414450 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 29/02/1996<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 29/02/1996<br>Version End Date: - |
| C | 600m NE | Status: Active<br>Licence No: 2569001188<br>Details: General Farming & Domestic<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT WALMERSLEY, NEAR BURY<br>Data Type: Point<br>Name: HOWARTH<br>Easting: 381200<br>Northing: 414900 | Annual Volume ($m^3$): 12456<br>Max Daily Volume ($m^3$): 34<br>Original Application No: 2339<br>Original Start Date: 17/06/1971<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 01/04/2007<br>Version End Date: - |
| C | 600m NE | Status: Historical<br>Licence No: 2569001188<br>Details: General Farming & Domestic<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE AT WALMERSLEY, NEAR BURY"<br>Data Type: Point<br>Name: HOWARTH<br>Easting: 381200<br>Northing: 414900 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 17/06/1971<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 09/07/1973<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| 1 | 755m NE | Status: Historical<br>Licence No: 2569001190<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: SPRING FED COLLECTING CHAMBER AT WALMERSLEY<br>Data Type: Point<br>Name: MOSLEY AND THWAITES<br>Easting: 380800<br>Northing: 415600 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 08/05/1972<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 08/05/1972<br>Version End Date: - |
| - | 938m E | Status: Historical<br>Licence No: 2569002078<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE AT COB HOUSE FARM, BURY"<br>Data Type: Point<br>Name: OVENDEN<br>Easting: 381800<br>Northing: 414300 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 11/02/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 11/02/1966<br>Version End Date: - |
| - | 938m E | Status: Historical<br>Licence No: 2569002078<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT COB HOUSE FARM, BURY<br>Data Type: Point<br>Name: OVENDEN<br>Easting: 381800<br>Northing: 414300 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 11/02/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 11/02/1966<br>Version End Date: - |
| E | 1100m NE | Status: Historical<br>Licence No: 2569001187<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: "SPRING FED COLLECTING CHAMBER AT NANGREAVES, BURY"<br>Data Type: Point<br>Name: SELLERS<br>Easting: 381300<br>Northing: 415600 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 17/06/1971<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 17/06/1971<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| E | 1100m NE | Status: Historical<br>Licence No: 2569001187<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: SPRING FED COLLECTING CHAMBER AT NANGREAVES, BURY<br>Data Type: Point<br>Name: SELLERS<br>Easting: 381300<br>Northing: 415600 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 17/06/1971<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 17/06/1971<br>Version End Date: - |
| - | 1104m NW | Status: Historical<br>Licence No: NW/069/0001/019<br>Details: Dewatering<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT NUTTALL COMBINED SEWER OUTFALL, RAMSBOTTOM, BURY<br>Data Type: Poly4<br>Name: United Utilities Water Ltd<br>Easting: 379538<br>Northing: 415723 | Annual Volume ($m^3$): 504576<br>Max Daily Volume ($m^3$): 1383<br>Original Application No: NPS/WR/039941<br>Original Start Date: 27/03/2024<br>Expiry Date: 31/05/2025<br>Issue No: 1<br>Version Start Date: 27/03/2024<br>Version End Date: - |
| - | 1113m S | Status: Historical<br>Licence No: 2569001123<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: "WELL AT IRWELL VIEW FARM, WALMESLEY,BURY, LANCASHIRE"<br>Data Type: Point<br>Name: FITTON<br>Easting: 380100<br>Northing: 413100 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 19/01/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 19/01/1966<br>Version End Date: - |
| - | 1113m S | Status: Historical<br>Licence No: 2569001123<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: WELL AT IRWELL VIEW FARM, WALMESLEY,BURY, LANCASHIRE<br>Data Type: Point<br>Name: FITTON<br>Easting: 380100<br>Northing: 413100 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 19/01/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 19/01/1966<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| - | 1146m E | Status: Historical<br>Licence No: 2569001191<br>Details: Spray Irrigation - Direct<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE AT PREMISES, WALMERSLEY, BURY, LANCASHIRE"<br>Data Type: Point<br>Name: WALMERSLEY GOLF CLUB<br>Easting: 381900<br>Northing: 413700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 12/04/1973<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 01/07/1985<br>Version End Date: - |
| - | 1146m E | Status: Historical<br>Licence No: 2569001191<br>Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services"<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE AT PREMISES, WALMERSLEY, BURY, LANCASHIRE"<br>Data Type: Point<br>Name: WALMERSLEY GOLF CLUB<br>Easting: 381900<br>Northing: 413700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 12/04/1973<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 01/07/1985<br>Version End Date: - |
| - | 1146m E | Status: Historical<br>Licence No: 2569001191<br>Details: Spray Irrigation - Direct<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT PREMISES, WALMERSLEY, BURY, LANCASHIRE<br>Data Type: Point<br>Name: WALMERSLEY GOLF CLUB<br>Easting: 381900<br>Northing: 413700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 12/04/1973<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 01/07/1985<br>Version End Date: - |
| - | 1146m E | Status: Historical<br>Licence No: 2569001191<br>Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT PREMISES, WALMERSLEY, BURY, LANCASHIRE<br>Data Type: Point<br>Name: WALMERSLEY GOLF CLUB<br>Easting: 381900<br>Northing: 413700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 12/04/1973<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 01/07/1985<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| - | 1146m E | Status: Historical<br>Licence No: 2569001191<br>Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT PREMISES, WALMERSLEY, BURY, LANCASHIRE<br>Data Type: Point<br>Name: WALMERSLEY GOLF CLUB<br>Easting: 381900<br>Northing: 413700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 12/04/1973<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 01/07/1985<br>Version End Date: - |
| - | 1146m E | Status: Historical<br>Licence No: 2569001191<br>Details: Spray Irrigation - Direct<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT PREMISES, WALMERSLEY, BURY, LANCASHIRE<br>Data Type: Point<br>Name: WALMERSLEY GOLF CLUB<br>Easting: 381900<br>Northing: 413700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 12/04/1973<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 01/07/1985<br>Version End Date: - |
| - | 1177m W | Status: Active<br>Licence No: 2569001208<br>Details: General Use Relating To Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT SUMMERSEAT, BURY<br>Data Type: Point<br>Name: KENYON<br>Easting: 379200<br>Northing: 414300 | Annual Volume ($m^3$): 14974.52<br>Max Daily Volume ($m^3$): 40.91<br>Original Application No: 2554<br>Original Start Date: 27/07/1979<br>Expiry Date: -<br>Issue No: 101<br>Version Start Date: 26/11/2007<br>Version End Date: - |
| - | 1177m W | Status: Historical<br>Licence No: 2569001208<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE AT SUMMERSEAT, BURY"<br>Data Type: Point<br>Name: JOHN KENYON & SONS<br>Easting: 379200<br>Northing: 414300 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 27/07/1979<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 27/07/1979<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| - | 1236m E | Status: Historical<br>Licence No: 2569001197<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE ON PREMISES AT BURY, LANCS"<br>Data Type: Point<br>Name: SMITH<br>Easting: 382100<br>Northing: 414400 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 17/12/1975<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 17/12/1975<br>Version End Date: - |
| - | 1236m E | Status: Historical<br>Licence No: 2569001197<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE ON PREMISES AT BURY, LANCS<br>Data Type: Point<br>Name: SMITH<br>Easting: 382100<br>Northing: 414400 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 17/12/1975<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 17/12/1975<br>Version End Date: - |
| - | 1308m NW | Status: Historical<br>Licence No: 2569001101<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: "SPRING FED CATCHPIT AT NUTTAL HALL FARM, RAMSBOTTOM"<br>Data Type: Point<br>Name: WHITTAKER<br>Easting: 379300<br>Northing: 415700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 20/01/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 20/01/1966<br>Version End Date: - |
| - | 1308m NW | Status: Historical<br>Licence No: 2569001101<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: SPRING FED CATCHPIT AT NUTTAL HALL FARM, RAMSBOTTOM<br>Data Type: Point<br>Name: WHITTAKER<br>Easting: 379300<br>Northing: 415700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 20/01/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 20/01/1966<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| - | 1320m SE | Status: Historical<br>Licence No: 2569001178<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE AT PREMISES, NINEVAH FARM, BURY"<br>Data Type: Point<br>Name: MOORE<br>Easting: 381800<br>Northing: 413200 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 14/01/1969<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 14/01/1969<br>Version End Date: - |
| - | 1320m SE | Status: Historical<br>Licence No: 2569001178<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT PREMISES, NINEVAH FARM, BURY<br>Data Type: Point<br>Name: MOORE<br>Easting: 381800<br>Northing: 413200 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 14/01/1969<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 14/01/1969<br>Version End Date: - |
| - | 1336m SE | Status: Historical<br>Licence No: 2569001194<br>Details: Make-Up or Top Up Water<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE ON PREMISES AT BIRTLE, BURY"<br>Data Type: Point<br>Name: STONE<br>Easting: 381900<br>Northing: 413300 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 20/06/1974<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 12/09/1986<br>Version End Date: - |
| - | 1336m SE | Status: Historical<br>Licence No: 2569001194<br>Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household"<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE ON PREMISES AT BIRTLE, BURY"<br>Data Type: Point<br>Name: STONE<br>Easting: 381900<br>Northing: 413300 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 20/06/1974<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 12/09/1986<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| - | 1336m SE | Status: Historical<br>Licence No: 2569001194<br>Details: Make-Up or Top Up Water<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE ON PREMISES AT BIRTLE, BURY<br>Data Type: Point<br>Name: STONE<br>Easting: 381900<br>Northing: 413300 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 20/06/1974<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 12/09/1986<br>Version End Date: - |
| - | 1336m SE | Status: Historical<br>Licence No: 2569001194<br>Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE ON PREMISES AT BIRTLE, BURY<br>Data Type: Point<br>Name: STONE<br>Easting: 381900<br>Northing: 413300 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 20/06/1974<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 12/09/1986<br>Version End Date: - |
| - | 1383m E | Status: Historical<br>Licence No: 2569002094<br>Details: General Farming & Domestic<br>Direct Source: Ground Water - North West Region<br>Point: "SPRING FED COLLECTING CHAMBER AT DUNHAM FARM, SHUTTLEWORT"<br>Data Type: Point<br>Name: EDUS LTD<br>Easting: 382200<br>Northing: 413900 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 14/02/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 07/07/1989<br>Version End Date: - |
| - | 1383m E | Status: Historical<br>Licence No: 2569002094<br>Details: General Farming & Domestic<br>Direct Source: Ground Water - North West Region<br>Point: SPRING FED COLLECTING CHAMBER AT DUNHAM FARM, SHUTTLEWORT<br>Data Type: Point<br>Name: EDUS LTD<br>Easting: 382200<br>Northing: 413900 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 14/02/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 07/07/1989<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| - | 1744m SE | Status: Historical<br>Licence No: 2569001196<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: "SPRING FED COLLECTING TANK AT BIRTLE, BURY"<br>Data Type: Point<br>Name: TAYLOR<br>Easting: 382100<br>Northing: 412900 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 25/11/1974<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 25/11/1974<br>Version End Date: - |
| - | 1744m SE | Status: Historical<br>Licence No: 2569001196<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: SPRING FED COLLECTING TANK AT BIRTLE, BURY<br>Data Type: Point<br>Name: TAYLOR<br>Easting: 382100<br>Northing: 412900 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 25/11/1974<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 25/11/1974<br>Version End Date: - |
| - | 1792m SE | Status: Historical<br>Licence No: 2569001284<br>Details: General Farming & Domestic<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT SILLINGHURST FARM BIRTLE BURY<br>Data Type: Point<br>Name: RAYMOND TAYLOR<br>Easting: 382080<br>Northing: 412810 | Annual Volume ($m^3$): 10950<br>Max Daily Volume ($m^3$): 30<br>Original Application No: -<br>Original Start Date: 30/11/2004<br>Expiry Date: 31/03/2015<br>Issue No: 1<br>Version Start Date: 01/04/2008<br>Version End Date: - |
| - | 1912m E | Status: Historical<br>Licence No: 2569002116<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: "SPRING FED CATCHPIT AT DEEP MOSS FARM, SHUTTLEWORTH, RAMS"<br>Data Type: Point<br>Name: OVENDEN<br>Easting: 382700<br>Northing: 413700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 03/03/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 03/03/1966<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| - | 1912m E | Status: Historical<br>Licence No: 2569002116<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: Ground Water - North West Region<br>Point: SPRING FED CATCHPIT AT DEEP MOSS FARM, SHUTTLEWORTH, RAMS<br>Data Type: Point<br>Name: OVENDEN<br>Easting: 382700<br>Northing: 413700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 03/03/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 03/03/1966<br>Version End Date: - |

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 5.7 Surface water abstractions

| **Records within 2000m** | **9** |
|---|---|

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 55 >**

| ID | Location | Details | |
|---|---|---|---|
| A | 225m SE | Status: Historical<br>Licence No: 2569001247<br>Details: General Use Relating To Secondary Category (Medium Loss)<br>Direct Source: Surface, Non-Tidal - North West Region<br>Point: UNNAMED TRIBUTARY OF PIGS LEE BROOK FEEDING A RESERVOIR AT B<br>Data Type: Point<br>Name: TETROSYL LTD<br>Easting: 380950<br>Northing: 413900 | Annual Volume ($m^3$): 453000<br>Max Daily Volume ($m^3$): 1512<br>Original Application No: -<br>Original Start Date: 09/05/1995<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 09/05/1995<br>Version End Date: - |
| A | 225m SE | Status: Historical<br>Licence No: 2569001247<br>Details: General Cooling (Existing Licences Only) (Low Loss)<br>Direct Source: Surface, Non-Tidal - North West Region<br>Point: UNNAMED TRIBUTARY OF PIGS LEE BROOK FEEDING A RESERVOIR AT B<br>Data Type: Point<br>Name: TETROSYL LTD<br>Easting: 380950<br>Northing: 413900 | Annual Volume ($m^3$): 453000<br>Max Daily Volume ($m^3$): 1512<br>Original Application No: -<br>Original Start Date: 09/05/1995<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 09/05/1995<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| - | 1321m SW | Status: Historical<br>Licence No: NW/069/0001/016<br>Details: General Use Relating To Secondary Category (Very Low Loss)<br>Direct Source: Surface, Non-Tidal - North West Region<br>Point: RIVER IRWELL AT ELTON RESERVOIR<br>Data Type: Point<br>Name: Canal and River Trust<br>Easting: 379677<br>Northing: 413070 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: NPS/NA/001138<br>Original Start Date: 31/03/2021<br>Expiry Date: 31/03/2027<br>Issue No: 1<br>Version Start Date: 31/03/2021<br>Version End Date: - |
| - | 1321m SW | Status: Active<br>Licence No: NW/069/0001/016<br>Details: Transfer Between Sources (Post Water Act 2003)<br>Direct Source: Surface, Non-Tidal - North West Region<br>Point: RIVER IRWELL AT ELTON RESERVOIR<br>Data Type: Point<br>Name: Canal and River Trust<br>Easting: 379677<br>Northing: 413070 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: NPS/WR/044145<br>Original Start Date: 31/03/2021<br>Expiry Date: 31/03/2027<br>Issue No: 2<br>Version Start Date: 21/02/2025<br>Version End Date: - |
| - | 1348m W | Status: Historical<br>Licence No: 2569001038<br>Details: Process Water<br>Direct Source: Surface, Non-Tidal - North West Region<br>Point: RIVER IRWELL IN RAMSBOTTOM<br>Data Type: Point<br>Name: GREENLEAF ENTERPRISES LTD<br>Easting: 378950<br>Northing: 414750 | Annual Volume ($m^3$): 23639.7<br>Max Daily Volume ($m^3$): 90.92<br>Original Application No: -<br>Original Start Date: 25/01/1966<br>Expiry Date: -<br>Issue No: 102<br>Version Start Date: 01/03/2003<br>Version End Date: - |
| - | 1507m NE | Status: Historical<br>Licence No: 2569001229<br>Details: General Farming & Domestic<br>Direct Source: "Surface, Non-Tidal - North West Region"<br>Point: "SPRING FED STORAGE TANKS AT NANGREAVES, BURY"<br>Data Type: Point<br>Name: ALEXANDER<br>Easting: 381650<br>Northing: 415820 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 29/11/1990<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 29/11/1990<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| - | 1507m NE | Status: Historical<br>Licence No: 2569001229<br>Details: General Farming & Domestic<br>Direct Source: Surface, Non-Tidal - North West Region<br>Point: SPRING FED STORAGE TANKS AT NANGREAVES, BURY<br>Data Type: Point<br>Name: ALEXANDER<br>Easting: 381650<br>Northing: 415820 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 29/11/1990<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 29/11/1990<br>Version End Date: - |
| - | 1802m S | Status: Active<br>Licence No: 2569001289R01<br>Details: Lake & Pond Throughflow<br>Direct Source: Surface, Non-Tidal - North West Region<br>Point: TRIBUTARY OF THE RIVER IRWELL, AT CLARENCE PARK LIDO<br>Data Type: Point<br>Name: BURY METROPOLITAN BOROUGH COUNCIL<br>Easting: 381211<br>Northing: 412322 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: NPS/WR/017227<br>Original Start Date: 01/04/2015<br>Expiry Date: 31/03/2027<br>Issue No: 1<br>Version Start Date: 01/04/2015<br>Version End Date: - |
| - | 1802m S | Status: Historical<br>Licence No: 2569001289<br>Details: Lake & Pond Throughflow<br>Direct Source: Surface, Non-Tidal - North West Region<br>Point: TRIBUTARY OF THE RIVER IRWELL, AT CLARENCE PARK LIDO<br>Data Type: Point<br>Name: BURY METROPOLITAN BOROUGH COUNCIL<br>Easting: 381211<br>Northing: 412322 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 22/12/2008<br>Expiry Date: 31/03/2015<br>Issue No: 1<br>Version Start Date: 22/12/2008<br>Version End Date: - |

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 5.8 Potable abstractions

| **Records within 2000m** | **5** |
|---|---|

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 55 >**

| ID | Location | Details | |
|---|---|---|---|
| - | 1146m E | Status: Historical<br>Licence No: 2569001191<br>Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services"<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE AT PREMISES, WALMERSLEY, BURY, LANCASHIRE"<br>Data Type: Point<br>Name: WALMERSLEY GOLF CLUB<br>Easting: 381900<br>Northing: 413700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 12/04/1973<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 01/07/1985<br>Version End Date: - |
| - | 1146m E | Status: Historical<br>Licence No: 2569001191<br>Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT PREMISES, WALMERSLEY, BURY, LANCASHIRE<br>Data Type: Point<br>Name: WALMERSLEY GOLF CLUB<br>Easting: 381900<br>Northing: 413700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 12/04/1973<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 01/07/1985<br>Version End Date: - |
| - | 1146m E | Status: Historical<br>Licence No: 2569001191<br>Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE AT PREMISES, WALMERSLEY, BURY, LANCASHIRE<br>Data Type: Point<br>Name: WALMERSLEY GOLF CLUB<br>Easting: 381900<br>Northing: 413700 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 12/04/1973<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 01/07/1985<br>Version End Date: - |
| - | 1336m SE | Status: Historical<br>Licence No: 2569001194<br>Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household"<br>Direct Source: Ground Water - North West Region<br>Point: "BOREHOLE ON PREMISES AT BIRTLE, BURY"<br>Data Type: Point<br>Name: STONE<br>Easting: 381900<br>Northing: 413300 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 20/06/1974<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 12/09/1986<br>Version End Date: - |

| ID | Location | Details | |
|---|---|---|---|
| - | 1336m SE | Status: Historical<br>Licence No: 2569001194<br>Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household<br>Direct Source: Ground Water - North West Region<br>Point: BOREHOLE ON PREMISES AT BIRTLE, BURY<br>Data Type: Point<br>Name: STONE<br>Easting: 381900<br>Northing: 413300 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 20/06/1974<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 12/09/1986<br>Version End Date: - |

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 5.9 Source Protection Zones

| Records within 500m | 0 |
|---|---|

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 5.10 Source Protection Zones (confined aquifer)

| Records within 500m | 0 |
|---|---|

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

# 6 Hydrology




## 6.1 Water Network (OS MasterMap)

| Records within 250m | 28 |
|---|---|

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 70 >**

| ID | Location | Type of water feature | Ground level | Permanence | Name |
|---|---|---|---|---|---|
| 1 | On site | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | Walmersley Brook |

| ID | Location | Type of water feature | Ground level | Permanence | Name |
|---|---|---|---|---|---|
| **2** | **On site** | **Inland river not influenced by normal tidal action.** | **On ground surface** | **Watercourse contains water year round (in normal circumstances)** | **Walmersley Brook** |
| **A** | **On site** | **Inland river not influenced by normal tidal action.** | **On ground surface** | **Watercourse contains water year round (in normal circumstances)** | **-** |
| **A** | **On site** | **Inland river not influenced by normal tidal action.** | **On ground surface** | **Watercourse contains water year round (in normal circumstances)** | **Walmersley Brook** |
| **B** | **On site** | **Inland river not influenced by normal tidal action.** | **On ground surface** | **Watercourse contains water year round (in normal circumstances)** | **Walmersley Brook** |
| **C** | **On site** | **Inland river not influenced by normal tidal action.** | **On ground surface** | **Watercourse contains water year round (in normal circumstances)** | **-** |
| **C** | **On site** | **Inland river not influenced by normal tidal action.** | **Not provided** | **Watercourse contains water year round (in normal circumstances)** | **-** |
| **C** | **On site** | **Inland river not influenced by normal tidal action.** | **On ground surface** | **Watercourse contains water year round (in normal circumstances)** | **-** |
| **C** | **On site** | **Inland river not influenced by normal tidal action.** | **On ground surface** | **Watercourse contains water year round (in normal circumstances)** | **-** |
| **C** | **On site** | **Inland river not influenced by normal tidal action.** | **On ground surface** | **Watercourse contains water year round (in normal circumstances)** | **-** |
| A | 11m SW | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | - |
| 4 | 14m S | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | Walmersley Brook |
| D | 35m NE | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | - |
| 5 | 51m NE | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | Walmersley Brook |

| ID | Location | Type of water feature | Ground level | Permanence | Name |
|---|---|---|---|---|---|
| E | 113m NE | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | - |
| F | 113m NE | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | Walmersley Brook |
| G | 125m SW | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | - |
| G | 125m SW | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | Walmersley Brook |
| G | 127m SW | Inland river not influenced by normal tidal action. | Underground | Watercourse contains water year round (in normal circumstances) | Walmersley Brook |
| G | 132m SW | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | Walmersley Brook |
| G | 136m SW | Inland river not influenced by normal tidal action. | Underground | Watercourse contains water year round (in normal circumstances) | Walmersley Brook |
| H | 139m SW | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | Walmersley Brook |
| 6 | 168m NW | Inland river not influenced by normal tidal action. | Not provided | Watercourse contains water year round (in normal circumstances) | - |
| 7 | 193m S | Inland river not influenced by normal tidal action. | Not provided | Watercourse contains water year round (in normal circumstances) | - |
| I | 195m NW | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | - |
| J | 226m N | Lake, loch or reservoir. | On ground surface | Watercourse contains water year round (in normal circumstances) | - |
| L | 237m SW | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | - |

| ID | Location | Type of water feature | Ground level | Permanence | Name |
|---|---|---|---|---|---|
| K | 239m E | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | - |

*This data is sourced from the Ordnance Survey.*

## 6.2 Surface water features

| Records within 250m | 8 |
|---|---|

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 70 >**

*This data is sourced from the Ordnance Survey.*

## 6.3 WFD Surface water body catchments

| Records on site | 1 |
|---|---|

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 70 >**

| ID | Location | Type | Water body catchment | Water body ID | Operational catchment | Management catchment |
|---|---|---|---|---|---|---|
| **C** | **On site** | **River** | **Irwell (Rossendale STW to Roch)** | **GB112069064620** | **Croal Irwell** | **Irwell** |

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 6.4 WFD Surface water bodies

| Records identified | 1 |
|---|---|

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the

water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 70 >**

| ID | Location | Type | Name | Water body ID | Overall rating | Chemical rating | Ecological rating | Year |
|---|---|---|---|---|---|---|---|---|
| 14 | 430m E | River | Irwell (Rossendale STW to Roch) | GB112069064620 ↗ | Moderate | Fail | Moderate | 2019 |

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 6.5 WFD Groundwater bodies

| **Records on site** | **1** |
|---|---|

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 70 >**

| ID | Location | Name | Water body ID | Overall rating | Chemical rating | Quantitative | Year |
|---|---|---|---|---|---|---|---|
| **C** | **On site** | **Northern Manchester Carboniferous Aquifers** | **GB41202G101800 ↗** | **Poor** | **Poor** | **Good** | **2019** |

*This data is sourced from the Environment Agency and Natural Resources Wales.*

# 7 River and coastal flooding

## 7.1 Risk of flooding from rivers and the sea

| Records within 50m | 0 |
|---|---|

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 7.2 Historical Flood Events

| Records within 250m | 0 |
|---|---|

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 7.3 Flood Defences

| Records within 250m | 0 |
|---|---|

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 7.4 Areas Benefiting from Flood Defences

| Records within 250m | 0 |
|---|---|

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

## 7.5 Flood Storage Areas

| Records within 250m | 0 |
|---|---|

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

# River and coastal flooding - Flood Zones

## 7.6 Flood Zone 2

| Records within 50m | 0 |
|---|---|

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

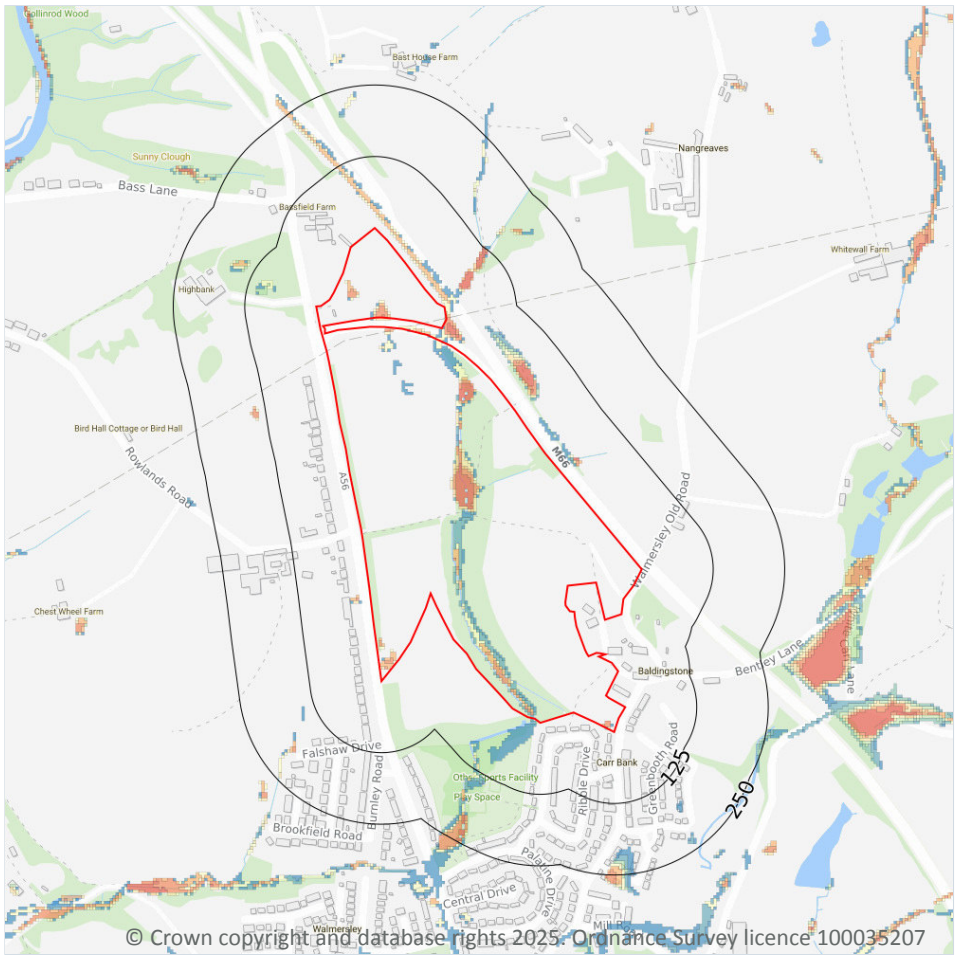
## 7.7 Flood Zone 3

| Records within 50m | 0 |
|---|---|

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

*This data is sourced from the Environment Agency and Natural Resources Wales.*

# 8 Surface water flooding




Site Outline

Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

## 8.1 Surface water flooding

| | |
|---|---|
| **Highest risk on site** | **1 in 30 year, Greater than 1.0m** |
| **Highest risk within 50m** | **1 in 30 year, Greater than 1.0m** |

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 78 >**

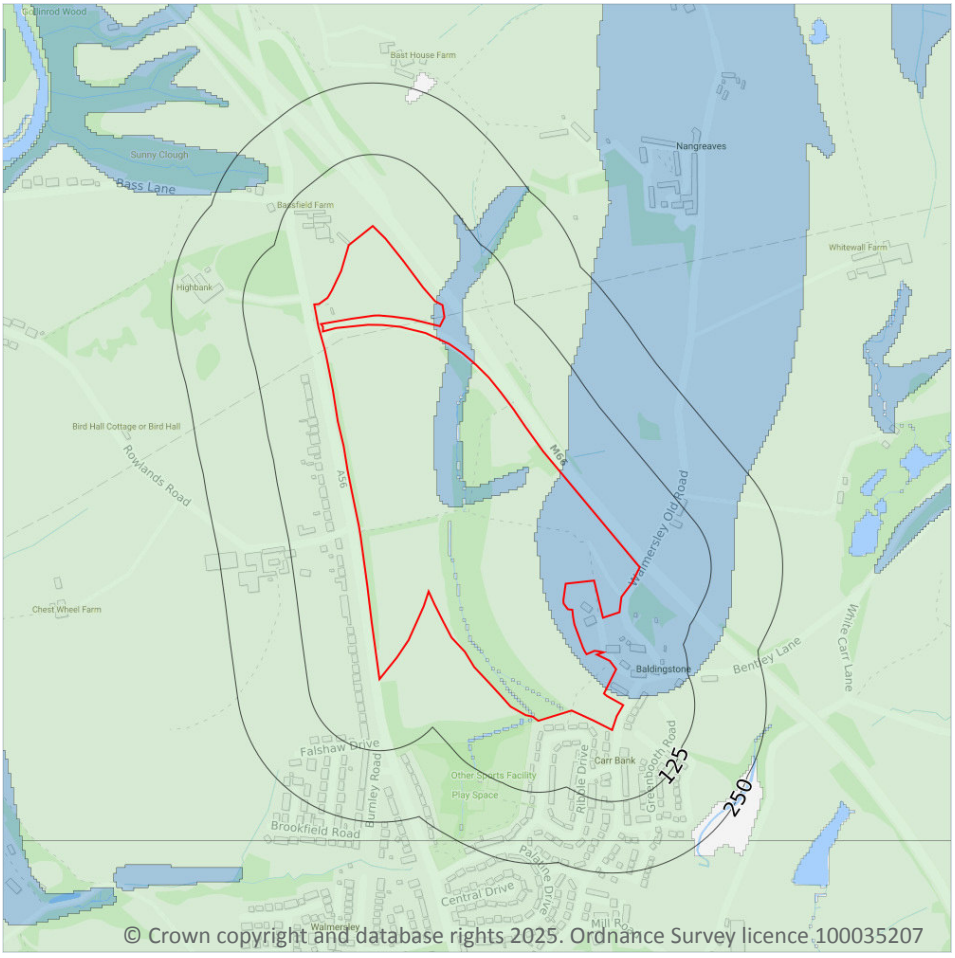
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

| Return period | Maximum modelled depth |
|---|---|
| 1 in 1000 year | Greater than 1.0m |
| 1 in 250 year | Greater than 1.0m |
| 1 in 100 year | Greater than 1.0m |
| 1 in 30 year | Greater than 1.0m |

*This data is sourced from Ambiental Risk Analytics.*

# 9 Groundwater flooding




Site Outline

Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

## 9.1 Groundwater flooding

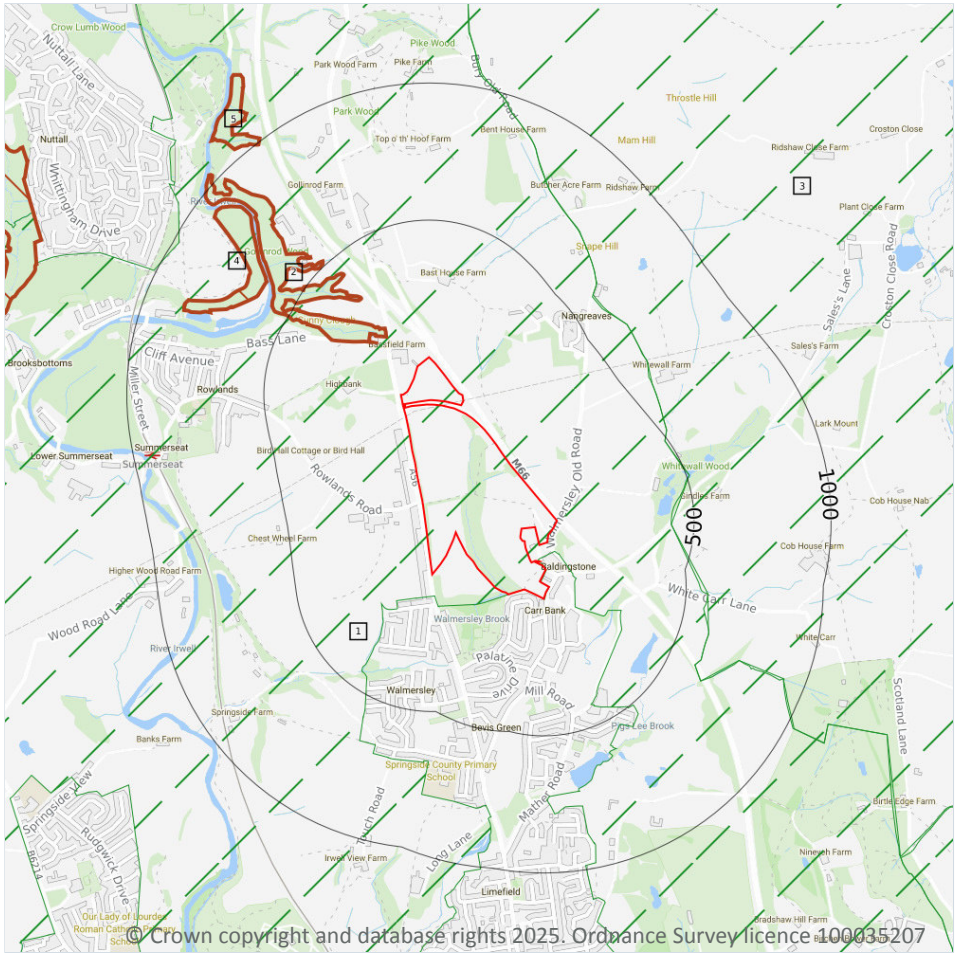
| | |
|---|---|
| **Highest risk on site** | **Low** |
| **Highest risk within 50m** | **Low** |

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 80 >**

*This data is sourced from Ambiental Risk Analytics.*

# 10 Environmental designations




## 10.1 Sites of Special Scientific Interest (SSSI)

| Records within 2000m | 0 |
|---|---|

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

*This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.*

## 10.2 Conserved wetland sites (Ramsar sites)

| Records within 2000m | 0 |
|---|---|

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

*This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.*

## 10.3 Special Areas of Conservation (SAC)

| Records within 2000m | 0 |
|---|---|

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

*This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.*

## 10.4 Special Protection Areas (SPA)

| Records within 2000m | 0 |
|---|---|

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

*This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.*

## 10.5 National Nature Reserves (NNR)

| Records within 2000m | 0 |
|---|---|

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

*This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.*

## 10.6 Local Nature Reserves (LNR)

| Records within 2000m | 1 |
|---|---|

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

Features are displayed on the Environmental designations map on **page 81 >**

| ID | Location | Name | Data source |
|---|---|---|---|
| - | 1547m S | Chesham Woods | Natural England |

*This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.*

## 10.7 Designated Ancient Woodland

| Records within 2000m | 4 |
|---|---|

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 81 >**

| ID | Location | Name | Woodland Type |
|---|---|---|---|
| 2 | 157m NW | Gollinrod Wood | Ancient & Semi-Natural Woodland |
| 4 | 631m NW | Gollinrod Wood | Ancient & Semi-Natural Woodland |
| 5 | 994m NW | Nuttall Wood | Ancient & Semi-Natural Woodland |
| 6 | 1410m W | Broad Hey Wood | Ancient & Semi-Natural Woodland |

*This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.*

## 10.8 Biosphere Reserves

| Records within 2000m | 0 |
|---|---|

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

*This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.*

## 10.9 Forest Parks

| Records within 2000m | 0 |
|---|---|

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

*This data is sourced from the Forestry Commission.*

## 10.10 Marine Conservation Zones

| Records within 2000m | 0 |
|---|---|

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

*This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.*

## 10.11 Green Belt

| Records within 2000m | 3 |
|---|---|

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 81 >**

| ID | Location | Name | Local Authority name |
|---|---|---|---|
| **1** | **On site** | **Merseyside and Greater Manchester Green Belt** | **Bury** |
| 3 | 417m E | Merseyside and Greater Manchester Green Belt | Rossendale |
| 8 | 1609m SE | Merseyside and Greater Manchester Green Belt | Rochdale |

*This data is sourced from the Ministry of Housing, Communities and Local Government.*

## 10.12 Proposed Ramsar sites

| Records within 2000m | 0 |
|---|---|

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

*This data is sourced from Natural England.*

## 10.13 Possible Special Areas of Conservation (pSAC)

| Records within 2000m | 0 |
|---|---|

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

*This data is sourced from Natural England and Natural Resources Wales.*

## 10.14 Potential Special Protection Areas (pSPA)

| Records within 2000m | 0 |
|---|---|

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

*This data is sourced from Natural England.*

## 10.15 Nitrate Sensitive Areas

| Records within 2000m | 0 |
|---|---|

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

*This data is sourced from Natural England.*

## 10.16 Nitrate Vulnerable Zones

| Records within 2000m | 0 |
|---|---|

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

*This data is sourced from Natural England and Natural Resources Wales.*

# SSSI Impact Zones and Units

## 10.17 SSSI Impact Risk Zones

| Records on site | 0 |
|---|---|

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

*This data is sourced from Natural England.*

## 10.18 SSSI Units

| Records within 2000m | 0 |
|---|---|

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

*This data is sourced from Natural England and Natural Resources Wales.*

# 11 Visual and cultural designations




Site Outline

Search buffers in metres (m)

Listed buildings

Conservation areas

Conservation areas - no data

National Parks

Areas of Outstanding Natural Beauty

Registered parks and gardens

Scheduled Monuments

World Heritage Sites

## 11.1 World Heritage Sites

| Records within 250m | 0 |
|---|---|

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

*This data is sourced from Historic England, Cadw and Historic Environment Scotland.*

## 11.2 Area of Outstanding Natural Beauty

| Records within 250m | 0 |
|---|---|

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

*This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.*

## 11.3 National Parks

| Records within 250m | 0 |
|---|---|

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

*This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.*

## 11.4 Listed Buildings

| Records within 250m | 1 |
|---|---|

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 87 >**

| ID | Location | Name | Grade | Reference Number | Listed date |
|---|---|---|---|---|---|
| 1 | 22m W | Baldingstone House | II | 1356839 | 27/01/1975 |

*This data is sourced from Historic England, Cadw and Historic Environment Scotland.*

## 11.5 Conservation Areas

| Records within 250m | 0 |
|---|---|

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

*This data is sourced from Historic England, Cadw and Historic Environment Scotland.*

## 11.6 Scheduled Ancient Monuments

| Records within 250m | 0 |
|---|---|

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

*This data is sourced from Historic England, Cadw and Historic Environment Scotland.*

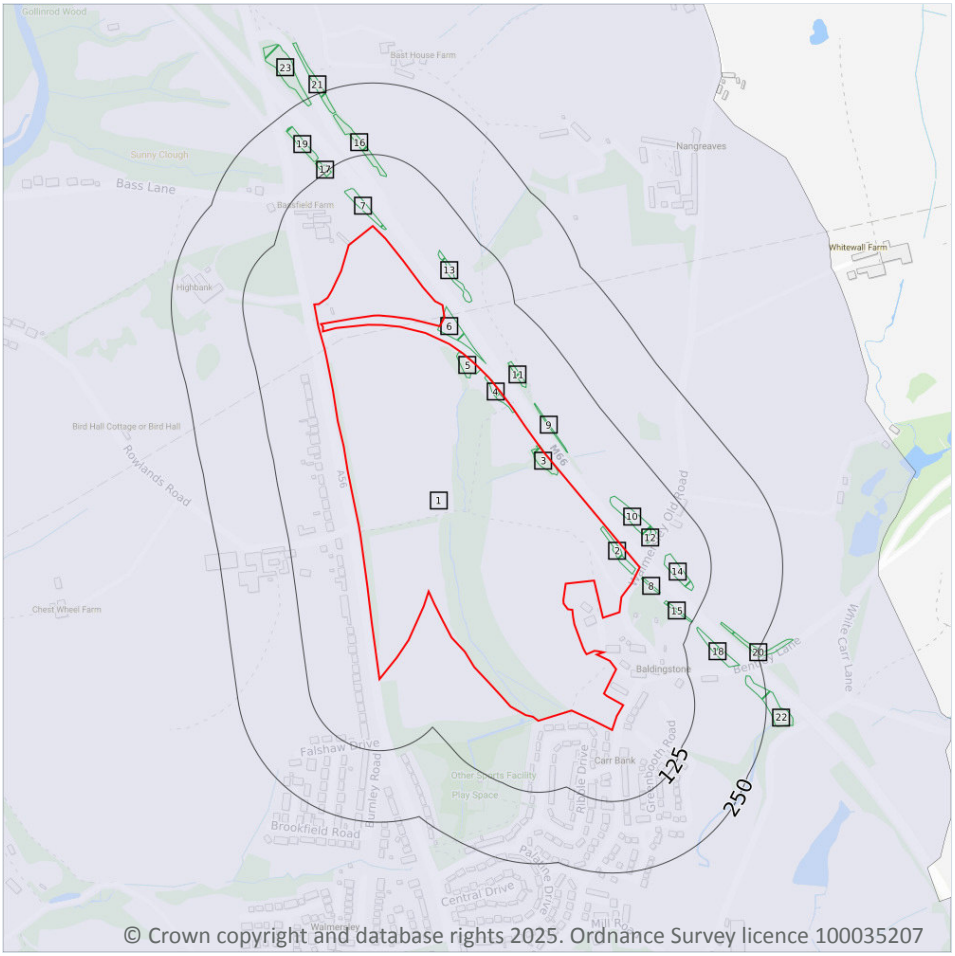
## 11.7 Registered Parks and Gardens

| Records within 250m | 0 |
|---|---|

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

*This data is sourced from Historic England, Cadw and Historic Environment Scotland.*

# 12 Agricultural designations




## 12.1 Agricultural Land Classification

| Records within 250m | 1 |
|---|---|

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 90 >**

| ID | Location | Classification | Description |
|---|---|---|---|
| 1 | On site | Grade 4 | **Poor quality agricultural land. Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.** |

*This data is sourced from Natural England.*

## 12.2 Open Access Land

| Records within 250m | 0 |
|---|---|

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

*This data is sourced from Natural England and Natural Resources Wales.*

## 12.3 Tree Felling Licences

| Records within 250m | 22 |
|---|---|

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

Features are displayed on the Agricultural designations map on **page 90 >**

| ID | Location | Description | Reference | Application date |
|---|---|---|---|---|
| **2** | **On site** | **Selective Fell/Thin (Unconditional)** | **018/366/15-16** | **-** |
| **3** | **On site** | **Selective Fell/Thin (Unconditional)** | **018/366/15-16** | **-** |
| **4** | **On site** | **Selective Fell/Thin (Unconditional)** | **018/366/15-16** | **-** |
| **5** | **On site** | **Selective Fell/Thin (Unconditional)** | **018/366/15-16** | **-** |
| **6** | **On site** | **Selective Fell/Thin (Unconditional)** | **018/366/15-16** | **-** |
| 7 | 8m NE | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 8 | 11m SE | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 9 | 31m NE | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 10 | 32m NE | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 11 | 36m NE | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 12 | 37m NE | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 13 | 39m NE | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 14 | 43m E | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 15 | 66m SE | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |

| ID | Location | Description | Reference | Application date |
|---|---|---|---|---|
| 16 | 90m N | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 17 | 118m NW | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 18 | 138m E | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 19 | 151m NW | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 20 | 171m SE | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 21 | 209m N | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 22 | 218m E | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |
| 23 | 238m NW | Selective Fell/Thin (Unconditional) | 018/366/15-16 | - |

*This data is sourced from the Forestry Commission.*

## 12.4 Environmental Stewardship Schemes

| **Records within 250m** | **1** |
|---|---|

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

| Location | Reference | Scheme | Start Date | End date |
|---|---|---|---|---|
| 84m NE | AG00703605 | Entry Level Stewardship | 01/07/2013 | 30/06/2018 |

*This data is sourced from Natural England.*

## 12.5 Countryside Stewardship Schemes

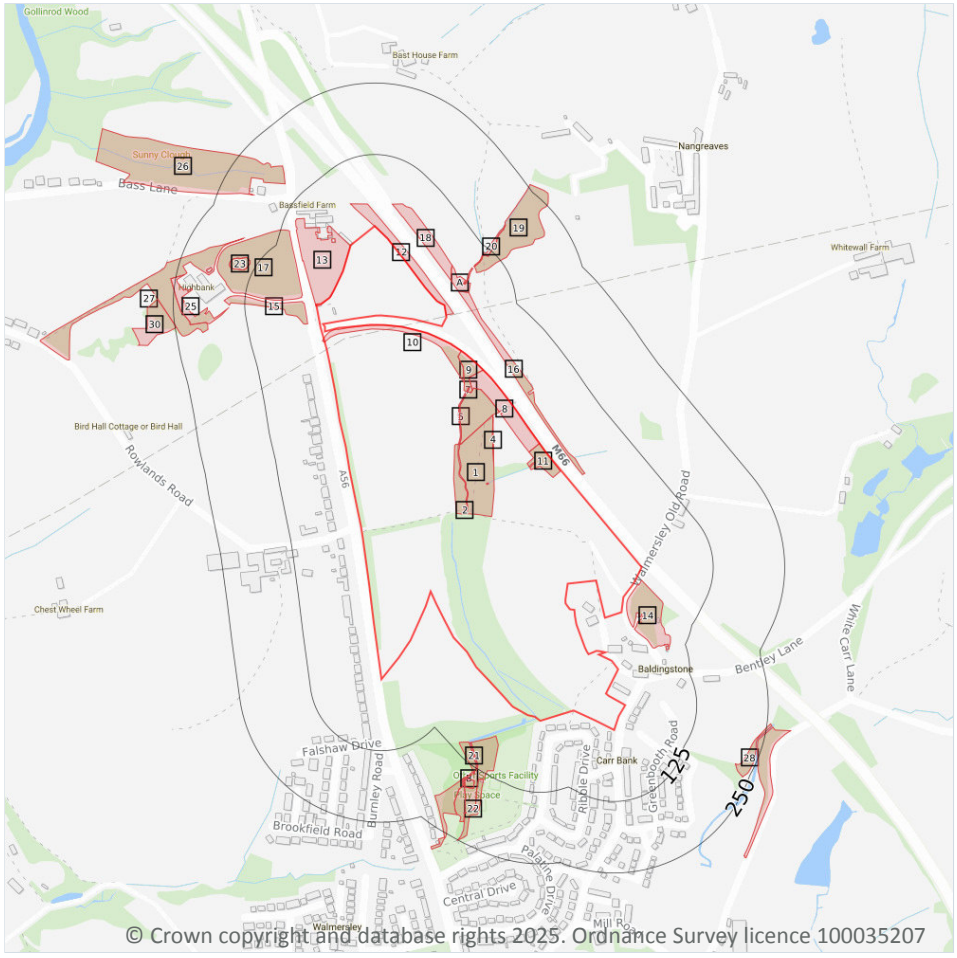
| **Records within 250m** | **3** |
|---|---|

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

| Location | Reference | Scheme | Start Date | End Date |
|---|---|---|---|---|
| 76m W | 1271764 | Countryside Stewardship (Middle Tier) | 01/01/2022 | 31/12/2026 |
| 106m W | 1271764 | Countryside Stewardship (Middle Tier) | 01/01/2022 | 31/12/2026 |
| 135m NE | 1449450 | Countryside Stewardship (Middle Tier) | 01/01/2023 | 31/12/2027 |

*This data is sourced from Natural England.*

# 13 Habitat designations




Site Outline

Search buffers in metres (m)

- Priority Habitat Inventory
- Open Mosaic Habitat
- Limestone Pavement Orders

Habitat Networks

- Primary Habitat
- Restorable Habitat
- Associated Habitats
- Habitat Restoration-Creation
- Network Enhancement Zone 1
- Network Enhancement Zone 2

## 13.1 Priority Habitat Inventory

| Records within 250m | 35 |
|---|---|

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 93 >**

| ID | Location | Main Habitat | Other habitats |
|---|---|---|---|
| 1 | On site | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 2 | On site | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 3 | On site | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 4 | On site | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |

| ID | Location | Main Habitat | Other habitats |
|---|---|---|---|
| **5** | **On site** | **Deciduous woodland** | **Main habitat: DWOOD (INV > 50%)** |
| **6** | **On site** | **Deciduous woodland** | **Main habitat: DWOOD (INV > 50%)** |
| **7** | **On site** | **Deciduous woodland** | **Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)** |
| **8** | **On site** | **Deciduous woodland** | **Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)** |
| **9** | **On site** | **Deciduous woodland** | **Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%)** |
| **10** | **On site** | **Good quality semi-improved grassland** | **Main habitat: GQSIG (INV > 50%)** |
| **11** | **On site** | **Good quality semi-improved grassland** | **Main habitat: GQSIG (INV > 50%)** |
| **12** | **On site** | **Good quality semi-improved grassland** | **Main habitat: GQSIG (INV > 50%)** |
| **13** | **On site** | **No main habitat but additional habitats present** | **Main habitat: DWOOD (INV > 50%)** |
| 14 | 7m SE | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 15 | 20m W | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 16 | 24m NE | Good quality semi-improved grassland | Main habitat: GQSIG (INV > 50%) |
| 17 | 28m NW | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| A | 34m NE | Deciduous woodland | Main habitat: DWOOD (INV > 50%); GQSIG (INV > 50%) |
| 18 | 42m NE | Good quality semi-improved grassland | Main habitat: GQSIG (INV > 50%) |
| A | 51m NE | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| B | 59m SW | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 19 | 80m NE | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 20 | 87m NE | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 21 | 96m SW | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| B | 131m SW | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 22 | 136m SW | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 23 | 136m NW | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 24 | 138m SW | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| B | 146m SW | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 25 | 155m W | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 26 | 157m NW | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 27 | 172m NW | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |

| ID | Location | Main Habitat | Other habitats |
|---|---|---|---|
| 28 | 218m SE | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 29 | 240m E | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |
| 30 | 248m W | Deciduous woodland | Main habitat: DWOOD (INV > 50%) |

*This data is sourced from Natural England.*

## 13.2 Habitat Networks

| Records within 250m | 0 |
|---|---|

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

*This data is sourced from Natural England.*

## 13.3 Open Mosaic Habitat

| Records within 250m | 0 |
|---|---|

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

*This data is sourced from Natural England.*

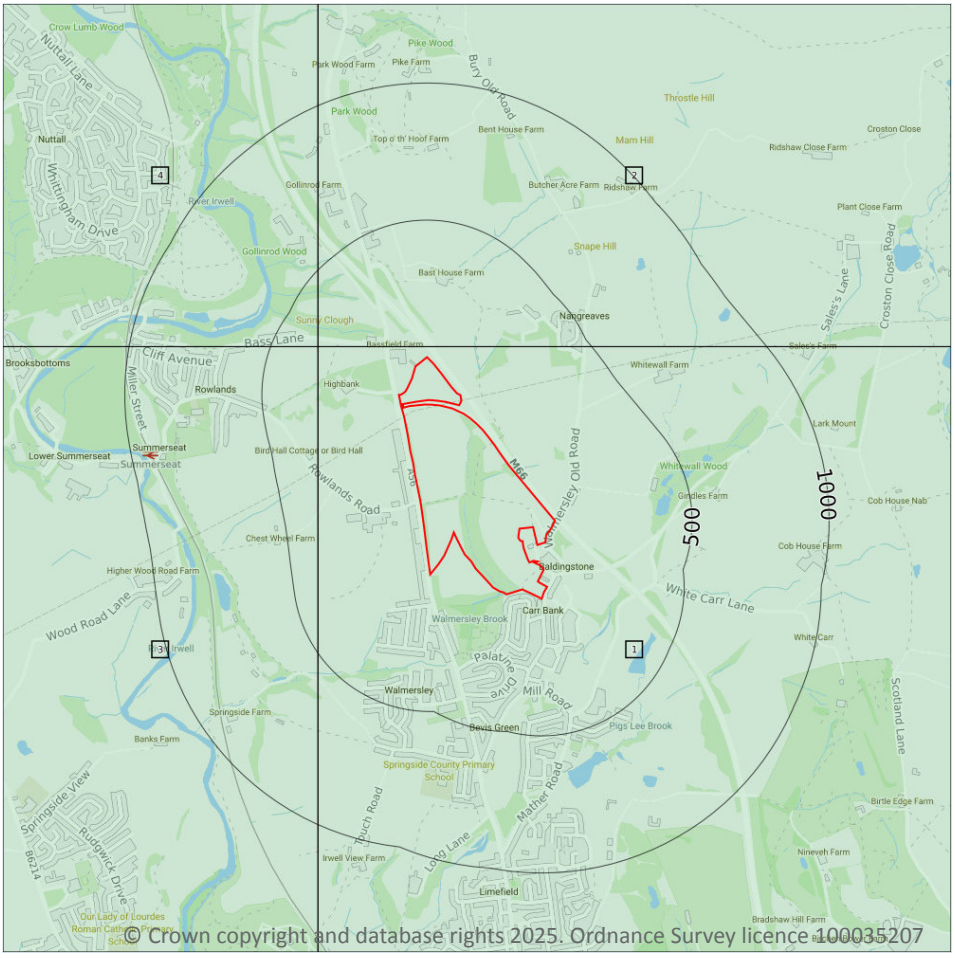
## 13.4 Limestone Pavement Orders

| Records within 250m | 0 |
|---|---|

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

*This data is sourced from Natural England.*

# 14 Geology 1:10,000 scale - Availability




## 14.1 10k Availability

| Records within 500m | 4 |
|---|---|

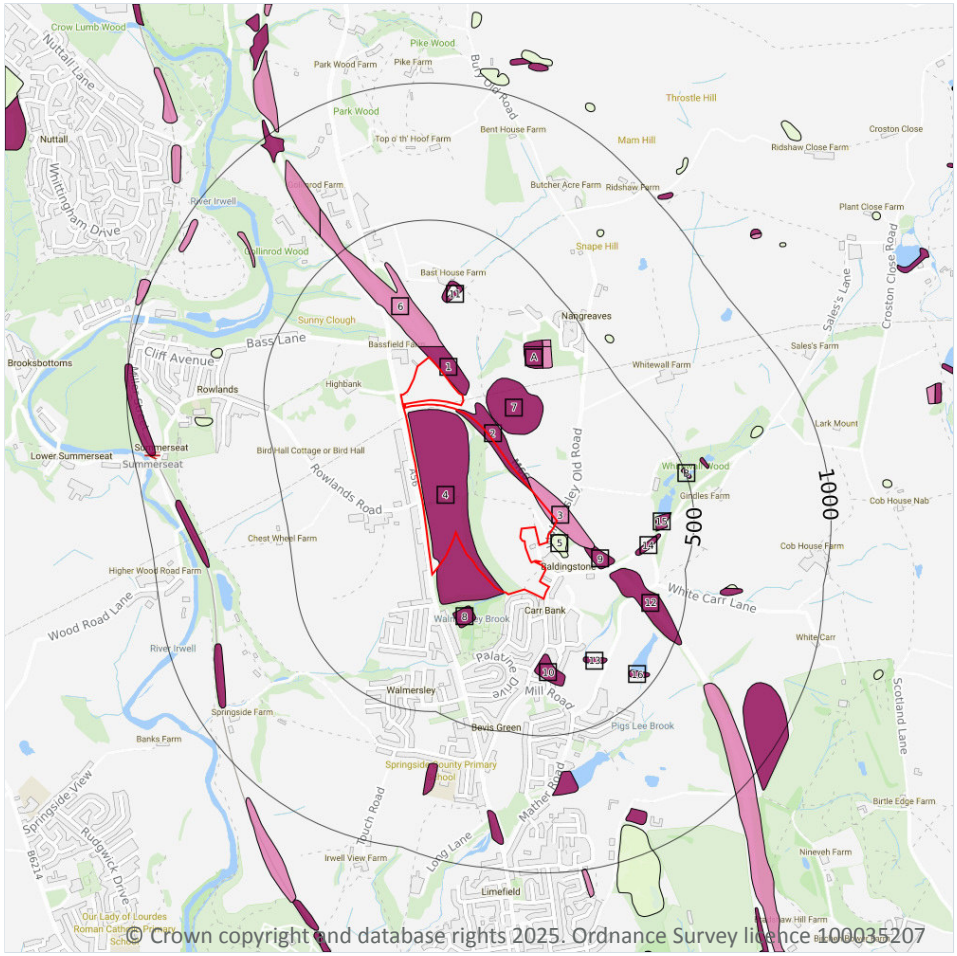
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 96 >**

| ID | Location | Artificial | Superficial | Bedrock | Mass movement | Sheet No. |
|---|---|---|---|---|---|---|
| **1** | **On site** | **Full** | **Full** | **Full** | **Full** | **SD81SW** |
| 2 | 39m N | Full | Full | Full | Full | SD81NW |
| 3 | 295m W | Full | Full | Full | Full | SD71SE |
| 4 | 344m NW | Full | Full | Full | Full | SD71NE |

*This data is sourced from the British Geological Survey.*

# Geology 1:10,000 scale - Artificial and made ground




## 14.2 Artificial and made ground (10k)

| Records within 500m | 21 |
|---|---|

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

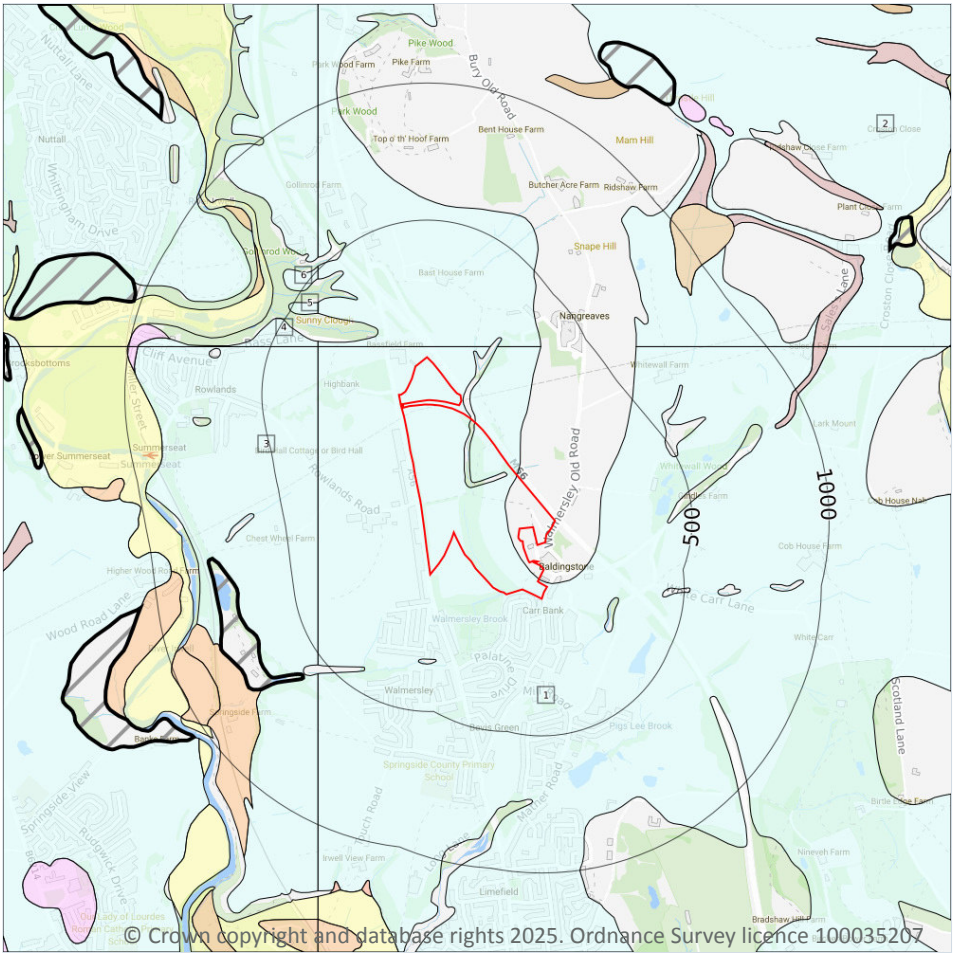
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 98 >**

| ID | Location | LEX Code | Description | Rock description |
|---|---|---|---|---|
| 1 | On site | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| 2 | On site | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| 3 | On site | WGR-VOID | Worked Ground (Undivided) | Void |
| 4 | On site | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |

| ID | Location | LEX Code | Description | Rock description |
|---|---|---|---|---|
| 5 | 13m E | WMGR-ARTDP | Infilled Ground | Artificial Deposit |
| 6 | 39m N | WGR-VOID | Worked Ground (Undivided) | Void |
| 7 | 51m NE | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| 8 | 114m SW | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| 9 | 133m SE | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| 10 | 202m S | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| 11 | 210m N | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| 12 | 225m E | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| A | 259m NE | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| 13 | 260m SE | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| A | 285m NE | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| 14 | 308m E | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| A | 310m NE | WGR-VOID | Worked Ground (Undivided) | Void |
| A | 342m NE | WGR-VOID | Worked Ground (Undivided) | Void |
| 15 | 360m E | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| 16 | 410m SE | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |
| B | 488m E | MGR-ARTDP | Made Ground (Undivided) | Artificial Deposit |

*This data is sourced from the British Geological Survey.*

# Geology 1:10,000 scale - Superficial




Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

## 14.3 Superficial geology (10k)

**Records within 500m** **6**

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 100 >**

| ID | Location | LEX Code | Description | Rock description |
|---|---|---|---|---|
| **1** | **On site** | **TILLD-DMTN** | **Till, Devensian - Diamicton** | **Diamicton** |
| 2 | 39m N | TILLD-DMTN | Till, Devensian - Diamicton | Diamicton |
| 3 | 295m W | TILLD-DMTN | Till, Devensian - Diamicton | Diamicton |

| ID | Location | LEX Code | Description | Rock description |
|---|---|---|---|---|
| 4 | 344m NW | TILLD-DMTN | Till, Devensian - Diamicton | Diamicton |
| 5 | 405m NW | TILLD-DMTN | Till, Devensian - Diamicton | Diamicton |
| 6 | 478m NW | TILLD-DMTN | Till, Devensian - Diamicton | Diamicton |

*This data is sourced from the British Geological Survey.*

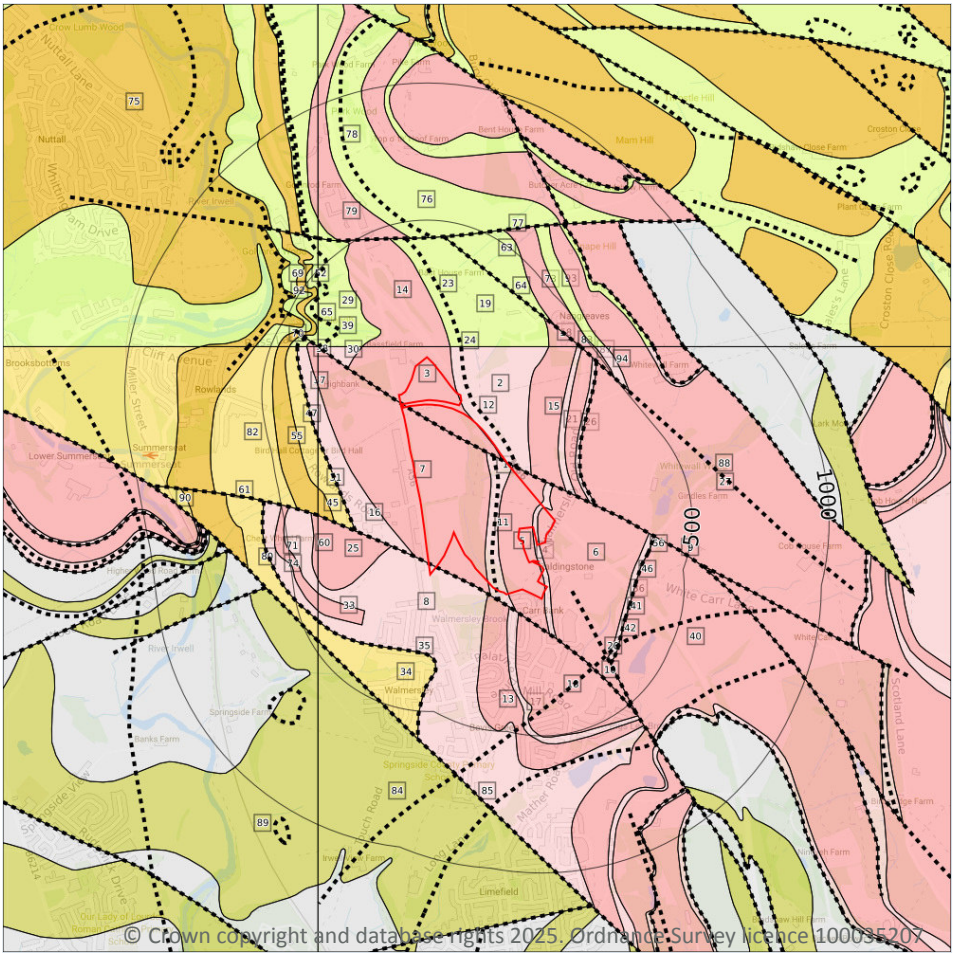
## 14.4 Landslip (10k)

| **Records within 500m** | **0** |
|---|---|

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

*This data is sourced from the British Geological Survey.*

# Geology 1:10,000 scale - Bedrock




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Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

## 14.5 Bedrock geology (10k)

| Records within 500m | 56 |
|---|---|

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 102 >**

| ID | Location | LEX Code | Description | Rock age |
|---|---|---|---|---|
| 1 | On site | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |
| 2 | On site | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |
| 3 | On site | LH-SDST | Lower Haslingden Flags - Sandstone | Yeadonian Sub-age |

| ID | Location | LEX Code | Description | Rock age |
|---|---|---|---|---|
| **4** | **On site** | **ROSSE-MDSI** | **Rossendale Formation - Mudstone And Siltstone** | **Yeadonian Sub-age** |
| **5** | **On site** | **UH-SDST** | **Upper Haslingden Flags - Sandstone** | **Yeadonian Sub-age** |
| **6** | **On site** | **RR-SDST** | **Rough Rock - Sandstone** | **Yeadonian Sub-age** |
| **7** | **On site** | **LH-SDST** | **Lower Haslingden Flags - Sandstone** | **Yeadonian Sub-age** |
| **8** | **On site** | **ROSSE-MDSI** | **Rossendale Formation - Mudstone And Siltstone** | **Yeadonian Sub-age** |
| 13 | 30m SW | UH-SDST | Upper Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 14 | 39m N | LH-SDST | Lower Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 15 | 40m NE | UH-SDST | Upper Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 16 | 45m W | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |
| 17 | 47m S | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |
| 18 | 79m S | RR-SDST | Rough Rock - Sandstone | Yeadonian Sub-age |
| 19 | 87m NE | MG-MDSI | Millstone Grit Group [see Also Migr] - Mudstone And Siltstone | Namurian Age |
| 21 | 100m NE | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |
| 22 | 117m NE | RR-SDST | Rough Rock - Sandstone | Yeadonian Sub-age |
| 25 | 127m W | UH-SDST | Upper Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 26 | 144m NE | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |
| 27 | 158m NE | RR-SDST | Rough Rock - Sandstone | Yeadonian Sub-age |
| 29 | 174m NW | MG-MDSI | Millstone Grit Group [see Also Migr] - Mudstone And Siltstone | Namurian Age |
| 30 | 207m W | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |
| 31 | 250m W | MARSD-MDSI | Marsden Formation - Mudstone And Siltstone | Marsdenian Sub-age |
| 33 | 274m SW | LH-SDST | Lower Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 34 | 287m S | MARSD-MDSI | Marsden Formation - Mudstone And Siltstone | Marsdenian Sub-age |
| 36 | 289m E | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |
| 37 | 295m W | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |
| 38 | 297m W | LH-SDST | Lower Haslingden Flags - Sandstone | Yeadonian Sub-age |

| ID | Location | LEX Code | Description | Rock age |
|---|---|---|---|---|
| 40 | 307m E | RR-SDST | Rough Rock - Sandstone | Yeadonian Sub-age |
| 45 | 322m W | HLBG-SDST | Holcombe Brook Grit - Sandstone | Marsdenian Sub-age |
| 47 | 324m W | MARSD-MDSI | Marsden Formation - Mudstone And Siltstone | Marsdenian Sub-age |
| 51 | 344m NW | LH-SDST | Lower Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 52 | 344m NW | MG-MDSI | Millstone Grit Group [see Also Migr] - Mudstone And Siltstone | Namurian Age |
| 55 | 357m W | HLBG-SDST | Holcombe Brook Grit - Sandstone | Marsdenian Sub-age |
| 58 | 368m NE | UH-SDST | Upper Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 59 | 374m NW | MG-MDSI | Millstone Grit Group [see Also Migr] - Mudstone And Siltstone | Namurian Age |
| 60 | 376m W | UH-SDST | Upper Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 62 | 379m NW | HLBG-SDST | Holcombe Brook Grit - Sandstone | Marsdenian Sub-age |
| 63 | 381m NE | MG-MDSI | Millstone Grit Group [see Also Migr] - Mudstone And Siltstone | Namurian Age |
| 68 | 400m W | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |
| 69 | 400m NW | MG-MDSI | Millstone Grit Group [see Also Migr] - Mudstone And Siltstone | Namurian Age |
| 70 | 413m NW | HLBG-SDST | Holcombe Brook Grit - Sandstone | Marsdenian Sub-age |
| 71 | 415m W | LH-SDST | Lower Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 73 | 427m NE | UH-SDST | Upper Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 74 | 430m W | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |
| 75 | 430m NW | BBS-SDST | Brooksbottoms Grit - Sandstone | Marsdenian Sub-age |
| 76 | 435m N | MG-MDSI | Millstone Grit Group [see Also Migr] - Mudstone And Siltstone | Namurian Age |
| 79 | 438m N | LH-SDST | Lower Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 80 | 443m W | MARSD-MDSI | Marsden Formation - Mudstone And Siltstone | Marsdenian Sub-age |
| 82 | 446m W | MARSD-MDSI | Marsden Formation - Mudstone And Siltstone | Marsdenian Sub-age |
| 83 | 458m NE | MG-MDSI | Millstone Grit Group [see Also Migr] - Mudstone And Siltstone | Namurian Age |

| ID | Location | LEX Code | Description | Rock age |
|---|---|---|---|---|
| 84 | 459m SW | OL-SDST | Old Lawrence Rock - Sandstone | Langsettian Sub-age |
| 87 | 469m NE | UH-SDST | Upper Haslingden Flags - Sandstone | Yeadonian Sub-age |
| 89 | 476m SW | OL-SDST | Old Lawrence Rock - Sandstone | Langsettian Sub-age |
| 93 | 498m NE | MG-MDSI | Millstone Grit Group [see Also Migr] - Mudstone And Siltstone | Namurian Age |
| 94 | 499m NE | ROSSE-MDSI | Rossendale Formation - Mudstone And Siltstone | Yeadonian Sub-age |

*This data is sourced from the British Geological Survey.*

## 14.6 Bedrock faults and other linear features (10k)

| **Records within 500m** | **38** |
|---|---|

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

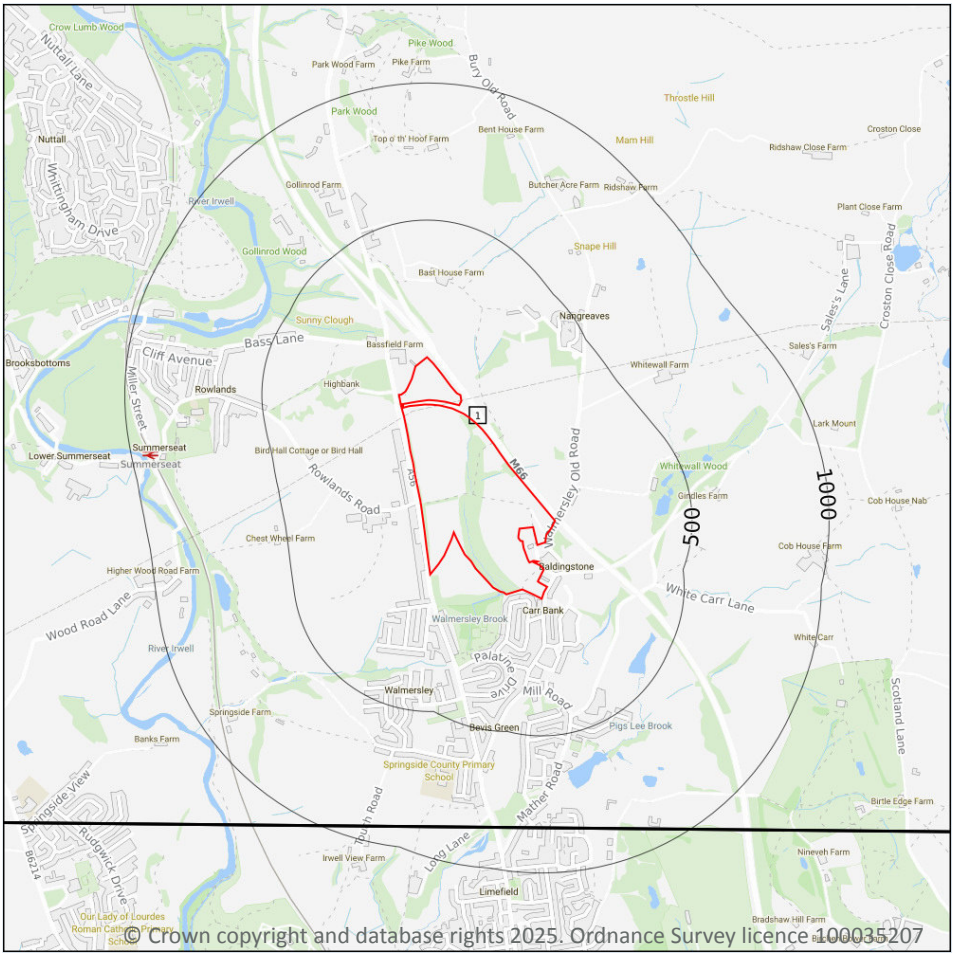
Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 102 >**

| ID | Location | Category | Description |
|---|---|---|---|
| **9** | **On site** | **FAULT** | **Normal fault, inferred; crossmarks on downthrow side** |
| **10** | **On site** | **FAULT** | **Normal fault, inferred; crossmarks on downthrow side** |
| **11** | **On site** | **FOSSIL_HORIZON** | **Fossil horizon, marine band** |
| 12 | 18m NE | FOSSIL_HORIZON | Fossil horizon, marine band |
| 20 | 93m E | FAULT | Normal fault, inferred; crossmarks on downthrow side |
| 23 | 118m NE | FOSSIL_HORIZON | Fossil horizon, marine band |
| 24 | 118m NE | FOSSIL_HORIZON | Fossil horizon, marine band |
| 28 | 158m NE | ROCK | Coal seam, inferred coincident with bedrock geology boundary |
| 32 | 250m W | FOSSIL_HORIZON | Fossil horizon, marine band coincident with bedrock geology boundary |
| 35 | 287m S | FOSSIL_HORIZON | Fossil horizon, marine band coincident with bedrock geology boundary |
| 39 | 307m NW | FOSSIL_HORIZON | Fossil horizon, marine band |
| 41 | 307m E | ROCK | Coal seam, inferred coincident with bedrock geology boundary |
| 42 | 308m E | ROCK | Coal seam, inferred coincident with bedrock geology boundary |
| 43 | 309m E | ROCK | Coal seam, inferred coincident with bedrock geology boundary |

| ID | Location | Category | Description |
|---|---|---|---|
| 44 | 312m SE | LANDFORM | Buried channel or valley margin |
| 46 | 322m E | ROCK | Coal seam, inferred coincident with bedrock geology boundary |
| 48 | 324m W | FOSSIL_HORIZON | Fossil horizon, marine band coincident with bedrock geology boundary |
| 49 | 332m SE | ROCK | Coal seam, inferred coincident with bedrock geology boundary |
| 50 | 340m SE | ROCK | Coal seam, inferred coincident with bedrock geology boundary |
| 53 | 344m NW | FAULT | Normal fault, inferred |
| 54 | 353m E | ROCK | Coal seam, inferred coincident with bedrock geology boundary |
| 56 | 359m E | ROCK | Coal seam, inferred coincident with bedrock geology boundary |
| 57 | 362m E | ROCK | Coal seam, inferred coincident with bedrock geology boundary |
| 61 | 376m W | FAULT | Normal fault, inferred; crossmarks on downthrow side |
| 64 | 381m NE | FAULT | Normal fault, inferred |
| 65 | 396m NW | FOSSIL_HORIZON | Fossil horizon, marine band |
| 66 | 397m NW | FOSSIL_HORIZON | Fossil horizon, marine band |
| 67 | 397m NW | FOSSIL_HORIZON | Fossil horizon, marine band |
| 72 | 420m NW | FOSSIL_HORIZON | Fossil horizon, marine band |
| 77 | 435m N | FAULT | Normal fault, inferred |
| 78 | 437m N | FOSSIL_HORIZON | Fossil horizon, marine band |
| 81 | 443m W | FOSSIL_HORIZON | Fossil horizon, marine band coincident with bedrock geology boundary |
| 85 | 459m SW | FAULT | Normal fault, inferred; crossmarks on downthrow side |
| 86 | 469m NW | FOSSIL_HORIZON | Fossil horizon, marine band |
| 88 | 469m NE | FAULT | Normal fault, inferred; crossmarks on downthrow side |
| 90 | 476m SW | FAULT | Normal fault, inferred; crossmarks on downthrow side |
| 91 | 491m NW | FOSSIL_HORIZON | Fossil horizon, marine band |
| 92 | 493m NW | ROCK | Coal seam, inferred |

*This data is sourced from the British Geological Survey.*

# 15 Geology 1:50,000 scale - Availability




## 15.1 50k Availability

| Records within 500m | 1 |
|---|---|

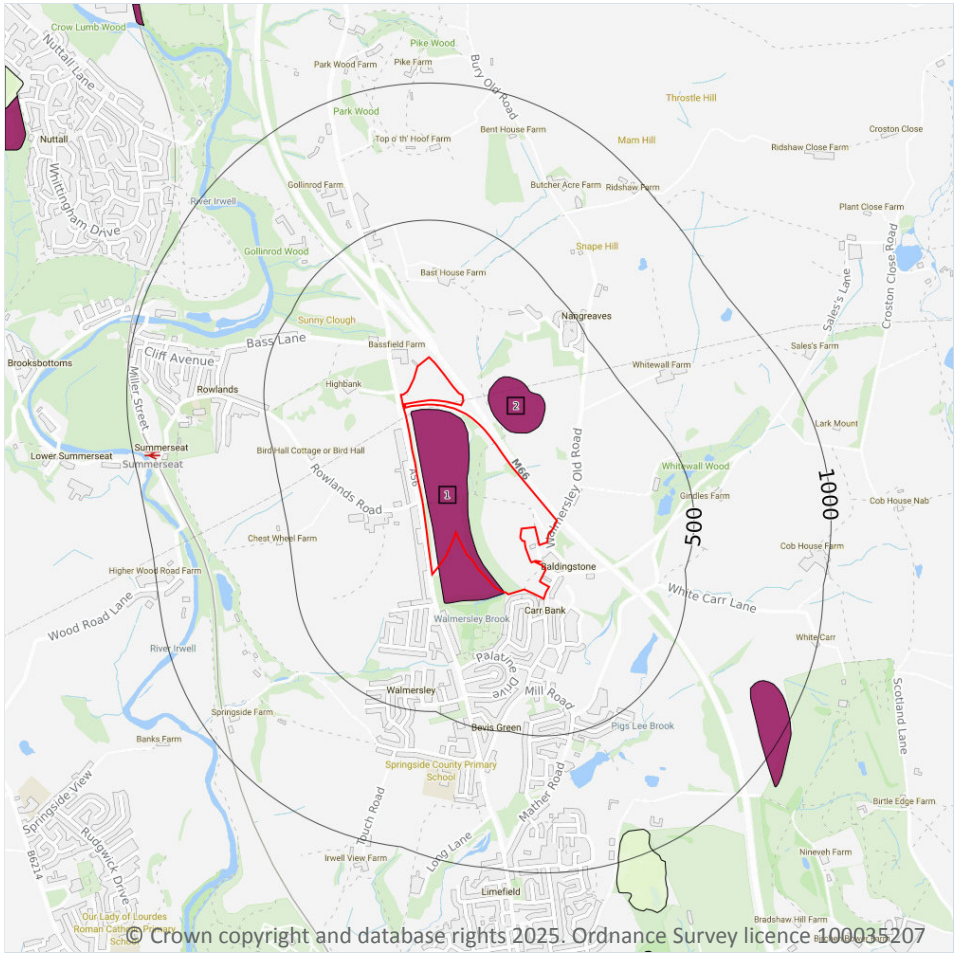
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 107 >**

| ID | Location | Artificial | Superficial | Bedrock | Mass movement | Sheet No. |
|---|---|---|---|---|---|---|
| **1** | **On site** | **No coverage** | **Full** | **Full** | **Full** | **EW076_rochdale_v4** |

*This data is sourced from the British Geological Survey.*

# Geology 1:50,000 scale - Artificial and made ground




## 15.2 Artificial and made ground (50k)

| Records within 500m | 2 |
|---|---|

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 108 >**

| ID | Location | LEX Code | Description | Rock description |
|---|---|---|---|---|
| **1** | **On site** | **MGR-ARTDP** | **MADE GROUND (UNDIVIDED)** | **ARTIFICIAL DEPOSIT** |
| 2 | 60m NE | MGR-ARTDP | MADE GROUND (UNDIVIDED) | ARTIFICIAL DEPOSIT |

*This data is sourced from the British Geological Survey.*

## 15.3 Artificial ground permeability (50k)

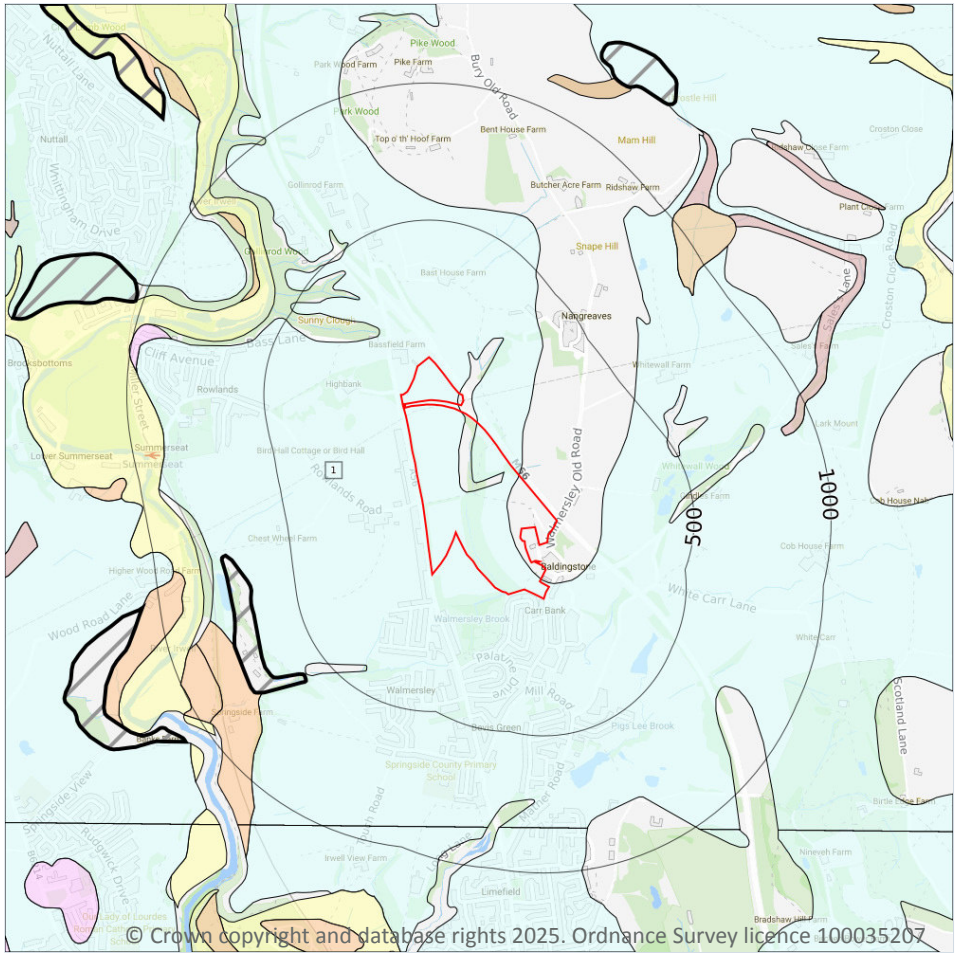
| Records within 50m | 1 |
|---|---|

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

| Location | Flow type | Maximum permeability | Minimum permeability |
|---|---|---|---|
| **On site** | **Mixed** | **Very High** | **Low** |

*This data is sourced from the British Geological Survey.*

# Geology 1:50,000 scale - Superficial




Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

## 15.4 Superficial geology (50k)

| Records within 500m | 1 |
|---|---|

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 110 >**

| ID | Location | LEX Code | Description | Rock description |
|---|---|---|---|---|
| **1** | **On site** | **TILLD-DMTN** | **TILL, DEVENSIAN** | **DIAMICTON** |

*This data is sourced from the British Geological Survey.*

## 15.5 Superficial permeability (50k)

| Records within 50m | 2 |
|---|---|

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

| Location | Flow type | Maximum permeability | Minimum permeability |
|---|---|---|---|
| **On site** | **Mixed** | **High** | **Low** |
| 39m N | Mixed | High | Low |

*This data is sourced from the British Geological Survey.*

## 15.6 Landslip (50k)

| Records within 500m | 0 |
|---|---|

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

*This data is sourced from the British Geological Survey.*

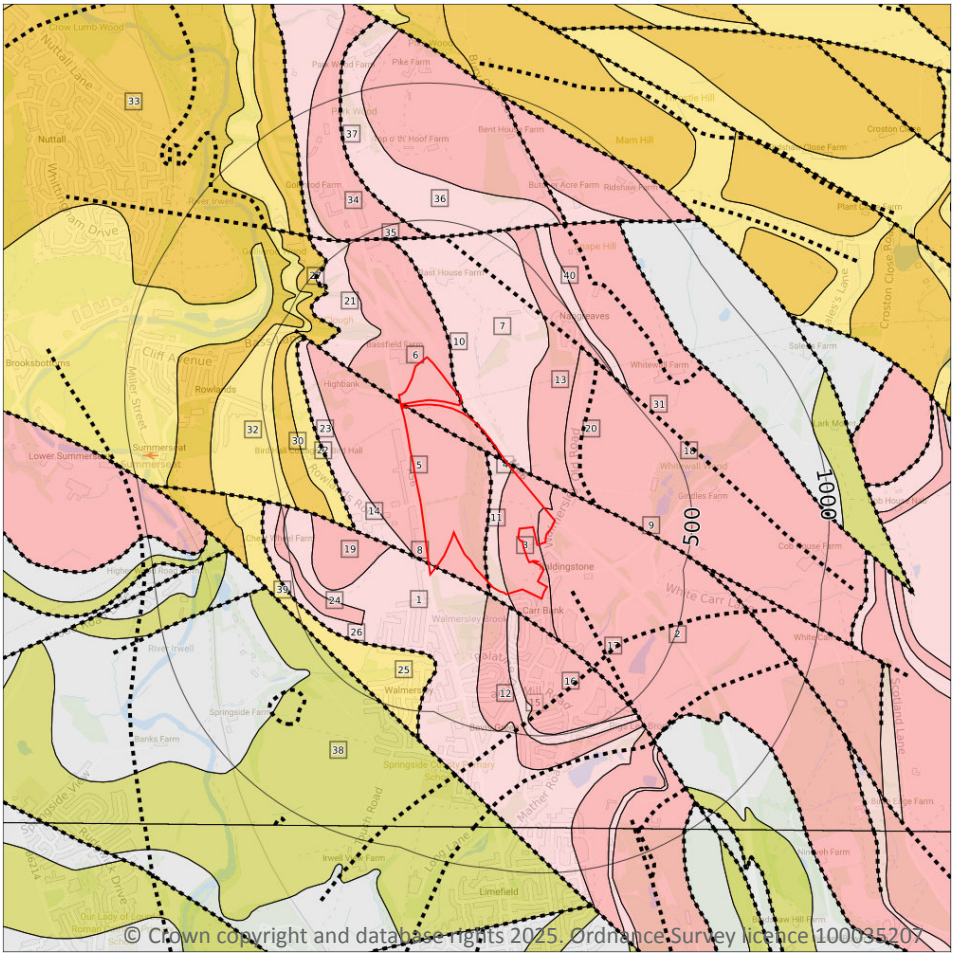
## 15.7 Landslip permeability (50k)

| Records within 50m | 0 |
|---|---|

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

*This data is sourced from the British Geological Survey.*

# Geology 1:50,000 scale - Bedrock




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Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

## 15.8 Bedrock geology (50k)

| Records within 500m | 26 |
|---|---|

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 112 >**

| ID | Location | LEX Code | Description | Rock age |
|---|---|---|---|---|
| 1 | On site | ROSSE-MDSI | ROSSENDALE FORMATION - MUDSTONE AND SILTSTONE | NAMURIAN |
| 2 | On site | RR-SDST | ROUGH ROCK - SANDSTONE | NAMURIAN |
| 3 | On site | UH-SDST | UPPER HASLINGDEN FLAGS - SANDSTONE | NAMURIAN |

| ID | Location | LEX Code | Description | Rock age |
|---|---|---|---|---|
| **4** | **On site** | **ROSSE-MDSI** | **ROSSENDALE FORMATION - MUDSTONE AND SILTSTONE** | **NAMURIAN** |
| **5** | **On site** | **LH-SDST** | **LOWER HASLINGDEN FLAGS - SANDSTONE** | **NAMURIAN** |
| **6** | **On site** | **LH-SDST** | **LOWER HASLINGDEN FLAGS - SANDSTONE** | **NAMURIAN** |
| **7** | **On site** | **ROSSE-MDSI** | **ROSSENDALE FORMATION - MUDSTONE AND SILTSTONE** | **NAMURIAN** |
| 12 | 29m SW | UH-SDST | UPPER HASLINGDEN FLAGS - SANDSTONE | NAMURIAN |
| 13 | 41m NE | UH-SDST | UPPER HASLINGDEN FLAGS - SANDSTONE | NAMURIAN |
| 14 | 45m W | ROSSE-MDSI | ROSSENDALE FORMATION - MUDSTONE AND SILTSTONE | NAMURIAN |
| 15 | 47m S | ROSSE-MDSI | ROSSENDALE FORMATION - MUDSTONE AND SILTSTONE | NAMURIAN |
| 16 | 79m S | RR-SDST | ROUGH ROCK - SANDSTONE | NAMURIAN |
| 18 | 117m NE | RR-SDST | ROUGH ROCK - SANDSTONE | NAMURIAN |
| 19 | 126m W | UH-SDST | UPPER HASLINGDEN FLAGS - SANDSTONE | NAMURIAN |
| 21 | 174m NW | ROSSE-MDSI | ROSSENDALE FORMATION - MUDSTONE AND SILTSTONE | NAMURIAN |
| 22 | 250m W | MARSD-MDSI | MARSDEN FORMATION - MUDSTONE AND SILTSTONE | NAMURIAN |
| 24 | 274m SW | LH-SDST | LOWER HASLINGDEN FLAGS - SANDSTONE | NAMURIAN |
| 25 | 287m S | MARSD-MDSI | MARSDEN FORMATION - MUDSTONE AND SILTSTONE | NAMURIAN |
| 27 | 306m NW | HLBG-SDST | HOLCOMBE BROOK GRIT - SANDSTONE | NAMURIAN |
| 30 | 321m W | HLBG-SDST | HOLCOMBE BROOK GRIT - SANDSTONE | NAMURIAN |
| 32 | 400m NW | MARSD-MDSI | MARSDEN FORMATION - MUDSTONE AND SILTSTONE | NAMURIAN |
| 33 | 431m NW | BBS-SDST | BROOKSBOTTOMS GRIT - SANDSTONE | NAMURIAN |
| 34 | 436m N | LH-SDST | LOWER HASLINGDEN FLAGS - SANDSTONE | NAMURIAN |
| 36 | 437m N | ROSSE-MDSI | ROSSENDALE FORMATION - MUDSTONE AND SILTSTONE | NAMURIAN |
| 38 | 459m SW | OL-SDST | OLD LAWRENCE ROCK - SANDSTONE | WESTPHALIAN |
| 40 | 498m NE | ROSSE-MDSI | ROSSENDALE FORMATION - MUDSTONE AND SILTSTONE | NAMURIAN |

*This data is sourced from the British Geological Survey.*

## 15.9 Bedrock permeability (50k)

| Records within 50m | 7 |
|---|---|

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

| Location | Flow type | Maximum permeability | Minimum permeability |
|---|---|---|---|
| **On site** | **Fracture** | **High** | **Moderate** |
| **On site** | **Fracture** | **High** | **Moderate** |
| **On site** | **Fracture** | **High** | **Moderate** |
| **On site** | **Fracture** | **Low** | **Low** |
| **On site** | **Fracture** | **Low** | **Low** |
| 29m SW | Fracture | High | Moderate |
| 39m N | Fracture | High | Moderate |

*This data is sourced from the British Geological Survey.*

## 15.10 Bedrock faults and other linear features (50k)

| Records within 500m | 14 |
|---|---|

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

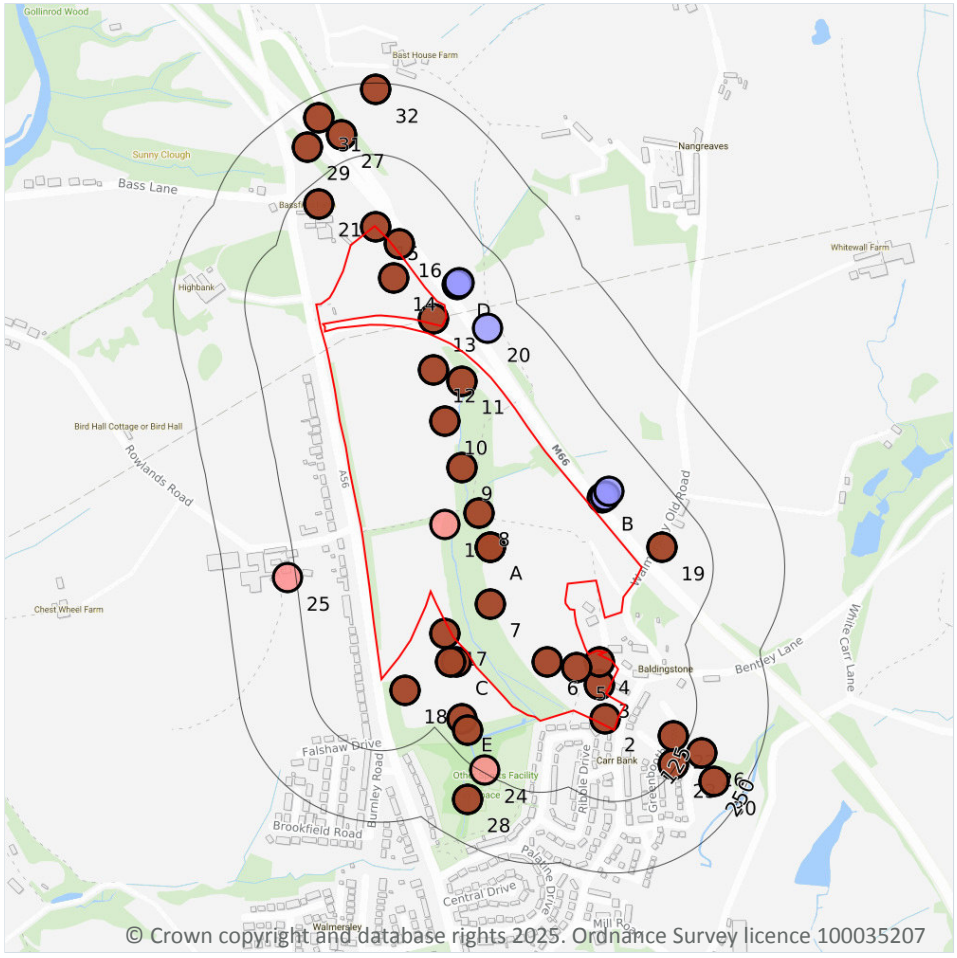
Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 112 >**

| ID | Location | Category | Description |
|---|---|---|---|
| **8** | **On site** | **FAULT** | **Fault, inferred** |
| **9** | **On site** | **FAULT** | **Fault, inferred** |
| **10** | **On site** | **FOSSIL_HORIZON** | **Marine band** |
| **11** | **On site** | **FOSSIL_HORIZON** | **Marine band** |
| 17 | 93m E | FAULT | Fault, inferred |
| 20 | 157m NE | ROCK | Coal seam, inferred |
| 23 | 250m W | FOSSIL_HORIZON | Marine band |
| 26 | 287m S | FOSSIL_HORIZON | Marine band |

| ID | Location | Category | Description |
|---|---|---|---|
| 28 | 306m NW | FOSSIL_HORIZON | Marine band |
| 29 | 311m SE | LANDFORM | Approximate margin of buried (superficial deposit-filled) channel or valley |
| 31 | 381m NE | FAULT | Fault, inferred |
| 35 | 436m N | FAULT | Fault, inferred |
| 37 | 437m N | FOSSIL_HORIZON | Marine band |
| 39 | 460m SW | FAULT | Fault, inferred |

*This data is sourced from the British Geological Survey.*

# 16 Boreholes




Site Outline

Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

## 16.1 BGS Boreholes

| Records within 250m | 43 |
|---|---|

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on **page 116 >**

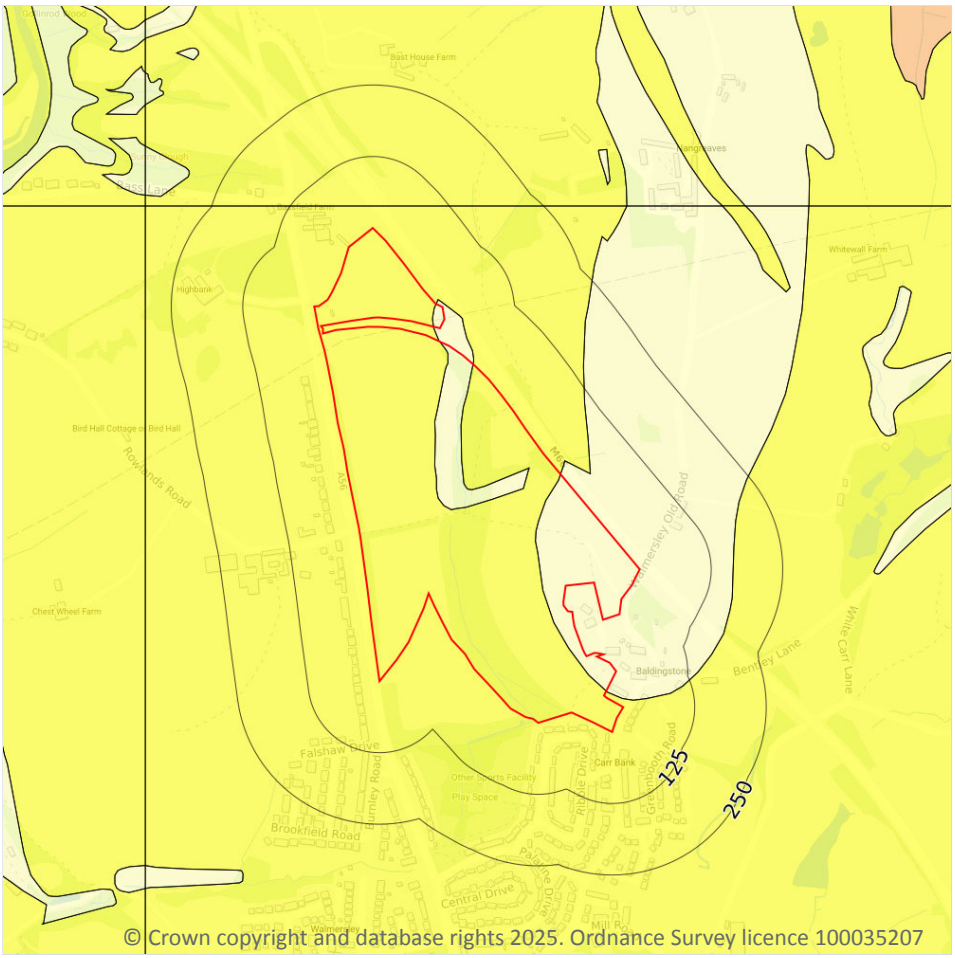
| ID | Location | Grid reference | Name | Length | Confidential | Web link |
|---|---|---|---|---|---|---|
| 1 | On site | 380520 414440 | GIN HALL RESERVOIR 1 | 276.14 | N | 30321 ↗ |
| 2 | On site | 380800 414100 | M66 BURY-EASTERLY BY-PASS. 5876/1-5 | -1.0 | N | 30479 ↗ |
| 3 | On site | 380790 414160 | M66 BURY-EASTERLY BY-PASS. 107 | -1.0 | N | 30480 ↗ |

| ID | Location | Grid reference | Name | Length | Confidential | Web link |
|---|---|---|---|---|---|---|
| **4** | **On site** | **380790 414200** | **M66 BURY-EASTERLY BY-PASS. 107E** | **-1.0** | **N** | **30481** |
| **5** | **On site** | **380750 414190** | **M66 BURY-EASTERLY BY-PASS. 107A** | **-1.0** | **N** | **30482** |
| **6** | **On site** | **380700 414200** | **M66 BURY-EASTERLY BY-PASS. 108** | **-1.0** | **N** | **30483** |
| **7** | **On site** | **380600 414300** | **M66 BURY-EASTERLY BY-PASS. 109** | **-1.0** | **N** | **30484** |
| **8** | **On site** | **380580 414460** | **M66 BURY-EASTERLY BY-PASS. 111** | **-1.0** | **N** | **30487** |
| **9** | **On site** | **380550 414540** | **M66 BURY-EASTERLY BY-PASS. 112** | **-1.0** | **N** | **30488** |
| **10** | **On site** | **380520 414620** | **M66 BURY-EASTERLY BY-PASS. 113** | **-1.0** | **N** | **30489** |
| **11** | **On site** | **380550 414690** | **M66 BURY-EASTERLY BY-PASS. 113A** | **-1.0** | **N** | **30490** |
| **12** | **On site** | **380500 414710** | **M66 BURY-EASTERLY BY-PASS. 114** | **-1.0** | **N** | **30491** |
| **13** | **On site** | **380500 414800** | **M66 BURY-EASTERLY BY-PASS. 115,115E** | **-1.0** | **N** | **30492** |
| **14** | **On site** | **380430 414870** | **M66 BURY-EASTERLY BY-PASS. 116** | **-1.0** | **N** | **30493** |
| **A** | **On site** | **380600 414400** | **M66 BURY-EASTERLY BY-PASS. 110** | **-1.0** | **N** | **30485** |
| **A** | **On site** | **380600 414400** | **M66 BURY-EASTERLY BY-PASS. 5877/1-3** | **-1.0** | **N** | **30486** |
| 15 | 1m NE | 380400 414960 | M66 BURY-EASTERLY BY-PASS. 117 | -1.0 | N | 30495 |
| 16 | 10m NE | 380440 414930 | M66 BURY-EASTERLY BY-PASS. 116E | -1.0 | N | 30494 |
| 17 | 10m SW | 380520 414250 | GINHALL RESERVOIR (SPRING-FED LAGOON) | -1.0 | N | 30611 |
| B | 24m NE | 380795 414486 | M66 JUNCTION 0 TO 2 WS79 | 0.85 | N | 18359487 |
| C | 25m SW | 380540 414200 | GIN HALL RESERVOIR | -1.0 | N | 30626 |
| B | 31m NE | 380800 414490 | M66 JUNCTION 0 TO 2 WS80 | 0.5 | N | 18359492 |
| C | 33m SW | 380530 414200 | GIN HALL RESERVOIR | -1.0 | N | 30627 |
| B | 41m NE | 380807 414498 | M66 JUNCTION 0 TO 2 WS81 | 1.4 | N | 18359497 |
| D | 42m NE | 380542 414859 | M66 JUNCTION 0 TO 2 WS75 | 4.0 | N | 18359476 |
| 18 | 44m SE | 380450 414150 | GIN HALL RESERVOIR | -1.0 | N | 30625 |
| D | 46m NE | 380545 414862 | M66 JUNCTION 0 TO 2 WS76 | 2.0 | N | 18359478 |
| 19 | 50m NE | 380900 414400 | LONGCROFT | -1.0 | N | 30603 |

| ID | Location | Grid reference | Name | Length | Confidential | Web link |
|---|---|---|---|---|---|---|
| 20 | 59m NE | 380595 414782 | M66 JUNCTION 0 TO 2 WS78 | 2.75 | N | 18359481 ↗ |
| E | 80m SW | 380550 414100 | GIN HALL RESERVOIR (SPRING-FED STREAM) | -1.0 | N | 30624 ↗ |
| E | 86m SW | 380560 414080 | GIN HALL RESERVOIR | -1.0 | N | 30628 ↗ |
| 21 | 91m NW | 380300 415000 | M66, BURY EASTERLY BY-PASS. 118E-W | -1.0 | N | 29692 ↗ |
| 22 | 100m SE | 380920 414070 | M66 BURY-EASTERLY BY-PASS. 105E | -1.0 | N | 30478 ↗ |
| 23 | 120m SE | 380920 414020 | M66 BURY-EASTERLY BY-PASS. 105 | -1.0 | N | 30477 ↗ |
| 24 | 121m SW | 380590 414010 | GIN HALL RESERVOIR 2 | 89.3 | N | 30322 ↗ |
| 25 | 140m W | 380245 414347 | NABBS FARM ROWLANDS ROAD BURY | 60.0 | N | 21096398 ↗ |
| 26 | 159m SE | 380970 414040 | M66 BURY-EASTERLY BY-PASS. 104E | -1.0 | N | 30476 ↗ |
| 27 | 169m N | 380340 415120 | M66, BURY EASTERLY BY-PASS. 120F | -1.0 | N | 29694 ↗ |
| 28 | 179m SW | 380560 413960 | WALMESLEY P.S. | -1.0 | N | 30612 ↗ |
| 29 | 182m NW | 380280 415100 | M66, BURY EASTERLY BY-PASS. 119 | -1.0 | N | 29693 ↗ |
| 30 | 196m SE | 380990 413990 | M66 BURY-EASTERLY BY-PASS. 104A | -1.0 | N | 30475 ↗ |
| 31 | 212m NW | 380300 415150 | M66, BURY EASTERLY BY-PASS. 120E | -1.0 | N | 29695 ↗ |
| 32 | 239m N | 380400 415200 | BAST HOUSE | -1.0 | N | 29705 ↗ |

*This data is sourced from the British Geological Survey.*

# 17 Natural ground subsidence - Shrink swell clays




Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

## 17.1 Shrink swell clays

| Records within 50m | 3 |
|---|---|

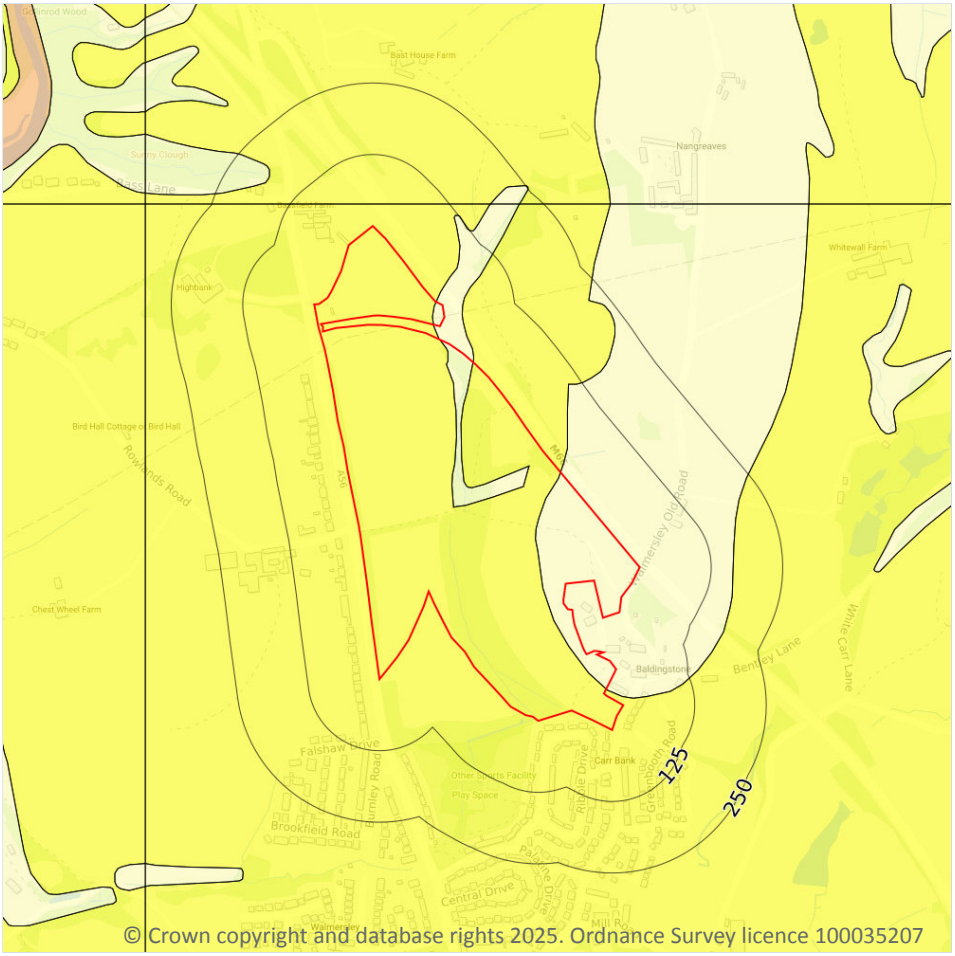
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 119 >**

| Location | Hazard rating | Details |
|---|---|---|
| **On site** | **Negligible** | **Ground conditions predominantly non-plastic.** |
| **On site** | **Very low** | **Ground conditions predominantly low plasticity.** |
| 39m N | Very low | Ground conditions predominantly low plasticity. |

*This data is sourced from the British Geological Survey.*

# Natural ground subsidence - Running sands




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## 17.2 Running sands

| Records within 50m | 3 |
|---|---|

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

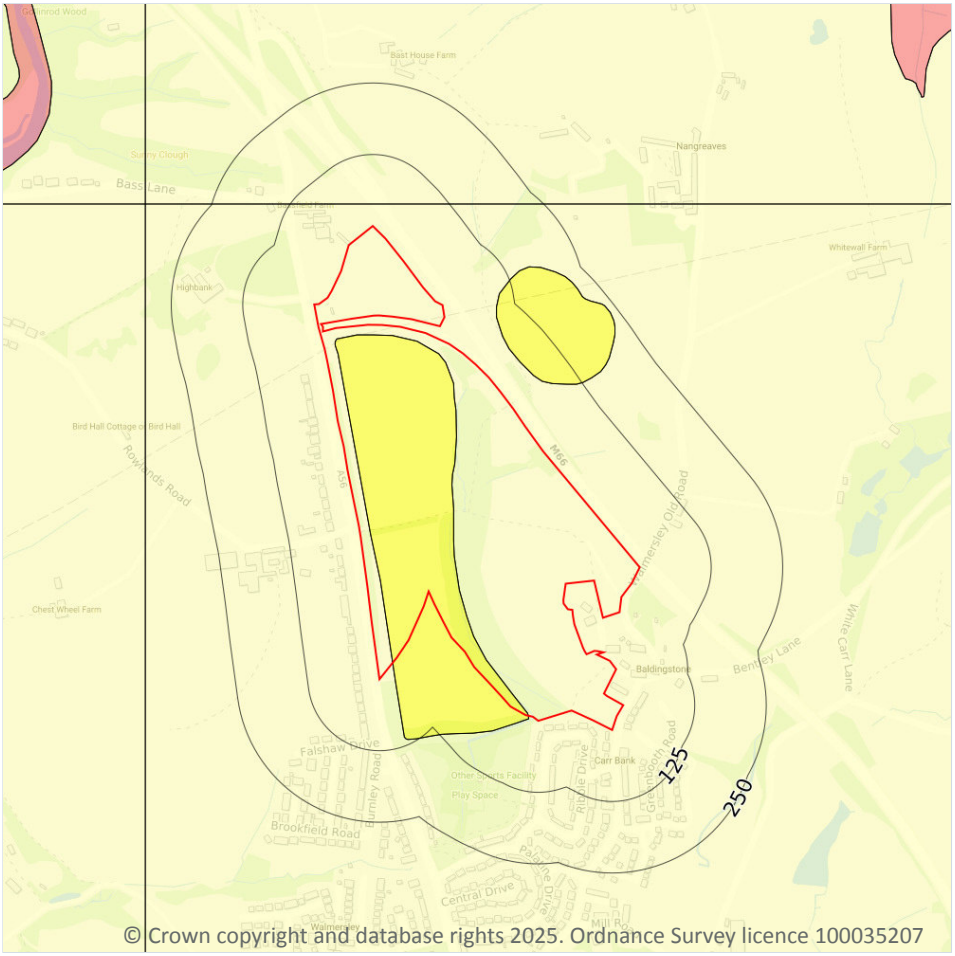
Features are displayed on the Natural ground subsidence - Running sands map on **page 121 >**

| Location | Hazard rating | Details |
|---|---|---|
| **On site** | **Negligible** | **Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.** |

| Location | Hazard rating | Details |
|---|---|---|
| **On site** | **Very low** | **Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.** |
| 39m N | Very low | Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly. |

*This data is sourced from the British Geological Survey.*

# Natural ground subsidence - Compressible deposits




Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

## 17.3 Compressible deposits

| Records within 50m | 3 |
|---|---|

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

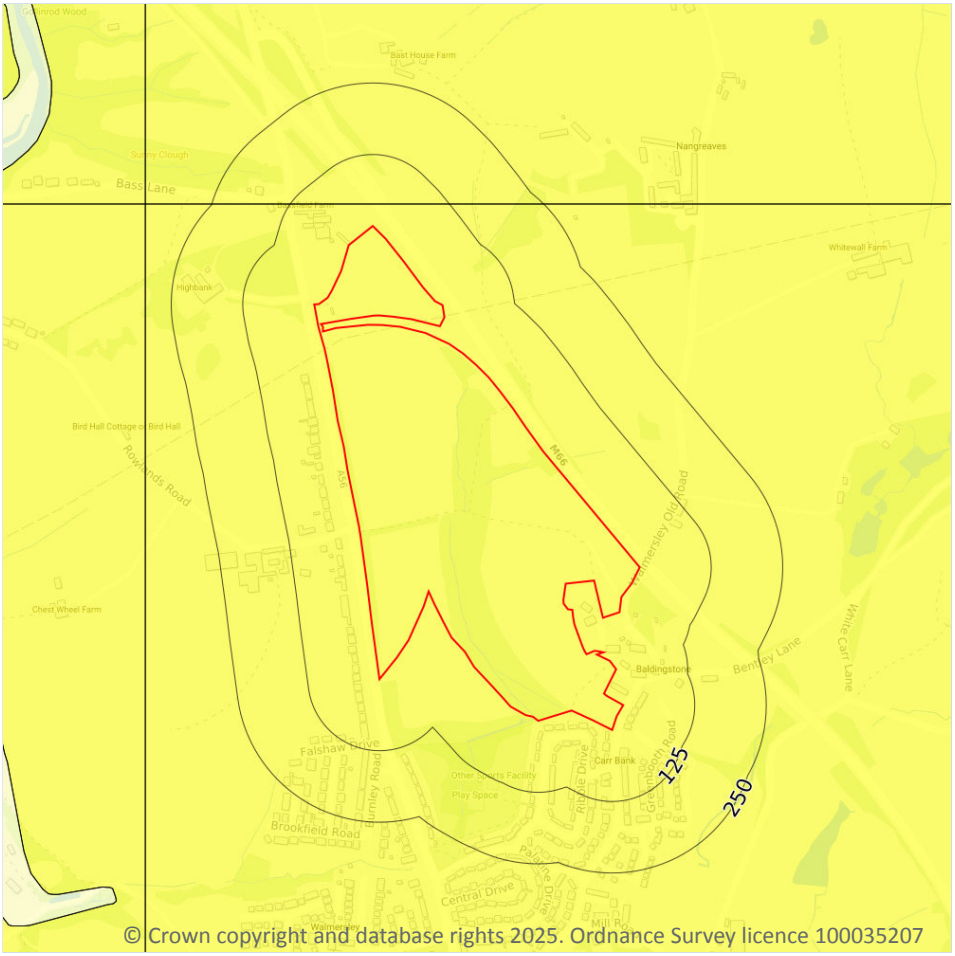
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 123 >**

| Location | Hazard rating | Details |
|---|---|---|
| **On site** | **Negligible** | **Compressible strata are not thought to occur.** |
| **On site** | **Very low** | **Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses.** |

| Location | Hazard rating | Details |
|---|---|---|
| 39m N | Negligible | Compressible strata are not thought to occur. |

*This data is sourced from the British Geological Survey.*

# Natural ground subsidence - Collapsible deposits




Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

## 17.4 Collapsible deposits

| Records within 50m | 2 |
|---|---|

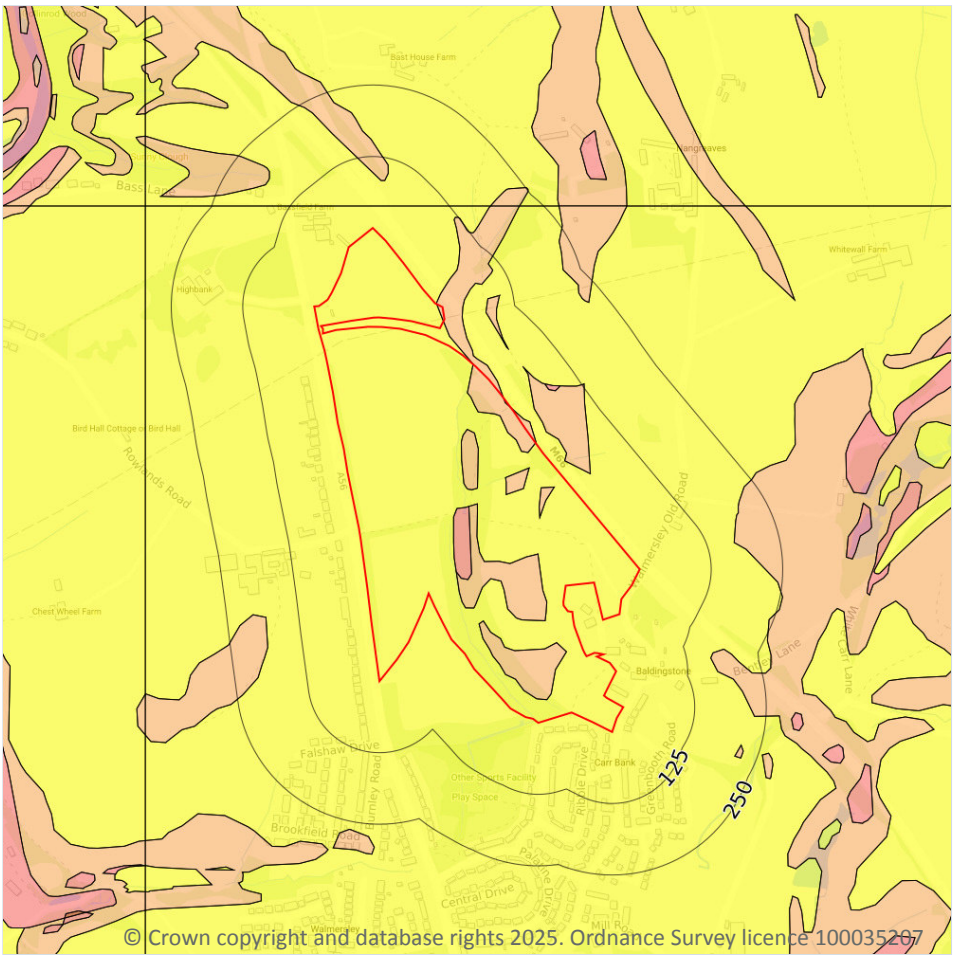
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 125 >**

| Location | Hazard rating | Details |
|---|---|---|
| **On site** | **Very low** | **Deposits with potential to collapse when loaded and saturated are unlikely to be present.** |
| 39m N | Very low | Deposits with potential to collapse when loaded and saturated are unlikely to be present. |

*This data is sourced from the British Geological Survey.*

# Natural ground subsidence - Landslides




Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

## 17.5 Landslides

| Records within 50m | 5 |
|---|---|

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

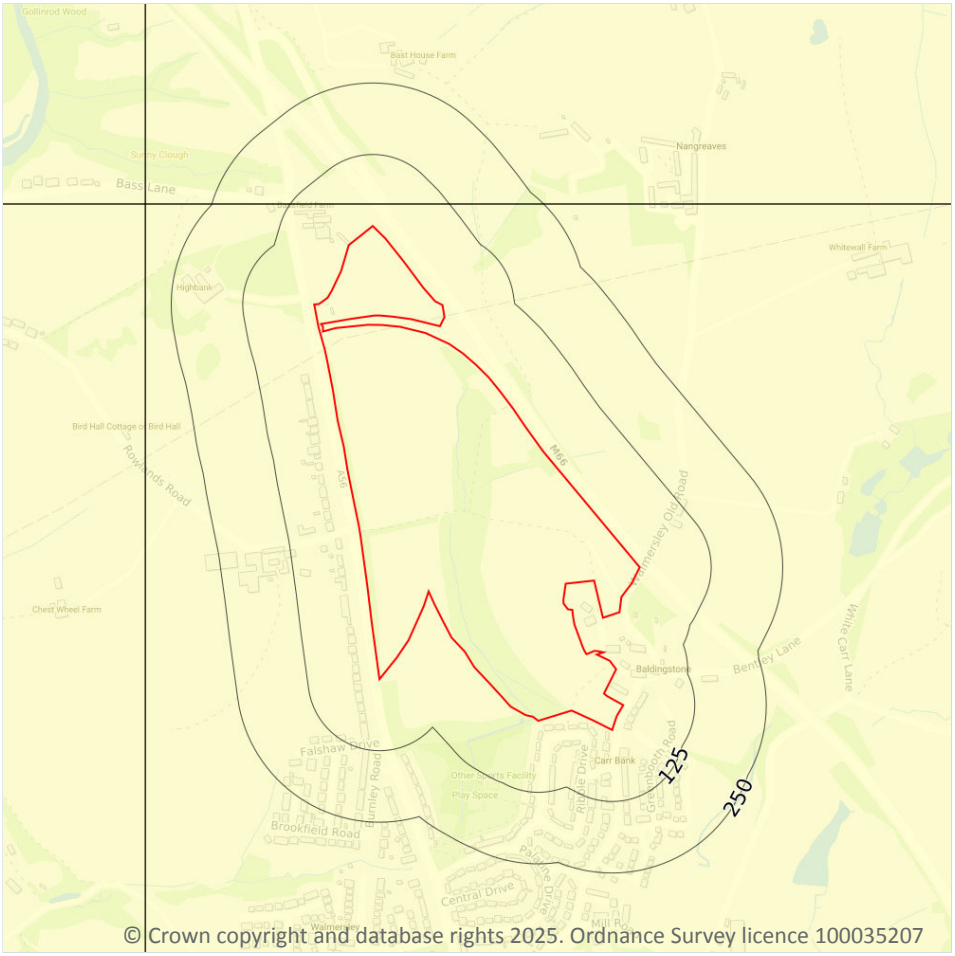
Features are displayed on the Natural ground subsidence - Landslides map on **page 126 >**

| Location | Hazard rating | Details |
|---|---|---|
| **On site** | **Very low** | **Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.** |

| Location | Hazard rating | Details |
|---|---|---|
| **On site** | **Low** | **Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.** |
| **On site** | **Moderate** | **Slope instability problems are probably present or have occurred in the past. Land use should consider specifically the stability of the site.** |
| 21m NE | Low | Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site. |
| 39m N | Very low | Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered. |

*This data is sourced from the British Geological Survey.*

# Natural ground subsidence - Ground dissolution of soluble rocks




Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

## 17.6 Ground dissolution of soluble rocks

| Records within 50m | 2 |
|---|---|

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

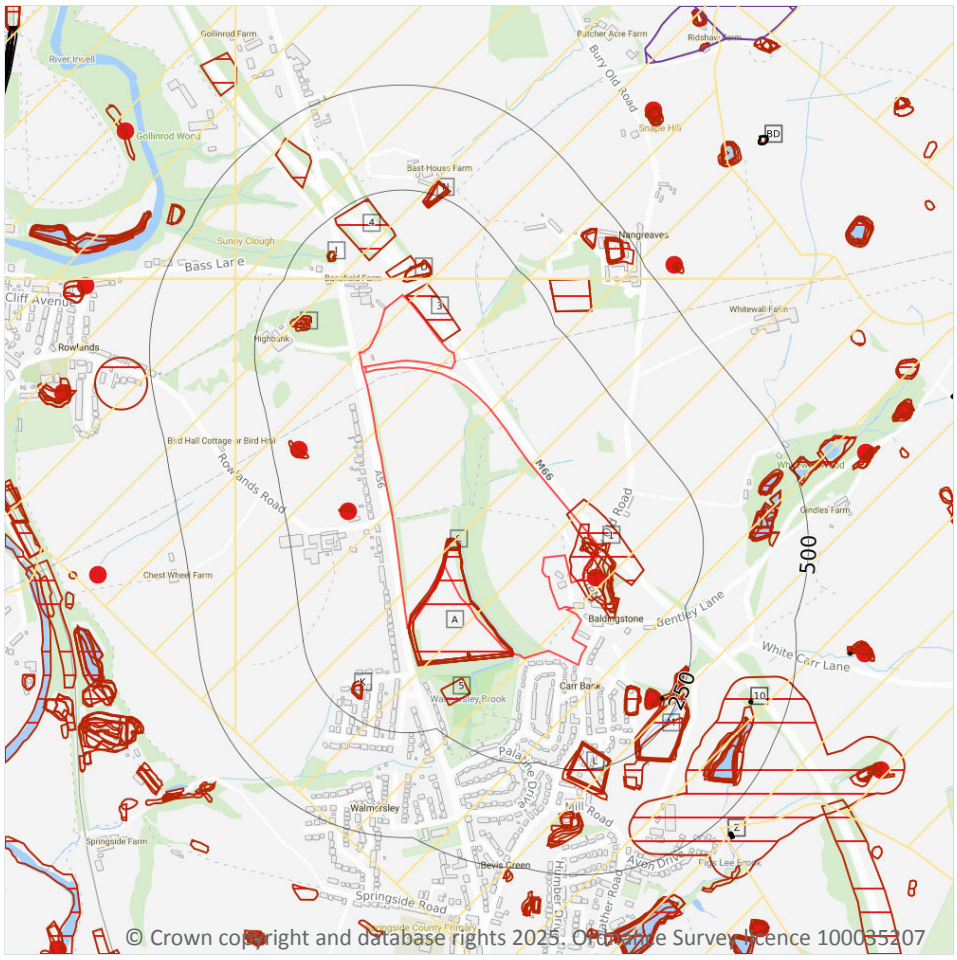
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 128 >**

| Location | Hazard rating | Details |
|---|---|---|
| **On site** | **Negligible** | **Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.** |

| Location | Hazard rating | Details |
|---|---|---|
| 39m N | Negligible | Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present. |

*This data is sourced from the British Geological Survey.*

# 18 Mining and ground workings




Site Outline

Search buffers in metres (m)

- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

## 18.1 BritPits

| Records within 500m | 4 |
|---|---|

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining and ground workings map on **page 130 >**

| ID | Location | Details | Description |
|---|---|---|---|
| B | 28m E | Name: Baldingstone Quarry<br>Address: Baldingstone, BURY, Lancashire<br>Commodity: Sandstone<br>Status: Ceased | Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping.<br>Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority. |
| F | 100m W | Name: Bird Hall<br>Address: Summerseat, RAMSBOTTOM, Lancashire<br>Commodity: Sandstone<br>Status: Ceased | Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping.<br>Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority. |
| J | 188m W | Name: Bird Hall<br>Address: Summerseat, RAMSBOTTOM, Lancashire<br>Commodity: Sandstone<br>Status: Ceased | Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping.<br>Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority. |
| G | 197m SE | Name: Carr Bank<br>Address: Carr Bank, BURY, Lancashire<br>Commodity: Sandstone<br>Status: Ceased | Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping.<br>Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority. |

*This data is sourced from the British Geological Survey.*

## 18.2 Surface ground workings

| Records within 250m | 70 |
|---|---|

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining and ground workings map on **page 130 >**

| ID | Location | Land Use | Year of mapping | Mapping scale |
|---|---|---|---|---|
| **1** | **On site** | **Cuttings** | **1983** | **1:10000** |
| **A** | **On site** | **Disused Reservoir** | **1983** | **1:10000** |
| **A** | **On site** | **Reservoir** | **1956** | **1:10560** |
| **A** | **On site** | **Reservoir** | **1938** | **1:10560** |
| **A** | **On site** | **Reservoir** | **1928** | **1:10560** |
| **A** | **On site** | **Reservoir** | **1908** | **1:10560** |
| **A** | **On site** | **Reservoir** | **1891** | **1:10560** |
| **A** | **On site** | **Pond** | **1967** | **1:10560** |
| **B** | **On site** | **Unspecified Quarry** | **1956** | **1:10560** |
| **B** | **On site** | **Unspecified Quarry** | **1938** | **1:10560** |
| **B** | **On site** | **Unspecified Old Quarry** | **1908** | **1:10560** |
| **B** | **On site** | **Unspecified Quarry** | **1891** | **1:10560** |
| **B** | **On site** | **Sandstone Quarry** | **1851** | **1:10560** |
| **C** | **On site** | **Filter Bed** | **1938** | **1:10560** |
| **C** | **On site** | **Filter Bed** | **1928** | **1:10560** |
| **C** | **On site** | **Filter Bed** | **1908** | **1:10560** |
| **C** | **On site** | **Filter Bed** | **1891** | **1:10560** |
| 3 | 2m NE | Cuttings | 1983 | 1:10000 |
| D | 33m N | Unspecified Pit | 1928 | 1:10560 |
| D | 33m N | Unspecified Pit | 1938 | 1:10560 |
| D | 40m N | Unspecified Pit | 1967 | 1:10560 |
| D | 40m N | Unspecified Pit | 1949 | 1:10560 |
| D | 40m N | Unspecified Pit | 1987 | 1:10000 |

| ID | Location | Land Use | Year of mapping | Mapping scale |
|---|---|---|---|---|
| B | 46m SE | Unspecified Ground Workings | 1983 | 1:10000 |
| D | 48m NW | Cuttings | 1992 | 1:10000 |
| F | 87m W | Sandstone Quarry | 1851 | 1:10560 |
| 4 | 114m NW | Cuttings | 1992 | 1:10000 |
| 5 | 122m SW | Covered Reservoir | 1983 | 1:10000 |
| G | 128m SE | Pond | 1967 | 1:10560 |
| G | 129m SE | Unspecified Quarry | 1956 | 1:10560 |
| G | 130m SE | Unspecified Quarry | 1928 | 1:10560 |
| G | 132m SE | Unspecified Quarry | 1938 | 1:10560 |
| H | 133m NW | Pond | 1851 | 1:10560 |
| H | 138m NW | Pond | 1928 | 1:10560 |
| H | 138m NW | Pond | 1908 | 1:10560 |
| H | 139m NW | Pond | 1983 | 1:10000 |
| H | 139m NW | Pond | 1956 | 1:10560 |
| H | 139m NW | Pond | 1967 | 1:10560 |
| H | 146m NW | Pond | 1891 | 1:10560 |
| I | 166m NW | Refuse Heap | 1938 | 1:10560 |
| J | 168m W | Sandstone Quarry | 1851 | 1:10560 |
| I | 169m NW | Refuse Heap | 1928 | 1:10560 |
| K | 171m SW | Unspecified Pit | 1956 | 1:10560 |
| K | 174m SW | Unspecified Pit | 1938 | 1:10560 |
| G | 175m E | Unspecified Heap | 1956 | 1:10560 |
| K | 177m SW | Unspecified Pit | 1928 | 1:10560 |
| G | 177m E | Unspecified Heap | 1928 | 1:10560 |
| G | 179m SE | Unspecified Heap | 1938 | 1:10560 |
| L | 183m S | Reservoir | 1956 | 1:10560 |
| L | 183m S | Pond | 1967 | 1:10560 |
| L | 187m S | Reservoir | 1938 | 1:10560 |

| ID | Location | Land Use | Year of mapping | Mapping scale |
|---|---|---|---|---|
| L | 187m S | Reservoir | 1891 | 1:10560 |
| L | 190m S | Reservoir | 1928 | 1:10560 |
| L | 190m S | Reservoir | 1908 | 1:10560 |
| L | 206m S | Unspecified Heap | 1983 | 1:10000 |
| M | 212m SE | Reservoir | 1956 | 1:10560 |
| M | 217m SE | Reservoir | 1938 | 1:10560 |
| N | 217m N | Reservoir | 1949 | 1:10560 |
| N | 217m N | Reservoir | 1928 | 1:10560 |
| N | 217m N | Reservoir | 1908 | 1:10560 |
| N | 219m N | Reservoir | 1938 | 1:10560 |
| N | 221m N | Pond | 1891 | 1:10560 |
| M | 221m SE | Reservoir | 1928 | 1:10560 |
| M | 221m SE | Reservoir | 1908 | 1:10560 |
| M | 222m SE | Reservoir | 1983 | 1:10000 |
| M | 223m SE | Reservoir | 1891 | 1:10560 |
| N | 225m N | Pond | 1992 | 1:10000 |
| N | 225m N | Pond | 1967 | 1:10560 |
| N | 225m N | Pond | 1987 | 1:10000 |
| M | 243m SE | Ponds | 1851 | 1:10560 |

*This is data is sourced from Ordnance Survey/Groundsure.*

## 18.3 Underground workings

| **Records within 1000m** | **15** |
|---|---|

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining and ground workings map on **page 130 >**

| ID | Location | Land Use | Year of mapping | Mapping scale |
|---|---|---|---|---|
| G | 212m E | Air Shaft | 1908 | 1:10560 |

| ID | Location | Land Use | Year of mapping | Mapping scale |
|---|---|---|---|---|
| 10 | 409m E | Old Coal Shaft | 1908 | 1:10560 |
| Z | 538m SE | Unspecified Old Shaft | 1956 | 1:10560 |
| Z | 543m SE | Unspecified Old Shaft | 1938 | 1:10560 |
| Z | 543m SE | Unspecified Old Shaft | 1891 | 1:10560 |
| Z | 545m SE | Old Coal Shaft | 1908 | 1:10560 |
| Z | 545m SE | Unspecified Old Shaft | 1928 | 1:10560 |
| AF | 626m E | Unspecified Old Shaft | 1928 | 1:10560 |
| BD | 882m NE | Old Coal Pit | 1928 | 1:10560 |
| BD | 882m NE | Old Coal Pit | 1908 | 1:10560 |
| BF | 912m NE | Air Shaft | 1928 | 1:10560 |
| BF | 912m NE | Air Shaft | 1908 | 1:10560 |
| BF | 915m NE | Air Shaft | 1891 | 1:10560 |
| BF | 915m NE | Air Shaft | 1938 | 1:10560 |
| - | 920m NE | Air Shaft | 1956 | 1:10560 |

*This is data is sourced from Ordnance Survey/Groundsure.*

## 18.4 Underground mining extents

| Records within 500m | 0 |
|---|---|

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

*This data is sourced from Groundsure.*

## 18.5 Historical Mineral Planning Areas

| Records within 500m | 0 |
|---|---|

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

*This data is sourced from the British Geological Survey.*

## 18.6 Non-coal mining

| Records within 1000m | 4 |
|---|---|

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

Features are displayed on the Mining and ground workings map on **page 130 >**

| ID | Location | Name | Commodity | Class | Likelihood |
|---|---|---|---|---|---|
| **2** | **On site** | **Not available** | **Vein Mineral** | **A** | **Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.** |
| E | 39m N | Not available | Vein Mineral | A | Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered. |
| 7 | 295m W | Not available | Vein Mineral | A | Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered. |
| P | 344m NW | Not available | Vein Mineral | A | Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered. |

*This data is sourced from the British Geological Survey.*

## 18.7 JPB mining areas

| Records on site | 0 |
|---|---|

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

*This data is sourced from Johnson Poole and Bloomer.*

## 18.8 The Coal Authority non-coal mining

| Records within 500m | 0 |
|---|---|

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

*This data is sourced from The Coal Authority.*

## 18.9 Researched mining

| Records within 500m | 0 |
|---|---|

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

*This data is sourced from Groundsure.*

## 18.10 Mining record office plans

| Records within 500m | 0 |
|---|---|

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

*This data is sourced from Groundsure.*

## 18.11 BGS mine plans

| Records within 500m | 0 |
|---|---|

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

*This data is sourced from Groundsure.*

## 18.12 Coal mining

| Records on site | 1 |
|---|---|

Areas which could be affected by past, current or future coal mining.

| Location | Details |
|---|---|
| **On site** | **The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.** |

*This data is sourced from the Coal Authority.*

## 18.13 Brine areas

| Records on site | 0 |
|---|---|

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

*This data is sourced from the Cheshire Brine Subsidence Compensation Board.*

## 18.14 Gypsum areas

| Records on site | 0 |
|---|---|

Generalised areas that may be affected by gypsum extraction.

*This data is sourced from British Gypsum.*

## 18.15 Tin mining

| Records on site | 0 |
|---|---|

Generalised areas that may be affected by historical tin mining.

*This data is sourced from Groundsure.*

## 18.16 Clay mining

| Records on site | 0 |
|---|---|

Generalised areas that may be affected by kaolin and ball clay extraction.

*This data is sourced from the Kaolin and Ball Clay Association (UK).*

# 19 Ground cavities and sinkholes

## 19.1 Natural cavities

| Records within 500m | 0 |
|---|---|

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

*This data is sourced from Stantec UK Ltd.*

## 19.2 Mining cavities

| Records within 1000m | 0 |
|---|---|

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

*This data is sourced from Stantec UK Ltd.*

## 19.3 Reported recent incidents

| Records within 500m | 0 |
|---|---|

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

*This data is sourced from Groundsure.*

## 19.4 Historical incidents

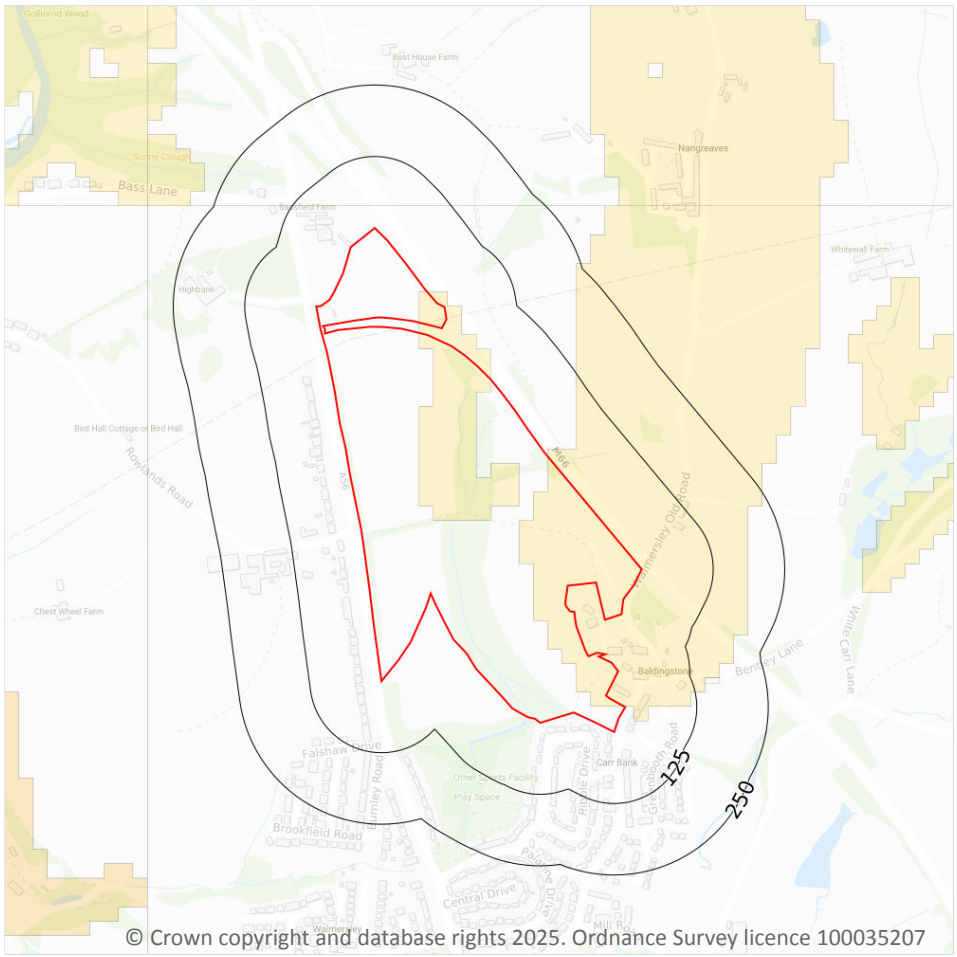
| Records within 500m | 0 |
|---|---|

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

*This data is sourced from Groundsure.*

# 20 Radon




Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

## 20.1 Radon

| Records on site | 2 |
|---|---|

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 141 >**

| Location | Estimated properties affected | Radon Protection Measures required |
|---|---|---|
| **On site** | **Between 1% and 3%** | **None** |

| Location | Estimated properties affected | Radon Protection Measures required |
|---|---|---|
| **On site** | **Less than 1%** | **None** |

*This data is sourced from the British Geological Survey and UK Health Security Agency.*

# 21 Soil chemistry

## 21.1 BGS Estimated Background Soil Chemistry

| Records within 50m | 17 |
|---|---|

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 $km^2$. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 $km^2$; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

| Location | Arsenic | Bioaccessible Arsenic | Lead | Bioaccessible Lead | Cadmium | Chromium | Nickel |
|---|---|---|---|---|---|---|---|
| **On site** | **15 - 25 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 - 25 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 - 2.2 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 - 2.2 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |

| Location | Arsenic | Bioaccessible Arsenic | Lead | Bioaccessible Lead | Cadmium | Chromium | Nickel |
|---|---|---|---|---|---|---|---|
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **15 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **60 - 90 mg/kg** | **15 - 30 mg/kg** |
| 19m NE | 15 - 25 mg/kg | No data | 100 mg/kg | 60 mg/kg | 1.8 - 2.2 mg/kg | 60 - 90 mg/kg | 15 - 30 mg/kg |
| 39m N | 15 mg/kg | No data | 100 mg/kg | 60 mg/kg | 1.8 mg/kg | 60 - 90 mg/kg | 15 - 30 mg/kg |
| 40m NE | 15 mg/kg | No data | 100 mg/kg | 60 mg/kg | 1.8 mg/kg | 60 - 90 mg/kg | 15 - 30 mg/kg |

*This data is sourced from the British Geological Survey.*

## 21.2 BGS Estimated Urban Soil Chemistry

| **Records within 50m** | **0** |
|---|---|

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per $km^2$).

*This data is sourced from the British Geological Survey.*

## 21.3 BGS Measured Urban Soil Chemistry

| **Records within 50m** | **0** |
|---|---|

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per $km^2$.

*This data is sourced from the British Geological Survey.*

# 22 Railway infrastructure and projects

## 22.1 Underground railways (London)

| Records within 250m | 0 |
|---|---|

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

*This data is sourced from publicly available information by Groundsure.*

## 22.2 Underground railways (Non-London)

| Records within 250m | 0 |
|---|---|

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

*This data is sourced from publicly available information by Groundsure.*

## 22.3 Railway tunnels

| Records within 250m | 0 |
|---|---|

Railway tunnels taken from contemporary Ordnance Survey mapping.

*This data is sourced from the Ordnance Survey.*

## 22.4 Historical railway and tunnel features

| Records within 250m | 0 |
|---|---|

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

*This data is sourced from Ordnance Survey/Groundsure.*

## 22.5 Royal Mail tunnels

| Records within 250m | 0 |
|---|---|

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

*This data is sourced from Groundsure/the Postal Museum.*

## 22.6 Historical railways

| Records within 250m | 0 |
|---|---|

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

*This data is sourced from OpenStreetMap.*

## 22.7 Railways

| Records within 250m | 0 |
|---|---|

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

*This data is sourced from Ordnance Survey and OpenStreetMap.*

## 22.8 Crossrail 2

| Records within 500m | 0 |
|---|---|

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

*This data is sourced from publicly available information by Groundsure.*

## 22.9 HS2

| Records within 500m | 0 |
|---|---|

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

*This data is sourced from HS2 ltd.*

## Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference ↗.

## Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.

# APPENDIX D

**BGS Exploratory Hole Records**

SD 81 SW/3

24

GEOLOGICAL SURVEY AND MUSEUM. BOREHOLES AND SHAFTS.

County Lancashire
6-in. Map 80 S.W.

BORE or SHAFT Borehole.

Gin Hall Reservoir, Walmersley, near Bury. GSM

Surface level +475' O.D. One-inch Map 76

Communicated by Bury Waterworks. Notes by L.H. Tonks.

Date of sinking May 1921 - March 1922. Borer Thos. Matthews Ltd., Pendleton.

Specimens

| | Description. | THICKNESS. Feet. | THICKNESS. Inches. | DEPTH. Feet. | DEPTH. Inches. | T/m | D/m |
|---|---|---|---|---|---|---|---|
| | (N.B.) This core was disturbed & disarranged before it could be broken up. Permission to break up, whilst boring, refused; & core was moved before permission to break up could be obtained.) (Foreman's journal given - brief notes in brackets where possible.) | | | | | | |
| | Soil & clay surface | 4 | 6 | 4 | 6 | | 1.37 |
| | Rag rock (Shaly sst. w. beds of sandy shale) | 13 | 6 | 18 | - | | 5.48 |
| | Grey shale (Not seen) | 1 | - | 19 | - | | 5.79 |
| | Broken grit (Fine-grained grey sst.) | 9 | - | 28 | - | | 8.53 |
| | Bastard grit (Shaly sst. very micaceous) | 7 | - | 35 | - | | 10.66 |
| | Grey shale (Shaly mdst. slightly micaceous & sandy in thin streaks. Leathers brownish green. 2" ironstone band seen.) | 19 | - | 54 | - | | 16.45 |
| | Grey sandstone | 2 | - | 56 | - | | 17.06 |
| | Grey shale (Mudstone, slightly micaceous in parts) | 43 | - | 99 | - | | 30.17 |
| | Coal | | 3 | 99 | 3 | | 30.25 |
| | Dark blue shale | 5 | 9 | 105 | - | | 32.00 |
| | Black shale (Dark shaly mudstone) | 28 | - | 133 | - | | 40.53 |
| | Dark grey shale | 10 | - | 143 | - | | 43.58 |
| | Grey grit & shale | 3 | - | 146 | - | | 44.50 |
| | Grey grit | 27 | - | 173 | - | | 52.73 |
| | Bastard grit (Rootlets, Bastard ganister) | 2 | - | 175 | - | | 53.34 |
| | Dark shale (Slightly micaceous) | 10 | - | 185 | - | | 56.38 |
| | Grey grit | 11 | - | 196 | - | | 59.74 |
| | Dark shale w. thin coal bands | 8 | - | 204 | - | | 62.17 |
| | Broken grey grit | 48 | - | 252 | - | | 76.80 |
| | Grey grit with beds of shale (2' Broken Vein-stuff seen here - Pyrites & calcite-iron-stained.) | 18 | - | 270 | - | | 82.29 |
| M | Black shale (Dark mdst w. lenticular ironstone nodules) (Goniatites at 360'.) | 105 | - | 375 | - | | 114.30 |
| | Bastard grit (Sandstone with rootlets. Bastard ganister) | 4 | - | 379 | - | | 115.51 |
| | Black shale small band of grit (Sandy shales w. thin band of sst.) (Dk. shaly mdst. slightly sandy at top.) | 17 | - | 396 | - | | 120.70 |
| M | Black shale (Goniatites seen at 412') | 62 | - | 458 | - | | 139.59 |
| | Grit & shale | 6 | - | 464 | - | | 141.42 |
| | Grey grit | 55 | - | 519 | - | | 158.19 |
| | Black shale (not seen) | 23 | - | 542 | - | | 165.20 |
| | Grit & shale (plant remains) | 9 | - | 551 | - | | 167.94 |
| | Grey grit | 37 | - | 588 | - | | 179.22 |

(B12268) Wt. 13119—0014 5000 9/27 Gp. 160 O.A.

For Short File

10.

GEOLOGICAL SURVEY AND MUSEUM. BOREHOLES AND SHAFTS.

SD No. 1 SW 4

County Lancs.
6-in. Map 88 NW.

Typed Thom May 1932.

GSM 3

BORE or SHAFT at Gin Hall/Walmersley, Bury
for the Bury District Joint Water Board.

Site south of Gin Hall Reservoir Bore No 2. 8059 1401

Surface level +444' O.D. One-inch Map 76

Communicated May 1932 by J. H. Thom.

Date of sinking Completed May 1932. Borer

Specimens Cut at 160. Plant remains at 278.

27½" Diam unslotted steel tube from surface to 127 ft.
25½" Diam slotted steel tube from 127 ft to bottom.
Hole cemented for water [illegible] throughout to within 1 m. has 100 ft depth

| Description. See IWS Memoir 19 | THICKNESS. Feet. | THICKNESS. Inches. | DEPTH. Feet. | DEPTH. Inches. |
|---|---|---|---|---|
| Surface soil | 1 | 6 | | |
| Clay & Stones | 2 | 6 | 4 | - |
| Yellow Sandy clay | 8 | - | 12 | - |
| Blue clay & boulders | 3 | - | 15 | - |
| Blue shale | 7 | - | 22 | - |
| Grey sandstone | 5 | - | 27 | - |
| Grey sandy shale (water unsuitable for public use rising to ground level & conveyed to stream) | 16 | - | 43 | - |
| Soft dark shale | | 9 | 43 | 9 |
| Strong dark shale | 3 | 3 | 47 | - |
| Grey sandstone | 5 | - | 52 | - |
| Grey sandy shale | 2 | - | 54 | - |
| Grey sandstone | 4 | - | 58 | - |
| Dark shale | 9 | - | 67 | - |
| Grey sandstone | 3 | 6 | 70 | 6 |
| Grey shale | 5 | - | 75 | 6 |
| Grey sandstone | 9 | 9 | 85 | 3 |
| Soft grey shale | 21 | 9 | 107 | - |
| Grey sandstone | 1 | 3 | 108 | 3 |
| Grey shale | 4 | 6 | 112 | 9 |
| Soft fireclay HOLCOMBE BROOK COAL | 3' | 9 | 116 | 6 |
| Dark shale | 5' | 6 | 122 | - |
| Strong dark shale | 10 | - | 132 | - |
| Strong dark sandy shale | 6 | - | 138 | - |
| Grey sandstone | 10 | - | 148 | - |
| Dark sandy shale | 1 | 6 | 149 | 6 |
| Grey flaggy sandstone | 2 | - | 151 | 6 |
| Grey sandstone grit — Spanner's Grit | 8 | 6 | 160 | - |
| Brown sandstone grit | 8 | - | 168 | - |
| Grey sandstone grit | 11 | - | 179 | - |
| Brown sandstone grit | 10 | - | 189 | - |
| Dark shale | | 6 | 189 | 6 |
| Coal BROOKS BOTTOMS | | 8 | 190 | 2 |
| Strong fireclay | 2 | - | 192 | 2 |
| Sandy shale | 2 | - | 194 | 2 |
| Blue shale | 1 | 4 | 195 | 6 |
| Grey sandstone grit | 3 | 8 | 199 | 2 |
| Brown sandstone grit | 1 | 10 | 201 | - |
| Shale BROOKS BOTTOMS GRIT | 1 | 6 | 202 | 6 |
| Grey sandstone | 12 | - | 214 | 6 |
| Dark shale | 7 | - | 221 | 6 |

(B12268) Wt. 13115—0014 500 [illegible] Gp. 160 O.A.

# ALLIED EXPLORATION & GEOTECHNICS LIMITED

## WINDOW SAMPLE RECORD

Status:- **FINAL**
Date:- 01/08/2006

| | | |
|---|---|---|
| Project: M66 J0 - 2 Ground Investigation | | Exploratory Hole No **WS-78** |
| Client: Amey Mouchel | Location: Bury E:380595.35 N:414782.62 | |
| Method & Equipment: Window sampled using a Vibro Window Sampler | Ground Level (m aOD): 167.200 / Date: 13/12/2005 | Sheet: 1 of 1 |

| SAMPLES & TESTS | | | Water | STRATA | | | | Instrument/ Backfill |
|---|---|---|---|---|---|---|---|---|
| Depth | Type No | Test Result | | Reduced Level | Legend | Depth (Thickness) | DESCRIPTION | |
| 0.00-0.40 | J1 | | | 167.150 | | (0.05) 0.05 | Brown sandy TOPSOIL. | |
| | | | | 166.800 | | (0.35) 0.40 | Firm brown sandy slightly gravelly CLAY. Sand is fine. Gravel is weak angular and consists of mudstone. | |
| 0.60-0.80 | J2 | | | | | | Firm brown yellow brown very sandy gravelly CLAY. Sand is fine. Gravel is fine to coarse angular and consists of sandstone. | |
| 1.50-2.00 | J3 | | | | | (1.85) | | |
| | | | | 164.950 | | 2.25 | | |
| 2.30-2.70 | J4 | | | | | (0.50) | Weak brown weathered fine to medium grained SANDSTONE. | |
| 2.75 | J5 | | | 164.450 | | 2.75 | Window sample hole terminated at 2.75m bGL due to refusal. | |

| Boring Progress and Water Observations | | | | | |
|---|---|---|---|---|---|
| Date | | Depth | Casing | Casing Dia | Water Depth |
| | | | | | |

| Chiselling | | | Water Added | |
|---|---|---|---|---|
| From | To | Hours | From | To |
| | | | | |

**GENERAL REMARKS**

(1) Description derived from drillers daily report.
(2) Inspection pit dug prior to drilling.
(3) Water strike at 0.55m bGL.

| | | | | |
|---|---|---|---|---|
| All dimensions in metres Scale 1:50 | For explanation of symbols and abbreviations see Key Sheets | Checked by: | Logged by: L. Page | Contract No. **PR1274AV** |

British Geological Survey

# ALLIED EXPLORATION & GEOTECHNICS LIMITED

## WINDOW SAMPLE RECORD

Status:- **FINAL**
Date:- 01/08/2006

| | | | |
|---|---|---|---|
| **Project:** M66 J0 - 2 Ground Investigation | | | **Exploratory Hole No** WS-81 |
| **Client:** Amey Mouchel | **Location:** Bury E:380807.06 N:414498.33 | | |
| **Method & Equipment:** Window sampled using a Vibro Window Sampler | **Ground Level (m aOD):** 180.480 | **Date:** 13/12/2005 | **Sheet:** 1 of 1 |

| SAMPLES & TESTS | | | | STRATA | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth | Type No | Test Result | Water | Reduced Level | Legend | Depth (Thick-ness) | DESCRIPTION | Instrument/ Backfill |
| | | | | 180.280 | | (0.20) 0.20 | Brown clayey TOPSOIL. | |
| | | | | | | (1.10) | Firm brown grey orange gravelly CLAY. Gravel is fine to coarse subangular to angular and consists of sandstone. | |
| | | | | 179.180 | | 1.30 | | |
| | | | | 179.080 | × × × | (0.10) 1.40 | Blue grey SILTSTONE. | |
| | | | | | | | Window sample hole terminated at 1.40m bGL due to refusal. | |

| Boring Progress and Water Observations | | | | | |
|---|---|---|---|---|---|
| Date | | Depth | Casing | Casing Dia | Water Depth |
| | | | | | |

| Chiselling | | | Water Added | |
|---|---|---|---|---|
| From | To | Hours | From | To |
| | | | | |

**GENERAL REMARKS**

(1) Description derived from drillers daily report.
(2) Inspection pit dug prior to drilling.
(3) No groundwater inflow observed

| | | | | |
|---|---|---|---|---|
| All dimensions in metres Scale 1:50 | For explanation of symbols and abbreviations see Key Sheets | Checked by: | Logged by: L. Page | Contract No. **PR1274AV** |

# APPENDIX E

**Mining Search Report**

Groundsure
LOCATION INTELLIGENCE

# CON29M OFFICIAL COAL MINING SEARCH

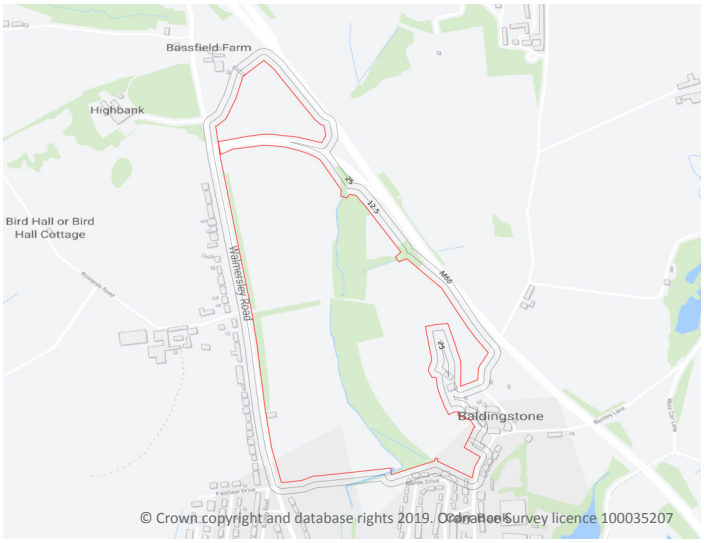
The Law Society

GUEST COTTAGE, BALDINSTON, BURY, BL9 6RX

## Professional opinion

**PASS**

## Site plan




## Search results

1. **Past underground coal mining**
   Not identified
2. **Present underground coal mining**
   Not identified
3. **Future underground coal mining**
   Not identified
4. **Shafts and adits (mine entries)**
   Not identified
5. **Coal mining geology**
   Not identified
6. **Past opencast coal mining**
   Not identified
7. **Present opencast coal mining**
   Not identified
8. **Future opencast coal mining**
   Not identified
9. **Coal mining subsidence claims**
   Not identified
10. **Mine gas emissions**
    Not identified
11. **Emergency Call Out incidents**
    Not identified
12. **Withdrawal of support**
    Not identified
13. **Working facilities orders**
    Not identified
14. **Payments to copyhold owners**
    Not identified
15. **Cheshire Brine**
    Not identified



info@groundsure.com
08444 159 000
search@miningsearchesuk.com
01209 218 861

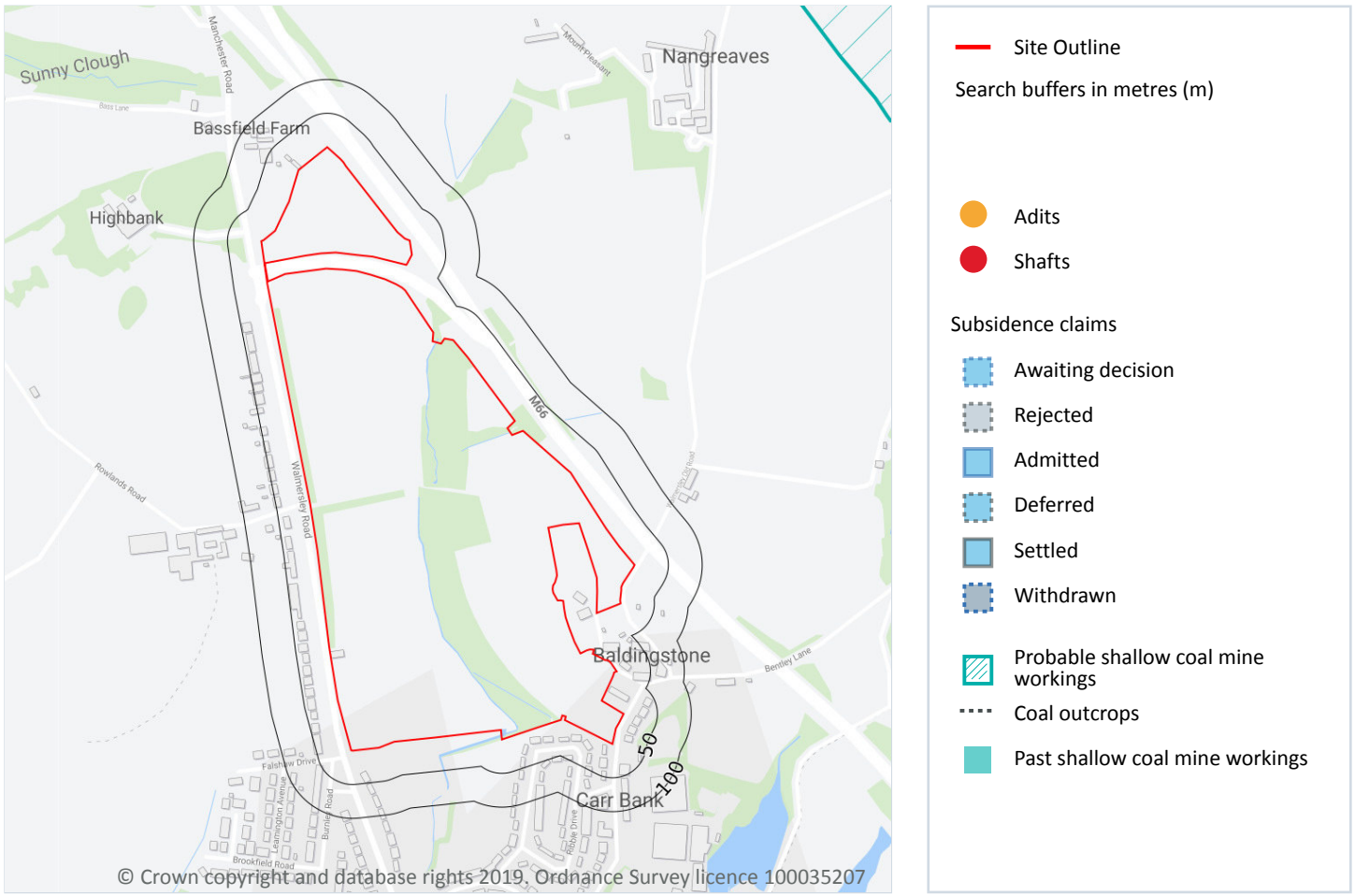
**Grid reference**: 380411 414717
**Reference**: BRO-5839206
**Your reference**: C4175
**Date**: 22 February 2019

## Findings and recommendations

We consider the property to be acceptably free from coal mining related risk. No further action is required with regards to past coal mining.

This report provides an overall assessment on risk to property from coal mining hazards alongside responses to The Law Society CON29M Coal Mining search enquiries. The CON29M questions and format are used here with permission of The Law Society, and the report is prepared in accordance with The Law Society CON29M (2018) Guidance Notes. The overall assessment and individual question responses have been produced using official Coal Authority data and the expert interpretation of Groundsure and Mining Searches UK.

## Search results




The map above shows any relevant and mappable hazards identified that could constitute a risk to the property. It does not necessarily show all features or potential issues identified in this report. Please read this report carefully, and in particular any sections flagged below with an amber 'i'.

Further details of any features indicating the location of Mine Entries or Subsidence Claims if shown can be found in the relevant sections following this map (4 and 9 respectively) and using the IDs displayed as reference.

The following are responses to The Law Society CON29M Coal Mining search enquiries, which are used here with their permission. All responses have been produced using official Coal Authority data and the expert interpretation of Groundsure and Mining Searches UK. This report is prepared in accordance with The Law Society CON29M (2018) Guidance Notes.

## 1. Past underground coal mining

*Is the property within the zone of likely physical influence on the surface of past underground coal workings?*

- **The property does not lie within the potential zone of influence of any recorded underground coal workings.**

## 2. Present underground coal mining

*Is the property within the zone of likely physical influence on the surface of present underground coal workings?*

- **The property does not lie within the boundary of an underground site from which coal is being removed by underground methods.**

## 3. Future underground coal mining

*(a) Is the property within any geographical area for which the Coal Authority is determining whether to grant a licence to remove coal by underground methods?*

- **The property does not lie within the boundary of an underground site for which the Coal Authority is determining whether to grant a licence to remove coal by underground methods.**

*(b) Is the property within any geographical area for which a licence to remove coal by underground methods has been granted?*

- **The property does not lie within the boundary of an underground site for which a licence to remove coal by underground methods has been granted.**

*(c) Is the property within the zone of likely physical influence on the surface of planned future underground coal workings?*

- **The property does not lie within the zone of likely physical influence on the surface of planned future underground workings.**

*(d) Has any notice of proposals relating to underground coal mining operations been given under section 46 of the Coal Mining Subsidence Act 1991?*

- **No notices have been given under Section 46 of the Coal Mining Subsidence Act 1991 stating that the land is at risk of subsidence.**

## 4. Shafts and adits (mine entries)

*Are there any shafts and adits or other entries to underground coal mine workings within the property or within 20 metres of the boundary of the property?*

- **No coal mine entries are recorded to lie within 20 metres of the property.**

## 5. Coal mining geology

*Is there any record of any fault or other line of weakness due to coal mining at the surface within the boundary of the property that has made the property unstable?*

- **No damage arising from geological faults or other lines of weakness activated by coal mining are recorded within the property.**

## 6. Past opencast coal mining

*Is the property situated within the geographical boundary of an opencast site from which coal has been removed in the past by opencast methods?*

- **The property does not lie within the boundary of an opencast site from which coal was removed by opencast methods.**

## 7. Present opencast coal mining

*Is the property within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods?*

- **The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.**

## 8. Future opencast coal mining

*(a) Is the property within 800 metres of the boundary of an opencast site for which the Coal Authority are determining whether to grant a licence to remove coal by opencast methods?*

- **The property does not lie within 800 metres of the boundary of an opencast site for which the Coal Authority are determining whether to grant a licence to remove coal by opencast methods.**

*(b) Is the property within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted?*

- **The property does not lie within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.**

## 9. Coal mining subsidence claims

*(a) Has any damage notice or claim for alleged coal mining subsidence damage to the property been given, made or pursued since 31st October 1994?*

- **We have no evidence of a damage notice or subsidence claim for the property or within 50m of the property since 31st October 1994.**

*(b) In respect of any such notice or claim has the responsible person given notice agreeing that there is a remedial obligation or otherwise accepted that a claim would lie against them?*

- **Not applicable.**

*(c) In respect of any such notice or acceptance has the remedial obligation or claim been discharged?*

- **Not applicable.**

*(d) Does any current "Stop Notice" delaying the start of remedial works or repairs affect the property?*

- **There are no current Stop Notices delaying the start of remedial works or repairs to the property.**

*(e) Has any request been made under Section 33 of the 1991 Act to execute preventive works before coal is worked, which would prevent the occurrence or reduce the extent of subsidence damage to any buildings, structures or works and, if yes, has any person withheld consent or failed to comply with any such request to execute preventive works?*

- **There is no record of a request that has been made to carry out preventive works before coal is worked under Section 33 of the Coal Mining Subsidence Act 1991.**

*NB. Records of damage notices or subsidence claims before 31st October 1994 are excluded from The Coal Authority data from which this search is compiled.*

## 10. Mine gas emissions

*Does the Coal Authority have record of any mine gas emission within the boundary of the property being reported that subsequently required action by the Authority to mitigate the effects of the mine gas emission?*

- **No mine gas emissions are recorded within the boundary of the property.**

## 11. Emergency Surface Hazard Call Out incidents

*Have the Coal Authority carried out any work on or within the boundaries of the property following a report of an alleged hazard related to coal mining under the Authority's Emergency Surface Hazard Call Out procedures?*

- **No Emergency Surface Hazard Call Out procedures are recorded against the property.**

## 12. Withdrawal of support

*(a) Does the land lie within a geographical area in respect of which a notice of entitlement to withdraw support has been published?*

- **The property does not lie in an area where the right to withdraw support has been granted.**

*(b) Does the land lie within a geographical area in respect of which a revocation notice has been given under section 41 of the Coal Industry Act 1994?*

- **The property does not lie within a geographical area in which a revocation notice has been given under section 41 of the Coal Industry Act 1994.**

## 13. Working facilities orders

*Is the property within a geographical area subject to an order in respect of the working of coal under the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof?*

- **The property is not in an area where a court order has been issued.**

## 14. Payments to owners of former copyhold land

*(a) Has any relevant notice, which may affect the property, been given?*

- **The property does not lie within former copyholder land.**

*(b) If yes, has any notice of retained interests in coal and coal mines been given?*

- **No notices of retained interests in coal and coal mines been given.**

*(c) If yes, has any acceptance notice or rejection notice been served?*

- **No acceptance or rejection notices have been served.**

*(d) If any such acceptance notice has been served, has any compensation been paid to a claimant?*

- **No compensation has been paid to a claimant.**

## Notes and guidance

These enquiries are The Law Society CON29M (2018) Coal Mining search enquiries and are used with permission of The Law Society. The Law Society CON29M Coal Mining search enquiries are protected by copyright owned by The Law Society of 113 Chancery Lane, London WC2A 1PL. The Law Society has no responsibility for information provided in response to CON29M (2018) Coal Mining search enquiries within this report or otherwise.

This report is prepared in accordance with The Law Society Guidance Notes 2018; under which all replies to these enquiries are made. Groundsure's Terms and Conditions are applicable at the time the report was produced.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence Act 1991). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by telephoning 0345 762 6848. Further information can be found on their website: www.groundstability.com.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries).

The Coal Authority emergency telephone number at all times is 01623 646333.

Responses to The Law Society CON29M (2018) Coal Mining Search enquiries and associated findings and recommendations relating to coal mining risk have been provided to Groundsure Ltd by Cornwall Mining Searches Limited T/A Mining Searches UK. Groundsure Ltd have additionally provided information relating to the Cheshire Brine Compensation Area, and have compiled all information into this report.

Any queries relating to coal mining risk should be made of Cornwall Mining Searches Limited T/A Mining Searches UK on 01209218861, or via email: search@miningsearchesuk.com.

All other queries should be made of Groundsure Ltd on 0844 415 9000, or via email: info@groundsure.com.

## Report limitations

This CON29M (2018) Coal Mining Report has been carried out with reference to all available official Coal Authority licensed data, an extensive collection of abandoned mine plans, maps and records. From this material, we have endeavoured to provide as accurate a report as possible. Any and all analysis and interpretation of licensed Coal Authority data in this report is made by Cornwall Mining Services Limited T/A Mining Searches UK.

The information provided in this report by Groundsure Ltd / Cornwall Mining Services Limited T/A Mining Searches UK has been compiled in response to The Law Society CON29M (2018) Coal Mining search enquiries. The scope of the assessment is limited to interpretation of past, present and future extraction of coal, and does not consider the impact from non-coal mining hazards and/or natural ground stability hazards. The Law Society's Guidance Notes 2018 recommends separate enquiries to the appropriate sources are made with regard to other minerals.

The Report is created by a remote investigation and reviews only information provided by the client (address and site location boundaries) and from the databases of publicly available and/or licensable information that enable a desk-based assessment of the Site. The Report does not include a Site Investigation, nor does Groundsure Ltd / Cornwall Mining Services Limited T/A Mining Searches UK make additional specific information requests of the regulatory authorities for any relevant information they may hold.

This report is concerned solely with the Site searched and should not be used in connection with nearby properties, as only known coal mining features that could potentially have a direct influence upon the Site searched are considered relevant; other features present in the general area may have been omitted for ease of reference.

This report is confidential to the client, the client's legal advisor and the client's Mortgage lender, as defined in the Groundsure terms & conditions, and as such may be used by them for conveyancing or related purposes. Groundsure has no liability toward any person or organisation not party to commissioning this report. This report or any part of it is not permitted to be reproduced, copied, altered or in any other way distributed by any other person or organisation.

## Report licensing

This report contains Data provided by the Coal Authority. Any and all analysis and interpretation of Coal Authority Data in this report is made by Cornwall Mining Services Limited T/A Mining Searches UK and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure Ltd / Cornwall Mining Services Limited T/A Mining Searches UK prior to any re-use.

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This report may contain plans and records held by the Coal Authority and made publicly available at the time of inspection which may include British Geological Survey and Ordnance Survey data.

# Search Code and Groundsure terms and conditions

## IMPORTANT CONSUMER PROTECTION INFORMATION

This search has been produced by Groundsure Ltd, Sovereign House, Church Street, Brighton, BN1 1UJ. Tel: 08444 159 000. Email: info@groundsure.com which is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

### The Search Code

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practice and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

### The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

### Complaints Advice

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award up to £5,000 to you if the Ombudsman finds that you have suffered actual financial loss and/or aggravation, distress or inconvenience as a result of your search provider failing to keep to the Code.
Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

### TPO's Contact Details:

The Property Ombudsman scheme, Milford House, 43-55 Milford Street, Salisbury, Wiltshire SP1 2BP. Tel: 01722 333306 Fax: 01722 332296 Email: admin@tpos.co.uk Web: https://www.tpos.co.uk/

You can get more information about the PCCB from https://pccb.org.uk/.

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE

**COMPLAINTS PROCEDURE: If you want to make a complaint, we will:**

- acknowledge it within 5 working days of receipt
- normally deal with it fully and provide a final response, in writing, within 20 working days of receipt
- keep you informed by letter, telephone or e-mail, as you prefer, if we need more time
- provide a final response, in writing, at the latest within 40 working days of receipt
- liaise, at your request, with anyone acting formally on your behalf

Complaints should be sent to:
Operations Director, Groundsure Ltd, Sovereign House, Church Street, Brighton, BN1 1UJ. Tel: 08444 159 000. Email: info@groundsure.com If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, E-mail: admin@tpos.co.uk We will co-operate fully with the Ombudsman during an investigation and comply with their final decision.

Groundsure's Terms and Conditions can be viewed online at this link: https://www.groundsure.com/terms-and-conditions-feb11-2019

## Important consumer protection information

All of the advice and reports that Groundsure produces are covered by a comprehensive Remediation Contribution policy to ensure customers are protected, see https://www.groundsure.com/remediation for full details.

## Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information in your report.

# Coal Mining Report Insurance Policy

ZURICH

## Coal Mining Report Insurance Policy

### The Schedule

**Policy Number:** The Reference contained in the **Coal Mining Search Report**

**Premium:** £1.40 inclusive of Insurance Premium Tax at 12%

**Property:** The property which is the subject of the **Coal Mining Search Report**

**Limit of Indemnity:** £100,000 increasing by 10% compound per annum on each anniversary of and for the first 10 years following the **Commencement Date**

**Commencement Date:** The date of the **Coal Mining Search Report**

**You/Your:**
**1.** A purchaser of the **Property**
**2.** A lender providing a **Mortgage** in connection with a purchase of the **Property**
**3.** A lender providing a **Mortgage** by way of a re-mortgage of the **Property**

### Definitions

Where a word is defined below or in the schedule it shall carry the same meaning wherever it appears in bold text in this policy

**Insured Use:** The continued use of the **Property** as a single house or flat or a single commercial premises

**Market Value:** The value as determined by a surveyor appointed by agreement between **You** and **Us** or (in default of agreement) the President for the time being of the Royal Institution of Chartered Surveyors

**Mortgage:** A mortgage or charge secured on the **Property** by an institutional mortgage lender

**Coal Mining Search Report:** The coal mining search report attached to this policy

**Search:** An official search comprising a search in form CON29M (2018) being mining searches relating to coal and brine in the area in which the **Property** is situated

**We/Our/Us:**
Zurich Insurance plc. A public limited company incorporated in Ireland. Registration No. 13460. Registered Office: Zurich House, Ballsbridge Park, Dublin 4, Ireland. UK Branch registered in England and Wales Registration No. BR7985. UK Branch Head Office: The Zurich Centre, 3000 Parkway, Whiteley, Fareham, Hampshire PO15 7JZ.

Zurich Insurance plc is authorised by the Central Bank of Ireland and authorised and subject to limited regulation by the Financial Conduct Authority. Details about the extent of our authorisation by the Financial Conduct Authority are available from us on request. Our FCA Firm Reference Number is 203093.

Communications may be monitored or recorded to improve our service and for security and regulatory purposes.

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## Your Policy

This is a legal document and should be kept in a safe place.

This policy is an agreement between **You** and **Us** and cover is provided subject to the payment of the **Premium**.

**You** must read this policy and its conditions, exclusions, schedule and any endorsements as one contract. Please read all of them to make sure that they provide the cover **You** require. If they do not, please contact **Us** or **Your** insurance adviser who arranged the policy for **You**.

When **You** take out and make changes to the cover provided by this policy, **You** must take reasonable care to ensure that **You** accurately answer any questions which **We** ask of **You** and that any information **You** give **Us** is accurate. If **You** are taking out this policy for purposes which are mainly related to **Your** trade, business or profession, **You** must also let **Us** know about all facts which are material to **Our** decision to provide **You** with insurance. Failure to meet these obligations could result in this policy being invalidated, a claim not being paid, or an additional premium being charged.

## Fair presentation of the risk

a) At inception of this policy and also whenever changes are made to it at **Your** request You must:

i) where **You** have taken out this policy for purposes which are wholly or mainly related to **Your** trade, business or profession, disclose to **Us** all material facts in a clear and accessible manner and not misrepresent any material facts, and
ii) where **You** have taken out this policy for purposes which are wholly or mainly unrelated to **Your** trade, business or profession, take reasonable care not to misrepresent any material facts.

b) If **You** do not comply with clause a) of this condition **We** may:

i) avoid this policy which means that **We** will treat it as if it had never existed and refuse all claims where any non-disclosure or misrepresentation by **You** is proven by **Us** to be deliberate or reckless in which case **We** will not return the premium paid by **You**; and
ii) recover from **You** any amount **We** have already paid for any claims including costs or expenses **We** have incurred.

c) If You do not comply with clause a) of this condition and the non-disclosure or misrepresentation is not deliberate or reckless this policy may be affected in one or more of the following ways depending on what **We** would have done if **We** had known about the facts which **You** failed to disclose or misrepresented:

i) if **We** would not have provided **You** with any cover **We** will have the option to:
1. avoid the policy which means that **We** will treat it as if it had never existed and repay the premium paid; and
2. recover from **You** any amount **We** have already paid for any claims including costs or expenses **We** have incurred
ii) if **We** would have applied different terms to the cover **We** will have the option to treat this policy as if those different terms apply. **We** may recover any payments made by **Us** on claims which have already been paid to the extent that such claims would not have been payable had such additional terms been applied
iii) if **We** would have charged **You** a higher premium for providing the cover **We** will charge **You** the additional premium which **You** must pay in full.

d) If any insured person, other than **You**, is responsible for a misrepresentation or failure to make a fair presentation of the risk, **We** will invoke the remedies available to **Us** under this condition as against that particular person as if a separate insurance contract had been issued to them leaving the remainder of the policy unaffected.

NB: For the purposes of the duty of disclosure stated in paragraphs a) i) and ii) above the content of the **Coal Mining Search Report** will be deemed to satisfy **Your** disclosure obligations.

## Cover

1. **You** are in the process of purchasing the **Property** relying on the **Coal Mining Search Report** and/or
2. **You** (being a lender) have agreed to provide a **Mortgage** in connection with **Your** borrower's purchase or re-mortgage of the **Property** relying on the **Coal Mining Search Report**.

**We** will pay the following losses sustained by **You** arising out of the **Property** being affected by any matter which would have been revealed by a **Search** had one been carried out on the date of the **Coal Mining Search Report** but which was not revealed by the **Coal Mining Search Report**:

1. any reduction in **Market Value** of the **Property** calculated at the date **You** become aware of the matter(s) and/or loss in connection with a **Mortgage** as a result of such reduction.
2. all other costs and expenses including out of court settlement costs incurred by **Us** or by **You** with **Our** prior written agreement.

## Waiver of Breach of Policy Condition

**We** will not exercise **Our** right to avoid **Our** liability to **You** in respect of loss where **You** have inadvertently breached any term or condition of the policy provided that such breach does not prejudice **Our** rights and remedies under the policy or otherwise directly or indirectly result in or increase the amount of any loss.

## Protection for Mortgagees and Successors in Title

**We** will not avoid **Our** liability to make a payment to **You** solely because another person breaches the terms and conditions of this policy, provided such breach was not committed on **Your** behalf or with **Your** agreement, and **We** will invoke the remedies available to **Us** under the Policy as against that other person as if a separate insurance contract had been issued to them leaving the remainder of the policy unaffected.

## Joint Insured

Any party insured under this policy standing in the relation of parent company, subsidiary company, associated company, branch office or joint venture partner to each other will be deemed to be joint insured for the purposes of this policy and jointly liable and responsible for any breach of any terms and conditions of this policy. If there is any inconsistency between this clause and any other term of this policy, this clause shall prevail.

## Exclusions

**We** will not pay for any:

1. amount in excess of the **Limit of Indemnity**.
2. loss which would be recoverable under a household buildings insurance policy.
3. loss arising from any matter that **You** were aware of at the **Commencement Date**.
4. loss if the **Property** is used for any purpose other than the **Insured Use**.

## Claims Conditions and How to Claim

1. **You** must:

i) give **Us** written notice as soon as possible of any potential or actual claim or any circumstances likely to result in a claim. Please provide the policy number, **Your** name, the full address of the **Property** and a brief description of the incident that has occurred. Notifications should be sent to: Speciality Lines Claims Team, Zurich Insurance, 8th Floor, 70 Mark Lane, London, EC3R 7NQ. Email: claims@uk.zurich.com, Enquiry line: telephone 0207 648 3523
ii) pass all court documents and/or other communications to **Us** as soon as possible after receipt
iii) not deal with, make any admission of liability or attempt to settle a claim without **Our** prior written agreement.
iv) agree to and carry out at **Our** expense all things necessary to minimise any loss.
v) provide all information and assistance that **We** may require to help defend and settle the claim.

2. **We** are entitled to:

i) decide how to settle or defend a claim and may carry out proceedings in the name of any person insured under this policy, including proceedings for recovering any claim.
ii) pay to **You** at any time, an amount equal to the **Limit of Indemnity** or any lower amount for which the claim can be settled, after deduction of any sum already paid. **We** may then give up control of and have no further liability in connection with the claim.

3. If **We** admit liability for a claim but there is a dispute as to the amount to be paid the dispute will be referred to an arbitrator. The arbitrator will be appointed jointly by **You** and **Us** in accordance with the law at the time. **You** may not take any legal action against **Us** over the dispute before the arbitrator has reached a decision.

4. If **You** or anyone acting on Your behalf:

a) makes a fraudulent or exaggerated claim under this policy; or
b) uses fraudulent means or devices including the submission of false or forged documents in support of a claim whether or not the claim is itself genuine; or
c) makes a false statement in support of a claim whether or not the claim is itself genuine; or
d) submits a claim under this policy for loss or damage which **You** or anyone acting on **Your** behalf or in connivance with **You** deliberately caused; or
e) realises after submitting what **You** reasonably believed was a genuine claim under this policy and then fails to tell **Us** that **You** have not suffered any loss or damage; or
f) suppresses information which **You** know would otherwise enable **Us** to refuse to pay a claim under this policy

**We** will be entitled to refuse to pay the whole of the claim and recover any sums that **We** have already paid in respect of the claim.

If any fraud is perpetrated by or on behalf of an insured person and not on behalf of **You** this condition should be read as if it applies only to that insured person's claim and references to this policy should be read as if they were references to the cover effected for that person alone and not to the policy as a whole.

5. If any claim is covered by any other insurance, **We** will not pay for more than **Our** share of that claim.

6. The most **We** will pay for any loss (or all losses in the aggregate), including costs and expenses agreed by **Us** is the **Limit of Indemnity**. Once **We** have paid a loss or losses equal to the amount of the **Limit of Indemnity, We** will have no further liability under this policy.

## General Conditions

1. Neither **You** (nor anyone acting on **Your** behalf) must disclose the existence of this policy to any other party except **Your** legal and other professional advisers, prospective purchasers, lessees and tenants of the **Property**, their respective mortgagees, legal and other professional advisers.

2. In the UK the law allows both **You** and **Us** to choose the law applicable to the contract. This contract will be subject to the relevant law of England and Wales, Scotland, Northern Ireland, the Isle of Man or the Channel Islands depending upon the Property address stated in the Schedule. If there is any dispute as to which law applies it will be English law. The parties agree to submit to the exclusive jurisdiction of the English courts.

3. Notwithstanding any other terms of this policy **We** will be deemed not to provide cover nor will **We** make any payment or provide any service or benefit to **You** or any other party to the extent that such cover, payment, service, benefit and/or any business or activity of **Yours** would violate any applicable trade or economic sanctions law or regulation.

## Cancellation Clause

If **You** have taken out this policy for purposes which are wholly or mainly unrelated to **Your** trade, business or profession, **You** may cancel this policy within 14 days of receiving the policy by writing to **Us** and in such event **We** may, at **Our** discretion, charge **You** for the time that **You** have been on cover. Any refund will be made to the party who paid the premium. If **You** do cancel, **You** may be in breach of the terms of **Your** mortgage or the terms of the contract for the sale of **Your** property. If **You** are in doubt, **You** may wish to seek legal advice prior to cancellation.

## Fair Processing and Complaints Procedure

## Our Complaints Procedure

**Our commitment to customer service**

We are committed to providing a high level of customer service. If you feel we have not delivered this, we would welcome the opportunity to put things right for you.

**Who to contact in the first instance**

Many concerns can be resolved straight away. Therefore in the first instance, please get in touch with your usual contact at Zurich or your broker or insurance intermediary, as they will generally be able to provide you with a prompt response to your satisfaction.

Contact details will be provided on correspondence that we or our representatives have sent you.

**Many complaints can be resolved within a few days of receipt**

If we can resolve your complaint to your satisfaction within the first few days of receipt, we will do so. Otherwise, we will keep you updated with progress and will provide you with our decision as quickly as possible.

**Next steps if you are still unhappy**

If you are not happy with the outcome of your complaint, you may be able to ask the Financial Ombudsman Service to review your case.

We will let you know if we believe the ombudsman service can consider your complaint when we provide you with our decision. The service they provide is free and impartial, but you would need to contact them within 6 months of the date of our decision.

More information about the ombudsman and the type of complaints they can review is available via their website www.financial-ombudsman.org.uk.

You can also contact them as follows:

**Post**: Financial Ombudsman Service, Exchange Tower, London, E14 9SR
**Telephone**: 08000 234567 (free on mobile phones and landlines)
**Email**: complaint.info@financial-ombudsman.org.uk

If the Financial Ombudsman Service is unable to consider your complaint, you may wish to obtain advice from the Citizens Advice Bureau or seek legal advice.

**The Financial Services Compensation Scheme (FSCS)**

We are covered by the Financial Services Compensation Scheme (FSCS) which means that you may be entitled to compensation if we are unable to meet our obligations to you. Further information is available on www.fscs.org.uk or by contacting the FSCS directly on 0800 678 1100.

## How we use your information

**Who controls your personal information**

This notice tells you how Zurich Insurance plc ('Zurich'), as data controller, will deal with your personal information. Where Zurich introduces you to a company outside the group, that company will tell you how your personal information will be used.

You can ask for further information about our use of your personal information or complain about its use in the first instance, by contacting our Data Protection Officer at: Zurich Insurance Group, Tri-centre 1, Newbridge Square, Swindon, SN1 1HN or by emailing the Data Protection Officer at GBZ.General.Data.Protection@uk.zurich.com.

If you have any concerns regarding our processing of your personal information, or are not satisfied with our handling of any request by you in relation to your rights, you also have the right to make a complaint to the Information Commissioner's Office. Their address is: First Contact Team, Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, SK9 5AF.

**What personal information we collect about you**

We will collect and process the personal information that you give us by phone, e-mail, filling in forms, including on our website, and when you report a problem with our website. We also collect personal information from your appointed agent such as your trustee, broker, intermediary or financial adviser in order to provide you with the services you have requested and from other sources, such as credit reference agencies and other insurance companies, for verification purposes. We will also collect information you have volunteered to be in the public domain and other industry-wide sources. We will only collect personal information that we require to fulfil our contractual or legal requirements unless you consent to provide additional information. The type of personal information we will collect includes; basic personal information (i.e. name, address and date of birth), occupation and financial details, health and family information, claims and convictions information and where you have requested other individuals be included in the arrangement, personal information about those individuals.

If you give us personal information on other individuals, this will be used to provide you with a quotation and/or contract of insurance and/or provision of financial services. You agree you have their permission to do so. Except where you are managing the contract on another's behalf, please ensure that the individual knows how their personal information will be used by Zurich. More information about this can be found in the 'How we use your personal information' section.

**How we use your personal information**

We and our selected third parties will only collect and use your personal information (i) where the processing is necessary in connection with providing you with a quotation and/or contract of insurance and/or provision of financial services that you have requested; (ii) to meet our legal or regulatory obligations; or (iii) for our 'legitimate interests'. It is in our legitimate interests to collect your personal information as it provides us with the information that we need to provide our services to you more effectively

including providing you with information about our products and services. We will always ensure that we keep the amount of information collected and the extent of any processing to the absolute minimum to meet this legitimate interest. Examples of the purposes for which we will collect and use your personal information are:

1. to provide you with a quotation and/or contract of insurance;
2. to identify you when you contact us;
3. to deal with administration and assess claims;
4. to make and receive payments;
5. to obtain feedback on the service we provide to you;
6. to administer our site and for internal operations including troubleshooting, data analysis, testing, research, statistical and survey purposes;
7. for fraud prevention and detection purposes.

We will contact you to obtain consent prior to processing your personal information for any other purpose, including for the purposes of targeted marketing unless we already have consent to do so.

**Who we share your personal information with**

Where necessary, we will share the personal information you gave us for the purposes of providing you with the goods and services you requested with the types of organisations described below:

associated companies including reinsurers, suppliers and service providers;
introducers and professional advisers;
regulatory and legal bodies;
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credit reference agencies;
healthcare professionals, social and welfare organisations; and
other insurance companies

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other insurance companies

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in certain circumstances, to have your data deleted or removed;
in certain circumstances, to restrict the processing of your data;
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to object to direct marketing;
not to be subject to automated decision making (including profiling), where it produces a legal effect or a similarly significant effect on you;
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This helps to check information provided and prevent fraudulent claims.

# APPENDIX F

**UXO Screening Map**

# UNEXPLODED BOMB RISK MAP

## SITE LOCATION

Location: BL9 6RX,
Map Centre: 380815,414221




## LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

**miltary** | **industry** | **UXO find**
**transport** | **dock** | **Luftwaffe targets**
**utilities** | **other**

### How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

### What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

**Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.**

### If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

### If I have any questions, who do I contact?


tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**


The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**


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It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

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# APPENDIX 6 – TRANSPORT ASSESSMENT (EDDISONS)

Proposed Residential Development
Land East of Walmersley Road, Bury

**February 2026**

# TRANSPORT ASSESSMENT

eddisons.com

Eddisons

# REPORT

| | |
|---|---|
| **DOCUMENT:** | Transport Assessment |
| **PROJECT:** | Proposed Residential Development, Land East of Walmersley Road, Bury |
| **CLIENT:** | Hollins Strategic Land (LLP) |
| **JOB NUMBER:** | 4839 |
| **FILE ORIGIN:** | Z:\projects\4839 Walmersley Brook, Bury\Docs\Reports |

# DOCUMENT CHECKING:

| | | |
|---|---|---|
| **Primary Author:** | MTC | **Initialled:** |
| **Contributor** | SM / HJ | **Initialled:** |
| **Review By:** | MTC | **Initialled:** |

| Issue | Date | Status | Checked for Issue |
|---|---|---|---|
| **1** | 05-02-26 | Submission Version | MTC |
| **2** | 18-02-26 | Holcroft Moss Update | MTC |
| **3** | | | |
| **4** | | | |

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# 1 INTRODUCTION

## 1.1 Introduction

1.1.1 Eddisons have been instructed by Hollins Strategic Land LLP (HSL) to advise on the traffic and transport issues relating to an outline planning application for a residential led development on land to the east of Walmersley Road in the Walmersley area of Bury.

## 1.2 Summary of Proposals

1.2.1 The proposals seek planning permission for:

*'Outline planning application with all matters reserved other than access for mixed use development for up to 350 dwellings, up to 2,500 sq mts employment/commercial uses, a local centre comprising up to 249 sq mts of retail floorspace, mobility hub, public open space and associated infrastructure.'*

1.2.2 The proposed quantum of development is as follows:

- Up to 350 dwellings.
- Up to 2500 sqm employment.
- Up to 249 sqm local centre.

1.2.3 The site is currently open space and is bordered by the M66 (and junction 1's slip road) to the north and east, with open arable land beyond. To the south, there is a residential area. The site is bordered by Walmersley Road (A56) to the west, with residential properties fronting the west side of the road.

1.2.4 It is proposed that vehicular access will be taken direct from the A56 in the form two priority junctions along the Walmersley Road frontage. Two secondary minor vehicular access points are proposed to the south of the site onto Walmersley Old Road, albeit these will serve a limited number of dwellings and provide active travel connection points.

1.2.5 Additional active travel connection points are also proposed to link to the existing Public Right of Way network to the northeast of the site and to Hartley Gardens to the south. In addition, a new public bridleway is proposed to provide east to west links through the centre of the site.

## 1.3 Scope of Report

1.3.1 Given the scale of the residential development, the proposals fall within the threshold requiring a full Transport Assessment (TA) and Travel Plan (TP).

1.3.2 The scope of assessment has been discussed with highways officers at Bury Council (BC), Transport for Grater Manchester (TfGM) and National Highways (NH).

## 1.4 The Vision

1.4.1 With nearly two decades of experience in the land and development sector, HSL are committed to fostering sustainable development practices and delivering tangible, additional benefits to the community of Walmersley wherever feasible. They believe in creating developments that not only provide much-needed housing in sustainable locations but also provide benefits that can be shared with existing residents.

1.4.2 HSL have developed an indicative masterplan for this site which will deliver a green, walkable and thoughtfully designed new neighbourhood. This includes high quality homes to meet local needs and new and enhanced public open spaces.

1.4.3 Following this introduction, Section 2 of the report details the existing site conditions and describes the adjacent highway network.

1.4.4 Section 3 provides details of the proposed development including vehicular access and car parking provision.

1.4.5 The development aims to deliver a sustainable, inclusive, and well-connected neighbourhood that supports active travel and reduces car dependency whilst maximising the opportunity provided by this edge of town site.

1.4.6 Section 4 of the report considers the aspects of national and local planning policy which are relevant to the development.

1.4.7 To align with national and local planning policy, the vision will minimise the traffic impact on the surrounding road network by promoting sustainable travel behaviours and reducing reliance on private vehicles. This includes the provision of electric vehicle charging points for all homes and the provision of Super-Fast Broadband enabling more home working and less reliance on cars for travelling to work.

1.4.8 Section 5 considers the accessibility of the site by non-car modes and Section 6 contains details of the Framework Travel Plan.

1.4.9 By prioritising walking, wheeling and access to public transport, the scheme will promote safe, equitable, and low-carbon travel choices for its residents, while enhancing connectivity to local amenities and the wider area, thus supporting the local economy.

1.4.10 Section 7 considers the trip generation and provides the traffic impact assessment on the local highway network. Section 8 consider historical accident statistics.

1.4.11 The proposed development aspires to deliver a transport strategy that is safe, efficient, and sustainable, aligning with national planning policy objectives. By carefully assessing trip generation, traffic impacts, and historical accident data, the development ensures a seamless integration with the existing transport network.

1.4.12 Lastly, Section 9 draws together the report's findings and conclusions.

# 2 EXISTING SITE AND CONDITIONS

## 2.1 Existing Site

2.1.1 The site lies immediately to the north of Bury within the Walmersley area, circa 3km to the north of Bury town centre.

2.1.2 The location of the site is shown in **Plan 1**.

2.1.3 The site comprises of approximately 19.9ha of undeveloped land and is bounded to the north and east by the M66 (and junction 1's slip road), to the south by the existing Walmersley settlement area, and to the west by Walmersley Road (A56).

## 2.2 Local Highway Network

2.2.1 The site has a long frontage onto the A56 Walmersley Road. The A56 Walmersley Road provides strategic connectivity, linking to the M65 motorway to the north and to Bury town centre to the south.

2.2.2 For the purposes of this TA, the study area includes the following junctions, as shown in **Plan 2**:

- Proposed Site Accesses / A56 Walmersley Road;
- A56 Walmersley Road / Walmersley Old Road / Springside Road.
- A56 Walmersley Road / M66 Off-Slip.
- A56 Walmersley Road / M66 On-Slip.
- A56 Manchester Road / Bury New Road.
- A56 Whalley Road / Wood Lane.
- M66 / A56 (Edenfield) Roundabout.

**Proposed Site Accesses / A56 Walmersley Road**

2.2.3 Walmersley Road is a single carriageway and is around 10 metres wide with footways and mandatory cycle lanes on both sides. The road is subject to a 40mph speed limit along the site frontage which reduces to 30mph to the south of the site as vehicles entire the more built up area of Bury. The road benefits from regularly spaced street lighting columns and a wide footway along its western side and a circa 2.0m footway set back by a wide verge on its eastern side.

**A56 Walmersley Road / Walmersley Old Road / Springside Road**

2.2.4 Around 600 metres south of the site, Walmersley Old Road forms the eastern arm of a four-arm signal-controlled junction with the A56 Walmersley Road (northern and southern arms) and Springside Road (western arm). The junction includes pedestrian crossing points with dropped kerbs to the north and west. All four arms of the junction are subject to a 30mph speed limit.

2.2.5 To the south of the site, the A56 provides the primary route towards Bury town centre. Springside Road serves a number of residential properties, two farms, and Springside Primary School and Nursery whilst Walmersley Old Road serves a larger residential area and provides vehicular access across the M66 via Walmersley Old Road and Bentley Lane towards Nangreaves and Cheesden Valley.

**A56 Walmersley Road / M66 Junction 1 - On and Off-Slips**

2.2.6 To the north of the site, the A56 forms Junction 1 of the M66, which provides southbound on and northbound off slip roads. The A56 then continues northwards towards Ramsbottom and Edenfield.

**A56 Manchester Road / Bury New Road**

2.2.7 The A56 Manchester Road / Bury New Road junction is a three-arm signalised junction. The A56 forms the major arms which link Bury town centre and the M66 Junction 1, to the south, with Edenfield to the north. Bury New Road forms the minor arm, which provides access to numerous residential cul-de-sacs and Ramsbottom town centre, via Peel Brow and Bridge Street.

**A56 Whalley Road / Wood Lane**

2.2.8 The A56 continues north from its junction with Bury New Road before meeting Wood Lane. Wood Lane forms the minor arm of a priority controlled junction which provides a connector road between the A56 and Edenfield Roundabout.

**M66 / A56 (Edenfield) Roundabout**

2.2.9 From its junction with the A56 Whalley Road, Wood Lane extends in a westerly direction towards Edenfield Roundabout forming the south-eastern arm of the roundabout. Bolton Road North forms the other minor north-eastern and southwestern arms of the junction, providing access into Edenfield and towards Stubbins and Ramsbottom respectively; whilst the Edenfield roundabout also provides northbound on and southbound off access to the A56. From here, the A56 extends northwards as far as the M65.

## 2.3 Baseline Transport Data

2.3.1 In order to establish current levels of traffic, turning count surveys have been obtained for the following junctions:

- Junction 1: A56 Walmersley Road / Walmersley Old Road / Springside Road.
- Junction 2: A56 Walmersley Road / M66 Off-Slip.
- Junction 3: A56 Walmersley Road / M66 On-Slip.
- Junction 4: A56 Manchester Road / Bury New Road.
- Junction 5: A56 Whalley Road / Wood Lane.
- Junction 6: M66 / A56 (Edenfield) Roundabout.

2.3.2 Analysis of the traffic survey data will identify the typical weekday AM peak and the weekday PM peak periods and the surveyed traffic flows will be converted into passenger car units (PCUs), the unit of analysis, for the weekday AM and weekday PM peak periods respectively.

# 3 PROPOSED DEVELOPMENT

## 3.1 Development Proposals

3.1.1 The proposals seek outline planning permission for up to 350 residential dwellings along with employment and a local centre uses, with access in detail and all other matters reserved for future determination.

3.1.2 An indicative masterplan has been developed for the Site and is shown in **Plan 3.**

3.1.3 The dwellings will primarily be served via a two new priority junction access off the A56 Walmersley Road.

3.1.4 The geometric parameters used for the proposed site access junction will accord with current design guidance. The site access design incorporates a carriageway width of 5.5 metres for the residential access point, footways on either side of the carriageway of 2 metres in width, and verges to tie into the existing wide verges on Walmersley Road.

3.1.5 The A56 reduces from 40mph to 30mph as it enters Bury to the south of the site. Along the site frontage, Walmersley Road is, therefore, currently subject to a 40mph speed limit in the vicinity of the proposed site accesses which reduces to a 30mph speed limit at the existing gateway feature immediately to the south of the site.

3.1.6 Based on the above, Bury MBC would be encouraged to pursue a Traffic Regulation Order so that the existing 30mph zone, which begins immediately south of the site, is extended to encompass the site frontage, thus incorporating the proposed residential extension to the ‘built up’ area of Walmersley.

3.1.7 With the extension of the 30mph zone, the change of speed limit will encourage lower speeds on entry into and within the ‘built up’ up area of Walmersley which will provide a safer highway network for residents, particularly pedestrians looking to cross the A56.

3.1.8 In order to promote the speed limit change, it is considered that speed limits need to be self-enforcing. It is therefore proposed that an enhanced gateway feature is provided on Walmersley Road in the form of enhanced road markings / signage to further highlight the speed limit change to drivers. This will facilitate the extension to the 30mph zone and ensure that a self-enforcing speed limit of 30mph is achieved to provide a safer environment for pedestrians and all road uses. This arrangement would include the relocated speed limit signs and 'narrowing' markings on carriageway subject to agreement with Bury Council during the application process.

3.1.9 Considering the relocated speed limit change, it is considered that visibility splays in accordance with the principles set out in Manual for Streets (MfS) are appropriate. 2.4 x 43m visibility splays are therefore shown on the site access drawing and are wholly achievable. If the potential Walmersley Road speed limit reduction is not pursued by Bury MBC, visibility splays appropriate for 40mph are still achievable.

3.1.10 The proposed access arrangements are displayed at **Appendix 1**.

3.1.11 Pedestrian and cycle access will be available via the vehicular access points and via the active travel connection points to the existing Public Right of Way network to the northeast of the site and to Hartley Gardens to the south. The new footways / active travel links will link to the existing infrastructure on Walmersley Road allowing pedestrian connectivity between the residential development the surrounding footway network, including access to nearby schools and towards Bury town centre to the south. Footpath connections will be provided across the public open space, including a proposed new public bridleway, and connectivity to the exiting public rights of way will be provided.

3.1.12 As such, the access strategy is considered appropriate for the purposes of this development. The access proposals will facilitate vehicular access and active travel access linking the site to the surrounding highway network.

## 3.2 Parking Provision

3.2.1 The site layout will be subject to a future reserved matters application; however, parking provision will be provided in accordance with Bury Council's parking standards contained in Supplementary Planning Document 11 which state:

- 1 bedroom dwelling = 1 space;
- 2/3 bedroom dwellings = 2 spaces;
- 4+ bedrooms = 3 spaces.

3.2.2 All driveways will also be located as close as possible to front doors in order to ensure they are well utilised.

3.2.3 In addition, the internal site layout will be designed to ensure that all garages have minimum internal dimensions as set out in Bury's Parking Standards.

## 3.3 Refuse Access

3.3.1 The proposed internal site layout is currently at an indicative masterplan stage and will be subject to future reserved matters applications, which will include full swept path analysis of the internal site layout using an 11.85m refuse vehicle which is the standard vehicle used in Bury.

## 3.4 Active Travel Connections

3.4.1 The Government's National Planning Policy Framework, discussed in the following section of this report, sets out how new proposals should attempt to influence the mode of travel to development in terms of gaining a shift in modal split towards non-car modes.

3.4.2 Local Transport Note 1/20 (LTN 1/20) also provides guidance to local authorities on delivering high quality, cycle infrastructure including planning for cycling.

3.4.3 The proposed site access points on Walmersley Road and the proposed active travel routes and connection points within the site will incorporate LTN 1/20 compliant cycle infrastructure.

3.4.4 Active Travel England's responsibilities cover walking and 'wheeling', such as the use of wheelchairs (self-propelled or powered) and mobility scooters. Active Travel England's aim is to increase the number of local journeys being walked, wheeled or cycled by 2030.

3.4.5 The Department for Transport (DfT) document; *'Inclusive mobility: making transport accessible for passengers and pedestrians'* provides guidance on designing and improving the accessibility and inclusivity of public transport and pedestrian infrastructure.

3.4.6 As will be discussed in this report, the site would be accessible by non-car modes of transport, which would cater for needs of the development's residents and assist in promoting a choice of travel modes other than the private car. This will clearly reduce the reliance on the private car.

3.4.7 All active travel links will be delivered in accordance with the good design practice and guidance set out in the DfT's and Active Travel England's guidance documents, and in accordance with the National Planning Policy Framework.

3.4.8 Pedestrian and cycle access will primarily be taken from the Walmersley Road along the site frontage. Additional active travel access points are proposed via the existing Public Right of Way network which runs along the eastern and southern boundary of the site and provides links to the existing residential development of Walmersley and the open countryside to the northeast of Bury. In addition, the proposed new public bridleway will significantly enhance active travel connections and opportunities.

3.4.9 Active travel links are therefore provided from the eastern, southern and western perimeters of the site. These links will maximise the opportunities for north to south and east to west permeability and provide convenient routes for Active Travel modes and recreation uses, which will support and encourage the use of non-car modes of travel.

## 3.5 Mobility Hub

3.5.1 The proposals include a new local centre incorporating a Mobility Hub.

3.5.2 The exact components of the Mobility Hub are to be confirmed but could include:

- Cycle hub – cycle parking, bike and e-bike hire, cycle repair, mobility aid hire;
- EV visitor charging hub;
- Co-working space to promote hybrid working / working local;
- Improved public transport connections;
- Real time public transport Information;
- Parcel lockers and last mile delivery services;
- A Library of Things – a one-stop item sharing library;
- Car Club spaces (subject to commercial viability); and
- Taxi drop-off (for consideration).

3.5.3 The provision of Car Club vehicles within the Mobility Hub has significant potential to reduce primary and secondary car ownership and use. The 2020 CoMoUK report suggests that each car club space takes 18.5 private cars off the road. 22% of car club members suggested that they would have bought a car if they had not joined the car club.

3.5.4 The mobility hub will be designed in accordance with CoMoUK guidance which highlights six key factors for delivering a successful mobility hub:

- Visibility and accessibility - Hubs need to be part of the clearly identifiable transport network with services which are easily accessible by all.
- Choice of sustainable modes – These should include public and shared modes as well as consideration of pedestrians.
- Ease of switching between modes – This applies in both physical and digital terms, linking the use of different modes.
- Safety – The design and facilities should ensure traveller safety.

- Practical facilities – Clever design will consider what non transport practical additions can be included.

- Visual, Social and community appeal - A successful mobility hub will enhance the area visually and provide a contribution to the social and community fabric.

3.5.5 The proposed mobility hub will be subject to a future reserved matters application which will aim to adhere to above key design factors.

# 4 TRANSPORT PLANNING POLICY

## 4.1 Introduction

4.1.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies and is a relevant material consideration. The Planning Practice Guidance provides further detail on how the NPPF should be applied.

4.1.2 Local transport planning policy for the area is taken from the Greater Manchester Transport Strategy 2040, the Bury Local Transport Strategy and the Bury Unitary Development Plan.

4.1.3 This section will briefly outline the pertinent policies relating to the proposed development.

## 4.2 National Policy

4.2.1 The current version of the NPPF was issued in December 2024, with an updated consultation version issued in December 2025.

4.2.2 The presumption in favour of sustainable development is a central theme running through the current NPPF, which states at paragraph 109 that *'Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:*

a) *making transport considerations an important part of early engagement with local communities;*

b) *ensuring patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places;*

c) *understanding and addressing the potential impacts of development on transport networks;*

d) *realising opportunities from existing or proposed transport infrastructure, and changing transport technology and usage – for example in relation to the scale, location or density of development that can be accommodated;*

e) *identifying and pursuing opportunities to promote walking, cycling and public transport use; and*

f) *identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains*'

4.2.3 Paragraph 110 of the NPPF states:

*'The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making*.'

4.2.4 As will be demonstrated within this Transport Assessment, the proposed development accords with the policy test contained within paragraph 115 of the NPPF, which states that:

*'In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*

a) *sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;*

b) *safe and suitable access to the site can be achieved for all users;*

c) *the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code48; and*

*d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree through a vision-led approach*.'

4.2.5 Paragraph 116 concludes that:

'*Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios*.'

4.2.6 Paragraph 117 continues by advising:

'*Within this context, applications for development should:*

*a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second - so far as possible - to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*

*b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*

*c) create places that are safe, secure and attractive - which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*

*d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and*

*d) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations*.'

4.2.7 Paragraph 118 advises that:

'*All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a vision-led transport statement or transport assessment so that the likely impacts of the proposal can be assessed and monitored*.'

4.2.8 The provision of a Travel Plan as part of the development is in accordance with the guidance.

4.2.9 A consultation draft revised NPPF has been published in December 2025 and emphasises the need to locate new development in sustainable locations.

4.2.10 For example, Policy TR3 'Locating development in sustainable locations' covers most of the objectives of the previous version of the NPPF but provides more emphasis in achieving these targets as follows:

*'So that development is located where it can support sustainable patterns of movement, enable good accessibility for different users and make the most of existing and proposed transport infrastructure, development proposals should reflect the following principles, taking into account the vision for the site, the type of development and its location:*

*a. Development proposals which could generate a significant amount of movement, in the context of the area within which they would be situated, should be in locations that are, or can be made sustainable, by limiting the need to travel and offering a genuine choice of transport modes for residents and users, unless the nature of the use makes this impractical;*

*b. Opportunities should be taken to utilise existing or proposed transport infrastructure in optimising the amount or density of development which can be accommodated in different locations, especially where this can support more walking, wheeling, cycling and public transport use;*

*c. The environmental impacts of traffic and transport infrastructure should be identified, assessed and taken into account – including taking opportunities to avoid or mitigate any adverse environmental effects, and to secure net environmental gains such as reductions in air pollution;*

*d. In rural areas, opportunities to improve wheeling, cycling and public transport and enhance the connectivity of an area should be taken where they exist and can be supported by the development proposed. The Connectivity Tool (Connectivity Tool - GOV.UK) should be used alongside other relevant evidence in assessing the connectivity of particular locations proposed for development.'*

4.2.11 As will be demonstrated in this report, it is considered that the proposed development accords with the aims and objectives of the current and draft versions of the NPPF.

**Planning Practice Guidance**

4.2.12 The Government has produced the National Planning Practice Guidance to supplement the NPPF. Within the guidance, there is specific section clarifying the over-arching principles on Travel Plans, Transport Assessments and Transport Statements. There are also sections advising further on each of the three documents discussed.

4.2.13 The guidance advises that in determining whether a Transport Assessment or Statement will be needed for a proposed development local planning authorities should take into account a number of considerations. It is considered that the size and nature of this development requires a full Transport Assessment.

4.2.14 It also clarifies the process for establishing a scope for the assessment, and what the document should contain. The guidance has been considered in the preparation of this TA.

4.2.15 The guidance on Travel Plans reinforces the requirement for a Travel Plan, the scope of the document, and need for monitoring to continue the strategy into the future. The guidance has been considered in the production of the accompanying Framework Travel Plan.

**DfT 'Strategic Road Network and the Delivery of Sustainable Development'**

4.2.16 The DfT's Circular 01/2022 'Strategic Road Network and the Delivery of Sustainable Development' was updated in December 2022.

4.2.17 It confirms at para 15 that there should be a move away *'from transport planning based on predicting future demand to provide capacity ('predict and provide') to planning that sets an outcome communities want to achieve and provides the transport solutions to deliver those outcomes (vision-led approaches including 'vision and validate,' 'decide and provide' or 'monitor and manage').*

4.2.18 Para 43 advises that *'The company expects development promoters to enable a reduction in the need to travel by private car and prioritise sustainable transport opportunities ahead of capacity enhancements and new connections on the SRN. For residential-led developments, due consideration should be given to home and street layouts, broadband infrastructure, safe and secure cycle parking, and access to local amenities and open space in support of these aims, while mobility or micromobility hubs should be provided in larger schemes. In addition, high-powered and open-access EV charge-points should be installed where developments include on-street or communal parking.'*

*4.2.19* Para 48 states that '*Where a transport assessment is required, this should start with a vision of what the development is seeking to achieve and then test a set of scenarios to determine the optimum design and transport infrastructure to realise this vision. Where such development has not been identified in an up-to-date development plan (or an emerging plan that is at an advanced stage), developers should demonstrate that the development would be located in an area of high accessibility by sustainable transport modes and would not create a significant constraint to the delivery of any planned improvements to the transport network or allocated sites.'*

4.2.20 With specific regard to assessment criteria, para 50 confirms that *'An opening year assessment to include trips generated by the proposed development, forecasted growth and committed development shall be carried out to establish the residual transport impacts of a proposed development.'*

**National Highways 'Planning for the Future: A guide to working with National Highways on planning matters'**

4.2.21 The National Highways document 'Planning for the Future: A guide to working with National Highways on planning matters' replaces the Highways England document 'The Strategic Road Network – Planning for the Future'.

4.2.22 The document *'describes the approach we take to engaging in the planning system and the issues we look at when considering draft planning documents and planning applications.*' It advises that it should be read in conjunction with the DfT Circular 01/2022.

4.2.23 Para 37 advises that *'The policy test on whether the residual cumulative impacts on the SRN would be 'severe' will be assessed on a case-by-case basis. This will take into account the performance and character of the relevant link or junction of the SRN, and the predicted effects of the development on its safe operation.'*

4.2.24 Para 39 confirms that *'Transport assessments should be carried out in line with prevailing government guidance and industry standards.'*

## 4.3 Local Policy

**Greater Manchester Transport Strategy 2040 (January 2021)**

4.3.1 The Greater Manchester Transport Strategy sets out Greater Manchester's Transport Strategy up to 2040 and has been developed in line with current Local Transport Plan guidance to set out long-term ambitions for transport.

4.3.2 The Transport Strategy 2040 aims to create an integrated, well-co-ordinated transport system which supports a wide range of different travel needs.

4.3.3 Additionally, the document sets out the 'Streets for All' ambition, which is to make Greater Manchester's streets welcoming and safe spaces for all people, enabling more travel on foot, bike and public transport.

4.3.4 By 2040 the ambition is to have 50% of all journeys in Greater Manchester to be made by walking, cycling and public transport. The area with biggest potential for change to carry this goal forward is focusing on local neighbourhood trips (of 2km or less) where there are large number of short car journeys which could reasonably be switched to walking or cycling.

4.3.5 The focus in the emerging Streets for All Strategy focuses on making streets that:

- That feel like welcoming and healthy places to spend time;
- An attractive and inclusive walking environment;
- A safe and connected cycling experience;
- Support for a reliable, integrated and accessible public transport network, including the reallocation of road space for bus priority, on-street tram routes, cycle lanes and wider footways;
- The infrastructure for goods to reach their destinations on time, with minimal impact on local communities;
- Opportunities to harness future mobility innovations; and
- An environment where best use is made of existing assets.

4.3.6 Other priorities in the overall strategy include prioritising new developments that are accessible by sustainable modes of transport to reduce emissions and impacts on the highway network. These goals include reducing the need to travel by car and reducing the distance needed to travel, maximising opportunities to provide additional public transport and design that encourages active travel.

**Bury Unitary Development Plan**

4.3.7 The current Bury UDP was adopted by the Council on 29 August 1997. The Council is now working to replace the adopted UDP with a new document called the Bury Local Plan. Until the new Local Plan is produced the UDP will continue be used to make planning decisions.

4.3.8 The transport objectives are identified as:

- Objective 1: To promote a balanced transportation strategy;
- Objective 2: To encourage the use of public transport;
- Objective 3: To ensure that the highway network and car parking provision is appropriate to the objectives of a balanced transportation strategy;
- Objective 4: To reduce environmental impact and pollution caused by traffic;
- Objective 5: To ensure that all movement can be made safely and conveniently;
- Objective 6: To reduce road traffic accidents;
- Objective 7: To ensure that the needs of pedestrians, cyclists, the mobility impaired and those with special needs are properly catered for.

4.3.9 On the specific matter of new development, Policy HT2/4 'Car Parking and New Development' states that:

*'The Council will require all applications for development to make adequate provision for their car parking and servicing requirements in accordance with the Council's car parking standards.'*

Policy HT4 'New Development' also advises that:

*'In considering the location of new or intensified development, the Council will encourage proposals which:*

- *support the principles of sustainable development;*
- *assist the implementation of a balanced transportation strategy;*
- *minimise the environmental impact of traffic.*

*In particular, new development will be encouraged where use can be made of public transport or spare capacity in the existing highway network, provided that this is also in accordance with other policies of the Plan.'*

4.3.10 As discussed in Section 5 the site is accessible by non-car modes, whilst Section 7 demonstrates the proposed development will not have an adverse impact upon capacity.

4.3.11 It is therefore considered that development proposals satisfy the Bury's UDP policy requirements.

**Places for Everyone Joint Development Plan 2022-2039**

4.3.12 Places for Everyone is a long-term plan of nine Greater Manchester districts for jobs, new homes, and sustainable growth. It was adopted on 21 March 2024.

4.3.13 Policy JP-Strat14 'A Sustainable and Integrated Transport Network' confirms that '*The transport network will be improved so that half of all daily trips can be made by public transport, cycling and walking, especially those shorter journeys around neighbourhoods.*'

4.3.14 It goes on the state that:

'*New development will have a significant role in delivering our future sustainable and integrated transport network in order to reduce car dependency and increase levels of walking, cycling and public transport.*'

4.3.15 Policy JP-S1 concerns 'Sustainable Development' and confirms at paragraph 5.5 that '*Greater Manchester's Vision is to be at the forefront of action on climate change and to make its fair contribution to international commitments by becoming a carbon neutral city region by 2038.*'

4.3.16 Paragraph 5.6 sets out a number of measures that are needed in order to meet the carbon commitments, including:

*'Enable sustainable choices for travel and decarbonise transport;'*

4.3.17 Policy JP-S2 'Carbon and Energy' states that 'The aim of delivering a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions, will be supported through a range of measures including:

*'5. b. Incorporate adequate electric vehicle charging points, in line with Part S of the Building Regulations, unless superseded by relevant Local Plan policies, to future proof for the likely long-term demand, taking account of the potential maximum energy demand for the site*.'

4.3.18 Policy JP-C1 'An Integrated Network' sets out a range of measures '*to help deliver an accessible, low carbon Greater Manchester with world-class connectivity*.' This includes:

'*1 Delivering a pattern of development that minimises both the need to travel and the distance travelled by unsustainable modes to jobs, housing and other key services, including healthcare, education, retail, recreation and leisure facilities, green space and green infrastructure;*'

'*3 Locating and designing development, to deliver a significant increase in the proportion of trips that can be made by walking, cycling and public transport;*'

4.3.19 Policy JP-C7 'Transport Requirements of New Development' requires '*new development to be located and designed to enable and encourage walking, cycling and public transport use, to reduce the negative effects of car dependency, and help deliver high quality, attractive, liveable and sustainable environments*.'

4.3.20 Policy JP-C7 states that, with regard to parking infrastructure, this would be done by:

'*9 Incorporating enough secure and covered cycle parking to meet long-term demand from occupiers and visitors in a convenient location that helps to maximise its use'.*

*'10 Promoting alternatives to car ownership, such as the use of ULEV car clubs rather than the provision of private car parking spaces*'.

4.3.21 Policy JP-C8 concerns 'Transport Requirements of New Developments' and states '*We will require new development to be located and designed to enable and encourage walking, cycling and public transport use, to reduce the negative effects of car dependency, and help deliver high quality, attractive, liveable and sustainable environments*.'

4.3.22 It then sets out a number of measures to achieve this, including:

'*Connectivity and Walking*

1. *Prioritising new and enhanced walking, cycling and public transport routes and stops, through and around the site. These routes should:*

    2. *be direct, safe and convenient;*

    3. *connect to nearby facilities, employment areas, public transport stops; and*

    4. *improve the coverage, quality and integration of the wider walking and cycling infrastructure and public transport provision;*

*Ensuring that the layout, design and landscaping of development prioritises the provision of safe, secure and attractive access to local services and facilities for pedestrians, cyclists and people with a disability;*'

'*Parking Infrastructure*

9. *Incorporating enough secure and covered cycle parking to meet long-term demand from occupiers and visitors in a convenient location that helps to maximise its use,*'

'*Promoting alternatives to car ownership, such as the use of ULEV car clubs rather than the provision of private car parking spaces;*'

**Emerging New Bury Local Plan 2022-2043**

4.3.23 Following the adoption of the Places for Everyone Joint Plan on 21 March 2024, Bury MBC are now moving forward with a new Local Plan.

4.3.24 Views were sort on the draft version of New Local Plan over an eight-week period between 17 March and 12 May 2025 and submitted comments are currently being considered.

4.3.25 With regards to Transport Policy, the new Local Plan seeks to deliver attractive sustainable transport choices in new developments and reduce the number and length of journeys, particularly by private motor vehicles by:

- *'Promoting sustainable transport across the Borough by encouraging a modal shift towards more sustainable modes of travel, such as walking, wheeling, cycling and public transport;*
- *Supporting improvements to the Borough's public transport network and facilities;*
- *Supporting schemes for new and improved travel hubs where it can be demonstrated that they form part of a wider strategy for increasing the use of public transport and active travel;*
- *Seeking to ensure that the Borough's highway network operates efficiently, effectively and safely;*
- *Requiring all development to make adequate provision for parking and servicing; and*
- *Supporting the continued development of a network of safe and conveniently located electric vehicle charging infrastructure across the Borough.'*

## 4.4 National and Local Policy Summary

4.4.1 As will be demonstrated within this Transport Assessment, the site is situated in a highly accessible area with a range of sustainable travel modes within close proximity, providing justification for the proposed levels of car parking.

4.4.2 As such, the proposals conform to the aims and aspirations of national and local planning policy.

# 5 ACCESSIBILITY BY NON CAR MODES

## 5.1 Introduction

5.1.1 In order to accord with the aspirations of the NPPF, any new proposals should extend the choice in transport and secure mobility in a way that supports sustainable development.

5.1.2 New proposals should attempt to influence the mode of travel to the development in terms of gaining a shift in modal split towards non-car modes, thus assisting in meeting the aspirations of current national and local planning policy.

5.1.3 The accessibility of the proposed site has been considered by the following modes of transport:

- Accessibility by walking / wheeling;
- Accessibility by cycle;
- Accessibility by bus; and
- Accessibility by rail.

## 5.2 Accessibility by Walking / Wheeling

5.2.1 It is important to create a choice of direct, safe and attractive routes between where people live and where they need to travel in their day-to-day life. This philosophy clearly encourages the opportunity to walk / wheel whatever the journey purpose and also helps to create more active streets and a more vibrant neighbourhood.

5.2.2 The existing pedestrian and cycle provision is of good quality and well maintained to cater for pedestrians and mobility impaired users.

5.2.3 Adjacent to the proposed site to the west is the A56 Walmersley Road which has footways on both sides of the road heading north on one side and south on the other. These footways connect to the centre of Bury providing access to the extensive pedestrian infrastructure and local amenities in the area.

5.2.4 There are a number of controlled and uncontrolled pedestrian crossing points located on the A56 Walmersley Road and these will be enhanced as part of the development in the form of new uncontrolled crossings complete with pedestrian refuges and tactile paving to create additional safe crossing points on the A56.

5.2.5 In addition to the pedestrian infrastructure, various Public Rights of Way (PRoW) are located in close proximity to the site. These can be seen below.

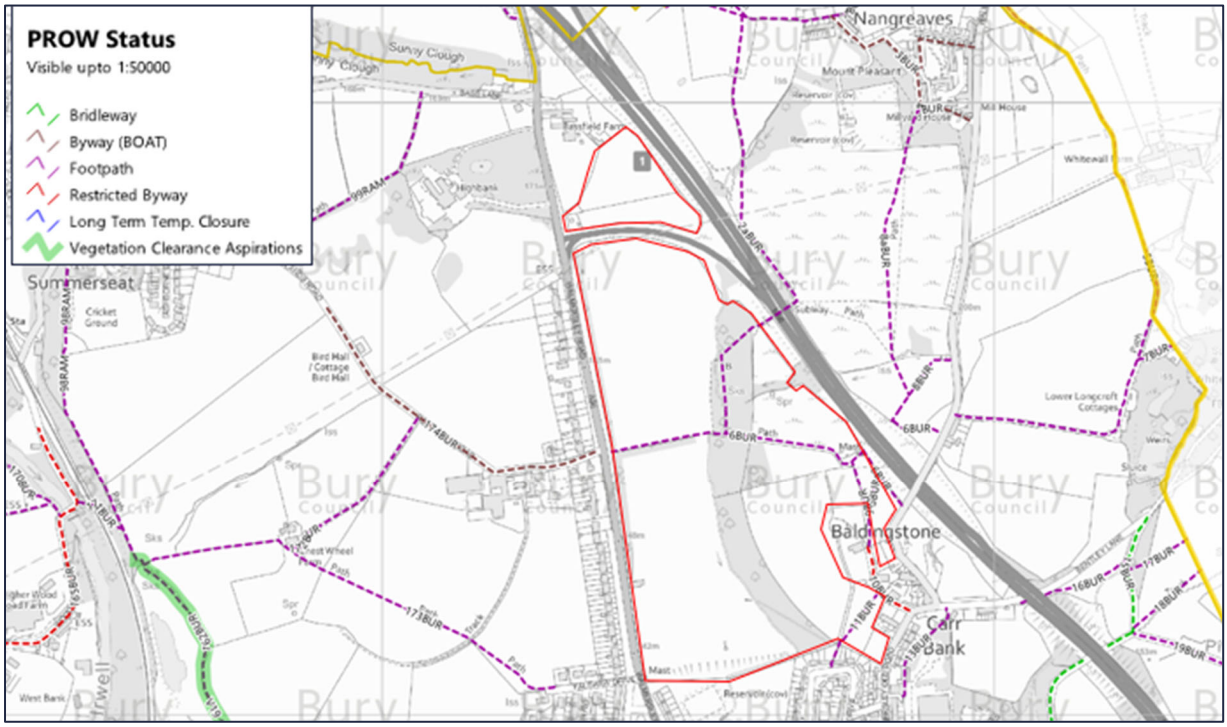



**Figure 5.1 - Public Rights of Way Map (Bury Council)**

5.2.6 As can be seen from **Figure 5.1** above, footpath 6BUR travels directly within the proposed site, connecting the A56 Walmersley Road to the east with Walmersley Old Road. In the midpoint of the proposed site footpath 6BUR connects with footpath 2aBUR which travels north towards Nangreaves. These PRoW which are located within the proposed development have all been retained within the Masterplan and will be enhanced as a result of the development proposals.

5.2.7 There are additional PRoWs to the west of the site, with public byway 174BUR connecting the A56 Walmersley Road along Rowlands Road to the west towards Rowlands and Summerseat.

5.2.8 The Department for Transport (DfT) National Travel Survey of 2023 confirms that 81% of all trips less than a mile (1.6km) are carried out on foot.

5.2.9 The Institute of Highways and Transportation (IHT) document 'Guidelines for Providing for Journeys on Foot', provides information on acceptable walking distances. Table 3.2 of the document suggests distances for desirable, acceptable and preferred maximum walks to 'town centres', 'commuting/schools' and 'elsewhere'. The 'preferred maximum' distances are shown below in Table 5.1.

| Suggested Preferred Maximum Walk | | |
|---|---|---|
| **Town Centre** | **Commuting/School** | **Elsewhere** |
| 800m | 2,000m | 1,200m |

**Table 5.1 IHT 'Providing for Journeys on Foot' Walk Distances**

5.2.10 Manual for Streets (MfS) continues the theme of the acceptability of the 2,000-metre distance in paragraph 4.4.1. This states that '*walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPS13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km*'.

5.2.11 Table 5.2 below summarises this guidance in tabular form.

| 'Comfortable' Walk | 'Preferred Maximum' Walk |
|---|---|
| 800m | 2,000m |

**Table 5.2 Manual for Streets Walk Distances**

5.2.12 Further evidence that people will walk further than the suggested 'preferred maximum' distances in the IHT 'Providing for Journeys on Foot' is contained in a WYG Report entitled 'Accessibility – How Far Do People Walk and Cycle'. This report refers to National Travel Survey (NTS) data for the UK as a whole, excluding London, and confirms the following 85th percentile walk distances:

- All journey purposes – 1,950 metres;
- Commuting – 2,100 metres;
- Shopping – 1,600 metres;
- Personal business – 1,600 metres.

5.2.13 Overall, in Table 5.1, the document states that 1,950 square metres is the 85th percentile distance for walking as the main mode of travel. Table 5.3 below summarises the various 85th percentile walk distances suggested as guidelines in the WYG Study.

| 85th Percentile Walk Distances | | | | Overall Recommended Preferred Max |
|---|---|---|---|---|
| All Journeys | Commuting | Shopping | Personal | |
| 1,950m | 2,100m | 1,600m | 1,600m | 1,950m |

**Table 5.3 WYG Report/NTS Data Walk Distances**

5.2.14 In summary, the distance of 1,950 metres, or around 2 kilometres, represents an acceptable maximum walking distance for the majority of land uses.

5.2.15 The CIHT guidance 'Planning for Walking' document from 2015 provides a useful reminder of the health benefits of walking. This states that:

*'A brisk 20 minute walk each day could be enough to reduce an individual's risk of an early death.'*

5.2.16 A 20-minute walk equates to a walking distance of around 1,600 metres.

5.2.17 In light of the above review, a pedestrian catchment of 800 metres and 2 kilometres from the centre of the site, using all available pedestrian routes, has been provided in **Plan 4**.

5.2.18 The 800-metre catchment includes the area surrounding the site, including the nearest bus stops along the A56 Walmersley Road, post boxes, medical facilities, a public house and open spaces– all located within a short walk of the development site.

5.2.19 The 2,000-metre pedestrian catchment encompasses areas further from the development such as Lower Summerseat, Brooksbottoms and Higher Woodhill. The catchment includes some neighbourhood shopping areas, education and health facilities and additional convenience stores.

5.2.20 In a recent 2023 YouGov poll, respondents were asked to identify the local amenities they valued the most within a 15-minute walk of their home. The poll results highlight amenities that people consider essential for their day to day lives, such as, grocery stores, healthcare facilities and public transportation. The results of the YouGov Poll are displayed in **Figure 5.2** below:

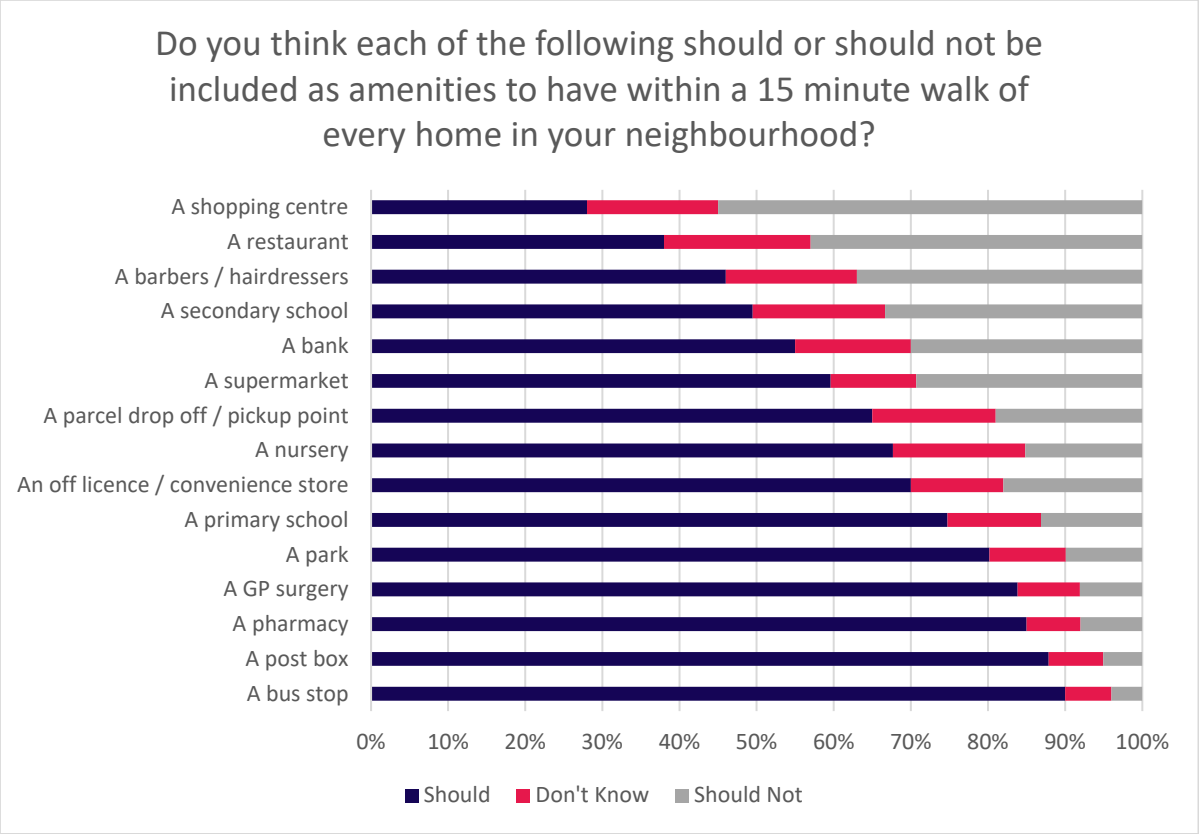



**Figure 5.2 YouGov Poll Results (Source: YouGov)**

5.2.21 **Figure 5.2** shows that the majority of respondents, approximately nine in ten, believe that having a bus stop (90%) and a post box (87%) within a short walk of their home is most important. Similarly, a significant proportion of Britons think that medical facilities like a pharmacy (85%) and a GP surgery (83%) should be easily accessible. Less than half of the respondents see the need for a shopping centre (28%), restaurant (38%), or hairdressers (46%) to be located nearby.

5.2.22 **Plan 4** provides an illustrative indication of the areas that can be reached based on a leisurely walk from the site. The plan also displays nearby local amenities, as per those identified within the findings of the YouGov poll.

5.2.23 As can be seen from the plan, the site is located in close proximity to a number of a local amenities, including a bus stop, school, health facility and a local convenience store.

5.2.24 Table 5.4 below, shows the walking distance from the centre point of site to several of the local key amenities in the immediate vicinity of the site. The table also confirms whether or not the particular amenity is within the 'preferred maximum' walk distances using the above guideline criteria.

| Local Amenity | Distance | Guidance Criteria | Meets with Guidance? |
|---|---|---|---|
| Nearest Bus Stop | 290m | 1,600m | **YES** |
| Post Box | 590m | 1,600m | **YES** |
| The Priory Highbank Mental Health Centre | 755m | 1,600m | **YES** |
| Hartley Gardens | 910m | 1,600m | **YES** |
| Walmersley Food and Booze | 940m | 1,600m | **YES** |
| Summerseat Methodist Primary School | 1,270m | 3,200m | **YES** |
| The Hark to Dandler Public House | 1,280m | 1,600m | **YES** |
| Springside Primary School | 1,330m | 3,200m | **YES** |
| Brooksbottom Cricket Club | 1,410m | 1,600m | **YES** |

| | | | |
|---|---|---|---|
| East Lancashire Railway | 1,510m | 1,600m | **YES** |

**Table 5.4 Distance from Site to Local Facilities**

5.2.25 Based on the review, it is considered that the existing pedestrian infrastructure will facilitate safe and direct walking / wheeling linkages between the site and numerous local services and amenities.

## 5.3 Accessibility by Cycle

5.3.1 An alternative mode of travel to the site could be achieved by bicycle.

5.3.2 The importance of cycling as an alternative mode of travel both now and in the future, is demonstrated by the new rules relating to cyclists contained within the revised Highway Code, which came into force in January 2022.

5.3.3 These new rules, which include the 'Hierarchy of Users' or 'Hierarchy of Responsibility', recognise that drivers of vehicles that can cause the greatest harm in the event of a collision bear the greatest responsibility to take care and reduce the danger to others. This together with the simplification of the rules, to make junctions safer and new rules to tackle dangerous overtaking will provide a road environment where cyclists and pedestrians are given priority, feel safer using the road network and further encourage travel by cycle.

*5.3.4* The Cycling England document 'Integrating Cycling into Development Proposals' advises that '*For short trips, [cycle links] can give cyclists significant advantages over car users in terms of convenience and journey time… Most cycle journeys for non-work purposes and those to rail stations are between 0.5 and 2 miles, but many cyclists are willing to cycle much further. For work, a distance of 5 miles should be assumed.'*

5.3.5 This 8 kilometre (5 mile) distance equates to a journey of around 40 minutes based on a leisurely cycle speed of 12 kilometres per hour and would encompass Bury, Radcliffe, Heywood, Ramsbottom and some parts of Rochdale.

5.3.6 The site is located circa 3.6 kilometre cycling distance (approx-12 minutes journey time at a leisurely cycle speed of 12km per hour) from Bury town centre.

5.3.7 The most direct cycling route to Bury town centre takes cyclists along the A56 Walmersley Road, travelling south all the way to the town centre. The majority if this route is a 30mph zone as the surrounding area is built-up and the route is reasonably flat and suitable for cycling.

5.3.8 The A56 Walmersley Road also includes some dedicated and advisory cycle lanes in some parts, creating a safe route to Bury town centre. These cycle lanes are seen on both sides of the A56 adjacent to the southwest part of the proposed development and carry on southwards until the road meets Springside Road. This route is displayed in **Figure 5.3** below.

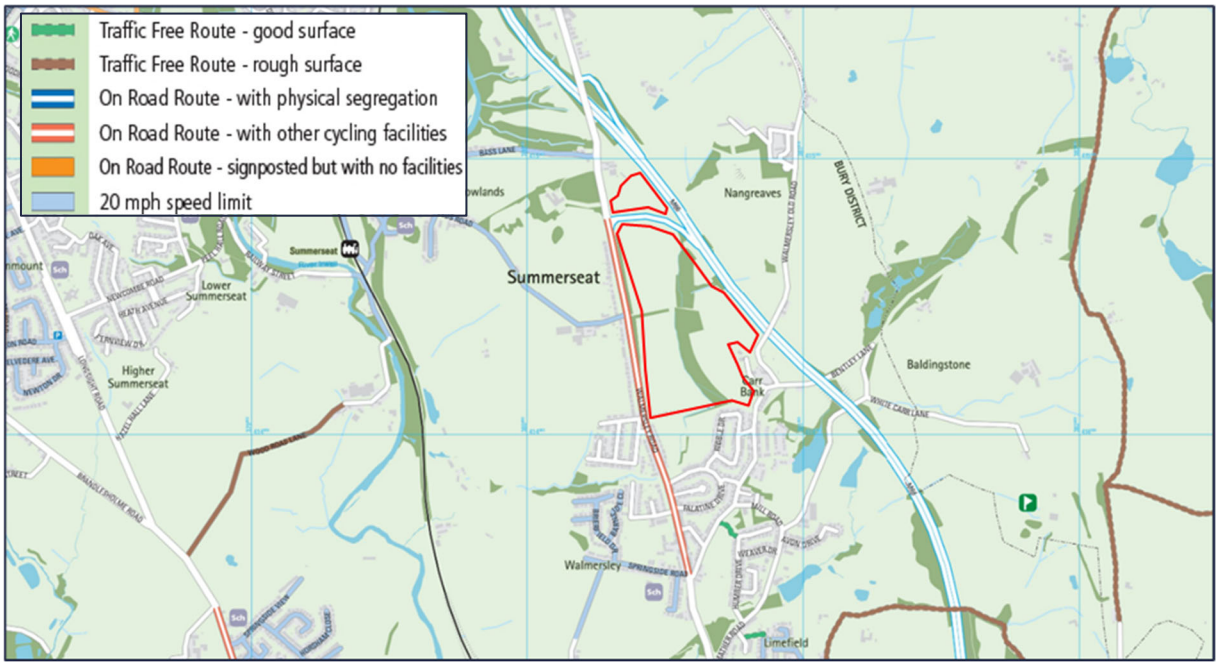



**Figure 5.3 – TFGM GM cycling and walking route map (Source: Transport for Greater Manchester)**

5.3.9 National Cycle Route 6 is located approximately 3.1 km north of the site and around 2.7 km west of the site. The entirety of the route travels from London to the Lake district but enters Manchester via the traffic free Fallowfield Loop Line and up towards the city centre. Towards Bury the route follows much of the Irwell Sculpture Trail, and from Bury north to Accrington the routes are via on-road and traffic free sections of the old East Lancashire Railway Path.

5.3.10 The National Cycle Route Network is shown in **Figure 5.4** below:

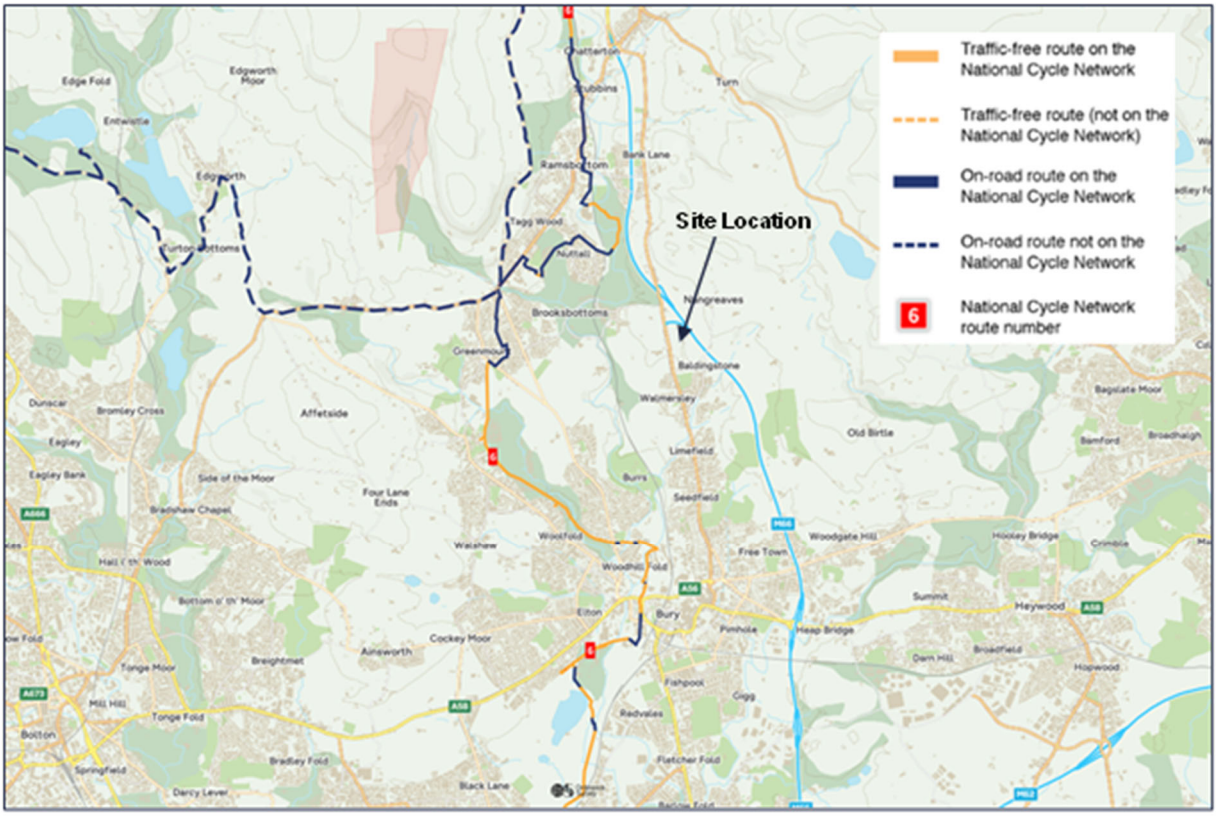



**Figure 5.4 – National Cycle Route Map (Source: Sustrans)**

5.3.11 Based on the review, it is considered that the existing and proposed cycle infrastructure in the vicinity of the site will facilitate safe and direct linkages between the site and numerous key destinations, including Bury town centre. The proposed new public bridleway will also significantly enhance active travel connections and opportunities in the vicinity of the site.

## 5.4 Accessibility by Bus

5.4.1 An effective public transport system is essential for providing good accessibility to large parts of the population. This provides opportunities for work, education, shopping, leisure and healthcare trips in the town and beyond.

5.4.2 The nearest bus stops to the site are located on the A56 Walmersley Road, approximately located around 290m, or around a 2-minute walk, from the approx. centre of the site. Additional bus stops are located further along the A56 Walmersley Road to the north and south.

5.4.3 A summary of the bus services operating from the nearest bus stops are provided in Table 5.5 below.

| Servic No | Route | Monday - Friday | | | Saturday | | | Sun |
|---|---|---|---|---|---|---|---|---|
| | | Pre 08:00 | 08:00-17:00 | Post 17:00 | Pre 08:00 | 08:00-17:00 | Post 17:00 | |
| **472** | Bury — Walmersley — Ramsbottom — Holcombe Brook | 7 services | Every 20 mins | 12 services | 3 services | Every 20 mins | 11 services | 30 services |
| **474** | Bury - Holcombe Brook - Ramsbottom - Walmersley | 6 services | Every 20 mins | 13 services | 6 services | Every 20 mins | 12 services | 29 services |
| **481** | Bury – Rawtenstall – Blackburn | 1 service | Every 60 mins | 2 services | - | Every 60 mins | 2 services | 9 services |
| **483** | Bury - Edenfield - Rawtenstall - Whitewell Bottom - Burnley | 2 services | Every 60 mins | 5 services | 1 service | Every 60 mins | 4 services | 8 services |
| **882** | Tottington High School - Burnley Road | 2 services | 2 services | - | - | - | - | - |
| **898** | Elton High School - Walmersley Road | 1 service | 1 service | - | - | - | - | - |

**Table 5.5 Existing Bus Services Operating in the Vicinity of the Site**

5.4.4 As can be seen from Table 5.5, the nearest bus stops to the site are served by multiple services throughout the day, facilitating access to destinations including Bury town centre, Blackburn, Burnley, Ramsbottom and two different high schools.

5.4.5 These services operate from around 5.10am to around 00:30am, making travel by public transport a real alternative to travelling by car for commuting trips.

5.4.6 In order to demonstrate the level of accessibility some example journey times by bus are presented below Table 5.6 below.

| Destination | Duration |
|---|---|
| Ramsbottom | 10 minutes |
| Bury | 15 minutes |
| Burnley | 57 minutes |
| Blackburn | 1 hour 8 minutes |

**Table 5.6 Example Bus Journey Times from the Site**

5.4.7 The above table demonstrates that Ramsbottom is just a 10-minute bus journey from the site, Bury town centre is just a 15-minute bus journey, Burnley is a 57-minute bus journey, and Blackburn is a 1 hour 8-minute bus journey.

5.4.8 It is therefore concluded that the proposed development site is highly accessible by bus.

## 5.5 Travel by Metrolink

5.5.1 There are no nearby conventional railway stations to the site, however, Bury Tram stop is located within Bury town centre. It is located outside the 2km pedestrian catchment; however, it can be accessed by a 15-minute bus journey on the no. 474, 483 or 481 bus service or by a 12-minute cycle journey.

5.5.2 This tram stop is managed by Transport for Greater Manchester and is a part of the wider bee network. The stop has two platforms operating services towards Manchester Picadilly and Altrincham, with services operating every 12 minutes from 7am to 8pm on weekdays and 9am to 6:30pm on weekends. The stop also has 8 cycle stands.

5.5.3 This provides substantial opportunities to travel to and from the site by tram for all types of journey purposes including, for example, commuting to Manchester sustainably.

5.5.4 Additionally, the East Lancashire Heritage Railway is located within the 2km pedestrian catchment, with stations in Summerseat and Burrs Country Park. This railway line is a heritage railway line running for 20km between Heywood, Greater Manchester, and Rawtenstall, Lancashire. The route has more services in summer months and weekends, with much less in winter months, for instance in August 2025 from the Summerseat station 5 services go daily from Wednesday to Friday with more services on the weekend.

5.5.5 Although a heritage railway is not a primary form of transport it's nonetheless represents a viable and accessible option for accessible travel to and from the nearest stations to the proposed site and into Bury town centre.

## 5.6 Sustainable Access Summary

5.6.1 The proposals have been considered in terms of accessibility by non-car modes for the proposed development.

5.6.2 The following conclusions can be drawn from this section of the report:

- The site is highly accessible by walking / wheeling and these provisions will be improved as part of the works at the development site as well as preserving and enhancing the existing PRoW network.
- The site is well located to cater for trips on foot and provides potential for a high degree of pedestrian trips between the development and the surrounding area, including Bury town centre;
- It has been demonstrated that the site is accessible by cycle, with national and local cycle routes and infrastructure being located within close proximity of the site plus the addition of new on-site facilities including a proposed new public bridleway;
- The services available from the bus stops on the A56 Walmersley Road connects with retail, employment and leisure facilities within Bury, Ramsbottom, Blackburn and Burnley. It can therefore be concluded that the proposed development is highly accessible by bus.

- The Bury Metrolink stop is accessible and provides prospective residents with wider opportunities to travel to and from the site sustainably.

5.6.3 In light of the above, it is considered that the site highly accessible by non-car modes and will cater for needs of the development's residents and assist in promoting a choice of travel modes other than the private car.

# 6 PROMOTING SMARTER CHOICES VIA TRAVEL PLANS

## 6.1 Introduction

6.1.1 In order to encourage resident and visitor travel to the site by non-car modes, a Travel Plan is proposed.

## 6.2 Travel Plan

6.2.1 A Framework Travel Plan is included at **Appendix 2**.

6.2.2 The objective of the Travel Plan is the delivery of the objectives of National Planning Policy, i.e. to encourage residents, employees and visitors of the development to travel by non-car modes of travel. The Travel Plan outlines physical and management measures that are designed to achieve this objective.

6.2.3 The effectiveness of Travel Plans in assisting the use of non-car modes for journeys is intrinsically linked to the accessibility of a given site by means other than the private car.

6.2.4 The proposed development has been demonstrated to benefit from excellent non-car accessibility and it should, therefore, be expected that the adoption of a Travel Plan would be very effective.

# 7 TRAFFIC IMPACT ANALYSIS

## 7.1 Introduction

7.1.1 Having established that the proposed development site is accessible by modes of travel other than the private car and would be in accordance with transport policies, the following section considers the traffic impact of the development proposals on the local highway network.

## 7.2 Assessment Criteria

7.2.1 Given the proposed land uses, the AM and PM weekday peak hours are considered to be those with the greatest impact on the local and strategic highway network.

## 7.3 Growthed Traffic Flows

7.3.1 The proposals seek outline planning permission for up to 350 dwellings, 2,500sqm of employment space and a 249sqm local centre, with access in detail and all other matters reserved for future determination.

7.3.2 It is anticipated that the proposed development will have an opening year of 2028 and will be completed by 2033.

7.3.3 National Highways require an assessment at the opening year, i.e. 2028, assuming full build out and occupation, and TfGM requires a future year at least 5 years later.

7.3.4 The 2028 opening year and 2033 future year traffic flow factors have been derived using TEMPro version 8.1. The application site falls with the Middle Super Output Area (MSOA) Bury 004.

7.3.5 The resulting growth factors are as follows:

- 2023 to 2028 AM Peak – 1.0445.
- 2023 to 2028 PM Peak – 1.0453.

- 2023 to 2033 AM Peak – 1.0961.
- 2023 to 2033 PM Peak – 1.0972.

7.3.6 Relevant 2022 to 2028/33 and 2018 to 2028/33 have also been applied as appropriate. The full TEMPro output is provided at **Appendix 3.**

## 7.4 Growthed Traffic Flows

7.4.1 The resultant 2028 growthed traffic flows are shown in **Figures 5** and **6** for the weekday AM and PM peak periods respectively. Similarly, the 2033 growthed flows are shown in **Figures 7** and **8** for the weekday AM and PM peak periods.

## 7.5 Committed Developments

7.5.1 As part of the analysis, it is important to consider any 'committed' developments in the vicinity of the site, which will need to be considered in the operational assessments.

7.5.2 With the exception of the Edenfield Masterplan 'Local Plan allocation H66 'Land West of Market Street, Edenfield' of Rossendale's Local Plan, Eddisons is not aware of any other committed development in the area that requires explicit consideration, though the growth factors will, in any case, account for planned growth in the area.

7.5.3 The traffic flows associated with the Edenfield Masterplan have been taken from the Transport Assessment associated with the 'Land West of Market Street, Edenfield' (Application Ref: 22/0451). It is understood that these are the latest agreed traffic flows associated with the Edenfield Masterplan.

7.5.4 Therefore, the committed development considered as part of this TA are as follows:

| # | Application reference | Address | Description of development | Status | Traffic Impact |
|---|---|---|---|---|---|
| 1 | 22/0451 | Land West of Market Street, Edenfield | Erection of 238 residential dwellings (Use Class C3) and all associated works, including new access, landscaping and public open space. – Traffic flows accounting for the entirety of the Edenfield Masterplan. | Approved with conditions. | Yes. |

**Table 7.1 Committed Development Sites Considered**

7.5.5 The flows for the committed development sites with an impact have been obtained by reference to the various highway analysis submitted in support of those applications. The applications that have a material impact on the network of assessment are presented in **Figures 9** to **14**, with the total committed development flows displayed in **Figures 15** and **16**.

## 7.6 Base Flows

7.6.1 The total committed development trips have been added to the forecast to produce base flows.

7.6.2 The resultant 2028 base traffic flows are shown in **Figures 17** and **18** for the weekday AM and PM peak periods respectively. Similarly, the 2033 base traffic flows are shown in **Figures 19** and **20** for the weekday AM and PM peak periods respectively.

## 7.7 Proposed Development

7.7.1 As previously stated, the proposals seek outline planning permission for up to 350 residential dwellings along with employment and local centre uses.

**Residential Element**

7.7.2 Transport for Greater Manchester (TfGM) has advised that assessment work should be undertaken using a Vision led, total person-trip approach by applying the appropriate modal share percentages from local Census data.

7.7.3 The Vision for the site aims to provide a green, walkable and thoughtfully designed new neighbourhood which includes local centre uses, employment opportunities and a mobility hub to support active travel and reduce car dependency. It is therefore considered that an element of education, commuting, retail and leisure trips are internalised or undertaken in the immediate vicinity of site using modes of travel other than the private car as much as possible.

7.7.4 In order to determine the person trips associated with the proposed development, reference has been made to the TRICS database. The parameters used are as follows and the TRICS output is provided in **Appendix 4**:

7.7.5 The resulting person trip rates and trips are summarised in Table 7.2, below.

| Mode | Period | Trip Rate | | Total Person Trips |
|---|---|---|---|---|
| | | Arr | Dep | |
| Person | AM Peak Hour | 0.220 | 0.752 | 340 |
| | PM Peak Hour | 0.587 | 0.274 | 301 |

**Table 7.2 TRICS Interrogation Trip Rates and Trips**

7.7.6 As set out previously, the Vision for the site ensures that a proportion of education, commuting, retail and leisure trips are internalised or undertaken using modes of travel other than the private car as much as possible.

7.7.7 In order to consider the potential reduction in trips that may occur, consideration has first been given to Table NTS0502 of the 2023 National Travel Survey, which identifies the percentage trips by trip purpose during the weekday AM and PM peak periods (the AM peak is based on the average of the 0700-0800 and 0800-0900 periods).

7.7.8 Based on this information, the purpose split for each peak period is presented in Table 7.3, below. In this regard, the following groupings were made when collating this data:

- Work = Commuting and Business.

- Education = Education and Escort Education.
- Shopping = Shopping; and
- Other = Other Work/ Other Escort and Personal Business, Visiting Friends/ Entertainment/ Sport, Holiday/ Day Trip/ Other

| Trip Purpose Percentage | | | | |
|---|---|---|---|---|
| **Peak Period** | **Commuting/ Business** | **Education/ Education Escort** | **Shopping** | **Other** |
| **AM Peak** | 31.5% | 38.5% | 4.0% | 26.5% |
| **PM Peak** | 28.0% | 6.0% | 13.0% | 53.0% |

**Table 7.3 National Travel Survey – Peak Hour Trips by Journey Purpose**

7.7.9 Based on the above percentages, Table 7.4 summarises the person trips by journey purpose.

| Peak Period | Commuting/ Business | Education/ Education Escort | Shopping | Other |
|---|---|---|---|---|
| **AM Peak** | 107 | 131 | 14 | 90 |
| **PM Peak** | 84 | 18 | 39 | 160 |

**Table 7.4 National Travel Survey – Peak Hour Trips by Journey Purpose**

7.7.10 In considering mode split, the split for the commuting and business trips has been calculated by reference to the 2011 census journey to work data for the Middle Super Output Area Bury 004.

7.7.11 As no mode split data is available from the census data for the remaining trip purposes, Table NTS0409 of the National Travel Survey has been referred to for the mode split of non-work trips. A breakdown of the mode split for all purposes is presented in Table 7.5, below.

| Person Trip Mode Split by Purpose | | | | |
|---|---|---|---|---|
| **Mode** | **Work** | **Education** | **Shopping** | **Other** |
| **Walk** | 8.7% | 41.3% | 28.8% | 31.7% |
| **Cycle** | 1.7% | 0.9% | 0.6% | 1.5% |
| **Car Driver** | 69.1% | 24.1% | 46.5% | 35.7% |
| **Passenger** | 6.6% | 24.1% | 18.4% | 25.0% |
| **Rail** | 0.4% | 0.9% | 0.6% | 1.7% |
| **Local Bus** | 8.3% | 5.2% | 3.7% | 2.0% |
| **Others** | 5.2% | 3.7% | 1.5% | 2.4% |
| **Total** | 100.0% | 100.0% | 100.0% | 100% |

**Table 7.5 Summary of Person Trip Mode by Journey Purpose**

7.7.12 By applying the person trips by journey purpose to the Car Driver proportions, the vehicular trips by journey purpose for each peak period can be determined. This is set out in Table 7.6, below.

| Two-way Vehicular Trips (350 Dwellings) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Mode** | **Work** | | **Education** | | **Shopping** | | **Other** | | **Total** | |
| | **AM** | **PM** | **AM** | **PM** | **AM** | **PM** | **AM** | **PM** | **AM** | **PM** |
| **Car Driver** | 74 | 58 | 32 | 4 | 6 | 18 | 32 | 57 | 144 | 138 |

**Table 7.6 Summary of Vehicular Trips by Journey Purpose**

7.7.13 Reference to Table 7.2 confirms that the AM peak arrivals and departures represent 23% and 77% of the total two-way trips respectively (i.e. 0.22/0.972 and 0.752/0.972). Similarly, the PM peak arrivals and departures represent 68% and 32% of the total two-way trips respectively.

7.7.14 Applying these splits to the vehicular trips by journey purpose set out in Table 7.6 allows the derivation of vehicular trips by journey purpose by direction. These are summarised in Table 7.7, below.

| Two-way Vehicular Trips (350 Dwellings) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Mode | Work | | Education | | Shopping | | Other | | Total | |
| | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep |
| **AM Peak** | 17 | 57 | 7 | 24 | 1 | 5 | 7 | 25 | *33* | 112 |
| **PM Peak** | 40 | 19 | 3 | 1 | 12 | 6 | 39 | 18 | 94 | 44 |

**Table 7.7 Summary of Vehicular Trips by Journey Purpose by Direction**

7.7.15 The development proposals will incorporate employment opportunities within the site by way of the proposed Local Centre / Employment land uses and a degree of trips will therefore be internalised. Additionally, the residential development will be located close to an existing nursery and primary school which are likely to facilitate an increased amount of education trips by foot. The provision of a Mobility Hub and a robust Travel Plan (including a proposed school walking bus initiative) will further encourage travel by sustainable modes of transport.

7.7.16 In considering the potential impact of primary school trips, it is important to determine the likely split in car borne primary and secondary school trips. In this regard, reference has been made to the 2021 census data for the Bury 004 MSOA, which indicated that 36.2% of children are of primary school age and 63.8% of children are of secondary school age. The census data is included at **Appendix 5.**

7.7.17 It is also important to recognise that a greater proportion of primary school aged children travel to school by car compared to secondary school children.

7.7.18 NTS0613 of the National Travel Survey confirms that in 2024, 43% of primary school children and 30% of secondary school children travelled to school by car.

## Trips to and from school by main mode

**Chart 37: Percentage of trips to and from school by main mode and age: England, 2002 to 2024** (NTS0613)




7.7.19 Applying these proportions to the census data indicates that 35% ((36.2% x 43%) + (63.8% x 30%)) of all school-aged children travel to school by car, with 45% of these being primary school age and 55% being secondary school age.

7.7.20 On this basis, the provision of a primary school nearby would reduce the proportion of car borne education trips by circa 45%.

7.7.21 With regard to work trips, reference to the 2011 journey to work census data for the Bury 004 MSOA indicates that, overall, 69% of trips were undertaken by car. However, for trips to work places within the same MSOA, the proportion of car trips reduces to 45%.

7.7.22 Clearly, therefore, the location of the proposed residential element of the development in close proximity to existing and proposed employment development will likely result in significant levels of residents living close to their place of work and therefore reduce the proportion of work-related car trips.

7.7.23 Whilst not all work trips will be to destinations within the same MSOA as the proposed development, given the above, it is considered reasonable to assume 10% of commuting trips would be to the existing or proposed employment development in the vicinity of the site, with those trips taking place by sustainable modes of transport, i.e. an overall reduction of 10% of work-based car trips.

7.7.24 With regards to shopping trips, the proposed development will include Local Centre uses which may include a local convenience store and will therefore allow top up shopping trips to remain within the site rather than travelling elsewhere.

7.7.25 A study of the UK's supermarket shopping habits by Sainsbury's Nectar highlighted that 74% of shoppers still do "one big shop per week", although almost half will top-up throughout the week, if needed. It could therefore be conservatively estimated that the on-site convenience retail provision would reduce peak hour shopping trips by 25%.

7.7.26 Table 7.8, below, sets out the car borne residential trips should the above reductions be applied.

| Two-way Vehicular Trips (350 Dwellings) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Mode | Work | | Education | | Shopping | | Other | | Total | |
| | ARR | DEP | ARR | DEP | ARR | DEP | ARR | DEP | ARR | DEP |
| **AM Peak** | 15 | 52 | 4 | 13 | 1 | 4 | 7 | 25 | 27 | 94 |
| **PM Peak** | 36 | 17 | 2 | 1 | 9 | 4 | 39 | 18 | 86 | 40 |

**Table 7.7 Summary of Vehicular Trips by Journey Purpose with Reductions**

7.7.27 Based on the above, two-way vehicular trips of 121 would occur during the AM peak and 126 would occur during the PM peak from the residential element of the site.

**Employment Element**

7.7.28 In order to determine the potential levels of traffic associated with the E land use, reference has again been made to the TRICS database. The parameters used are as follows:

- Employment, Business Park,
- All sites between 0 and 6,000 sqm,
- Covid, Greater London and Republic of Ireland sites excluded.

7.7.29 The TRICS output is provided at **Appendix 6**, whilst Table 7.8, below, provides a summary of the peak hour trip rates and trips (based on the total quantum of 2,500 sqm).

| Mode | Period | Trip Rate | | Trips | |
|---|---|---|---|---|---|
| | | Arr | Dep | Arr | Dep |
| Vehicles | AM Peak Hour | 1.424 | 0.220 | 36 | 6 |
| | PM Peak Hour | 0.289 | 0.533 | 7 | 14 |

**Table 7.8 Proposed E Trip Rates and Trips**

7.7.30 As discussed earlier, a proportion of employees of the proposed employment development are likely to reside in the proposed residential development and it would be reasonable to assume that the employment trip rates should be discounted as a consequence of this.

7.7.31 However, no discount has been applied to the employment trip rates to reflect this, which will add robustness to the analysis.

7.7.32 On this basis, as can be seen from the above table, the proposed employment element is predicted to result in 42 two-way vehicular trips during the weekday AM peak and 21 two-way trips during the weekday PM peak.

**Local Centre Element**

7.7.33 As stated, the application will provide up to 249 sqm of new local centre uses, potentially including a local convenience store or other comparison retail uses (no specific retailers are signed up contractually at this stage).

7.7.34 Given the scale and nature of a Local Centre use, it is considered that the trips will be internalised and have therefore been treated as ancillary. To control the quantum and type of retail provision ultimately delivered on site, Eddisons understands that conditions will be invited on any subsequent planning permission and restrictions will be applied to the proposed floorspace.

## 7.8 Trip Distribution and Assignment

**Residential Trip Distribution**

7.8.1 To assign the proposed residential development trips to the local highway network, reference has been made to the 'Location of Usual Residence and Place of Work' data available from the 2011 census (Dataset WU03EW).

7.8.2 The application site falls with the MSOA Bury 004. The census data identifies the destination of residents travelling by car and, by using route planning software, the likely routes residents would take when travelling to the various destinations has been determined.

7.8.3 The census data and route assumptions are included in **Appendix 7**.

7.8.4 The resulting trip distribution is shown in **Figure 21**.

**Employment Trip Distribution**

7.8.5 In order to assign the employment trips to the highway network, reference has again been made to the Location of Usual Residence and Place of Work data available from the 2011 census.

7.8.6 As previously advised, the application site falls with the MSOA Bury 004.

7.8.7 The census data and route assumptions are included at **Appendix 8**, and the resulting employment trip distribution for the site is shown in **Figure 22**.

**Trip Assignment**

7.8.8 The forecast development trips have been assigned using the above detailed trip distributions and are presented in **Figures 23** to **28.**

## 7.9 'With Development' Traffic Flows

7.9.1 The resultant 2028 and 2033 'With Development' traffic flows are shown in **Figures 29** to **32** for the weekday AM and PM peak periods respectively.

## 7.10 Impact Assessment

7.10.1 Having derived the base levels of traffic and the levels of traffic that would occur as a result of the development proposals, the likely changes in traffic that would be experienced on the local highway network can be derived.

7.10.2 Table 7.9, below, summarises the changes in traffic that are predicted to occur at the junctions on the local highway network under consideration as a result of the development proposals for the weekday AM and PM peak periods.

| | 2028 Base Flows | 2028 With Dev Flows | Change in Traffic | Percentage Change |
|---|---|---|---|---|
| **Junction 1: A56 Walmersley Road / Walmersley Old Road / Springside Road** | | | | |
| Weekday AM Peak | 1400 | 1455 | +55 | +3.9% |
| Weekday PM Peak | 1573 | 1621 | +48 | +3.1% |
| **Junction 2: A56 Walmersley Road / M66 Off-Slip** | | | | |
| Weekday AM Peak | 1580 | 1687 | +107 | +7.1% |
| Weekday PM Peak | 2061 | 2160 | +99 | +4.8% |
| **Junction 3: A56 Walmersley Road / M66 On-Slip** | | | | |
| Weekday AM Peak | 2300 | 2372 | +72 | +3.1% |
| Weekday PM Peak | 2108 | 2152 | +44 | +2.1% |

| | | | | |
|---|---|---|---|---|
| **Junction 4: A56 Manchester Road / Bury New Road** | | | | |
| Weekday AM Peak | 1985 | 2007 | +22 | +1.1% |
| Weekday PM Peak | 2014 | 2034 | +20 | +1.0% |
| **Junction 5: A56 Whalley Road / Wood Lane** | | | | |
| Weekday AM Peak | 972 | 989 | +17 | +1.7% |
| Weekday PM Peak | 1156 | 1172 | +16 | +1.3% |
| **Junction 6: M66 / A56 (Edenfield) Roundabout** | | | | |
| Weekday AM Peak | 1906 | 1923 | +17 | +0.9% |
| Weekday PM Peak | 1953 | 1969 | +16 | +0.8% |

**Table 7.9 Predicted Changes in Traffic Flow**

7.10.3 As can be seen in Table 7.9, the proposed development is forecast to generate 22 two-way trips in Weekday AM peak period and 20 two-way trips in the PM peak period at the A56 Manchester Road / Bury New Road junction. This equates to increases in traffic of 1.1% during the weekday AM peak and 1.0% during the weekday PM peak or equivalent to an additional two-way trip approximately 2-3 minutes on to the local highway network in the worst peak period. As such, it is our view that the increase in traffic at this junction as a result of the development proposals would not be material and within typical daily fluctuations at the junction.

7.10.4 The proposed development is forecast to generate 17 two-way trips in Weekday AM peak period and 16 two-way trips in the PM peak period at theA56 Whalley Road / Wood Lane. This equates to increases in traffic of 1.7% during the weekday AM peak and 1.3% during the weekday PM peak or equivalent to an additional two-way trip approximately 3-4 minutes on to the local highway network in the worst peak period. As such, it is our view that the increase in traffic at this junction as a result of the development proposals would not be material.

7.10.5 In addition, the M66 / A56 (Edenfield) Roundabout junction is predicted to experience increases in traffic of 0.9% (+17 two-way trips) during the weekday AM peak and 0.8% (+16 two-way trips) during the weekday PM peak. The overall traffic impact at this junction will only be around one additional vehicle every 3-4 minutes even in the busiest periods of the day and based on robust assumptions. It is therefore considered the impact at this junction is not material.

7.10.6 In order to fully advise the highway authority, detailed capacity assessments have been undertaken at the following junctions:

- Junction 1: A56 Walmersley Road / Walmersley Old Road / Springside Road.
- Junction 2: A56 Walmersley Road / M66 Off-Slip.
- Junction 3: A56 Walmersley Road / M66 On-Slip.

## 7.11 Capacity Assessments

**A56 Walmersley Road / Proposed Northern Site Access (Employment)**

7.11.1 To assess the operation of the proposed A56 Walmersley Road / Proposed Northern Site Access priority junction, reference has been made to the PICADY module of the JUNCTIONS 11 computer program.

7.11.2 The results for the 2033 'With Development Flows' scenario are contained within Table 7.10, below, with the full PICADY output being contained within **Appendix 9.**

| Movement | 2033 With Development | | | |
|---|---|---|---|---|
| | Weekday AM | | Weekday PM | |
| | Max RFC | Max Queue | Max RFC | Max Queue |
| **Proposed Site Access (Left Turn)** | 0.01 | 0 | 0.01 | 0 |
| **Proposed Site Access (Right Turn)** | 0.01 | 0 | 0.04 | 0 |
| **A56 Walmersley Road** | 0.04 | 0 | 0.01 | 0 |

**Table 7.10 Summary of PICADY for the A56 Walmersley Road / Proposed Northern Site Access – 2033 Assessment Flows**

7.11.3 As can be seen from the above table, the A56 Walmersley Road / Proposed Northern Site Access junction is predicted to operate well within capacity during both peak periods in 2033.

**A56 Walmersley Road / Proposed Southern Site Access (Residential)**

7.11.4 To assess the operation of the proposed A56 Walmersley Road / Proposed Southern Site Access priority junction, reference has been made to the PICADY module of the JUNCTIONS 11 computer program.

7.11.5 The results for the 2033 'With Development Flows' scenario are contained within Table 7.11, below, with the full PICADY output being contained within **Appendix 10.**

| Movement | 2033 With Development | | | |
|---|---|---|---|---|
| | Weekday AM | | Weekday PM | |
| | Max RFC | Max Queue | Max RFC | Max Queue |
| **Proposed Site Access** | 0.38 | 0 | 0.19 | 0 |
| **A56 Walmersley Road** | 0.02 | 0 | 0.06 | 0 |

**Table 7.11 Summary of PICADY for the A56 Walmersley Road / Proposed Southern Site Access – 2033 Assessment Flows**

7.11.6 As can be seen from the above table, the A56 Walmersley Road / Proposed Southern Site Access junction is predicted to operate well within capacity during both peak periods in 2033.

**Junction 1: A56 Walmersley Road / Walmersley Old Road / Springside Road signalised junction**

7.11.7 To assess the operation of the existing A56 Walmersley Road / Walmersley Old Road / Springside Road signalised junction, reference has been made to the LINSIG computer program.

7.11.8 The results for the existing operation of the junction (Surveyed Flows) are contained within Table 7.12, below, whilst Table 7.13 contains the results for the '2033 Base Flow' and the '2033 With Development Flows' scenarios. The full LINSIG output is contained within **Appendix 11.**

| Approach | Surveyed Flows | | | |
|---|---|---|---|---|
| | Weekday AM | | Weekday PM | |
| | DoS | MMQ | DoS | MMQ |
| **Walmersley Road (S) Left Ahead Right** | 37.8% | 6 | 53.7% | 10 |
| **Springside Road Right Left Ahead** | 45.5% | 2 | 32.1% | 1 |
| **Walmersley Road (N) Ahead Right Left** | 46.3% | 8 | 46.7% | 8 |
| **Walmersley Old Road Left Ahead Right** | 19.1% | 1 | 9.7% | 0 |

**Table 7.12 Summary of LINSIG for the A56 Walmersley Road / Walmersley Old Road / Springside Road signalised junction – Surveyed Flows**

7.11.9 The surveyed flows result in some limited queuing at this junction. This reflects the observations of average queuing levels at the time of the survey.

| Approach | 2033 Base Flows | | | | 2033 With Dev | | | |
|---|---|---|---|---|---|---|---|---|
| | Weekday AM | | Weekday PM | | Weekday AM | | Weekday PM | |
| | DoS | MMQ | DoS | MMQ | DoS | MMQ | DoS | MMQ |
| **Walmersley Road (S) Left Ahead Right** | 41.9% | 7 | 60.9% | 13 | 44.0% | 8 | 64.4% | 14 |
| **Springside Road Right Left Ahead** | 49.2% | 2 | 35.0% | 1 | 51.1% | 3 | 35.9% | 1 |
| **Walmersley Road (N) Ahead Right Left** | 52.4% | 10 | 51.6% | 10 | 54.9% | 11 | 54.2% | 11 |
| **Walmersley Old Road Left Ahead Right** | 20.9% | 1 | 10.3% | 0 | 21.5% | 1 | 10.9% | 1 |

**Table 7.13 Summary of LINSIG for the A56 Walmersley Road / Walmersley Old Road / Springside Road signalised junction – 2033 Assessment Flows**

7.11.10 As can be seen from the above table, the A56 Walmersley Road / Walmersley Old Road / Springside Road signalised junction is predicted to operate within capacity during both the 2033 base and with development scenarios and the impact of the development proposals at the junction is forecast to be negligible with a maximum increase in queue levels of just 1 vehicle.

**Junction 2: A56 Walmersley Road / M66 Off-Slip**

7.11.11 To assess the operation of the existing A56 Walmersley Road / M66 Off-Slip signalised junction, reference has been made to the LINSIG computer program.

7.11.12 The LINSIG model is based on the model agreed with National Highways as part of the committed development 'Land West of Market Street, Edenfield' (Application Ref: 22/0451. It is understood that extensive discussions were held with National Highways in relation to the validation of this LINSIG model.

7.11.13 The results for the 2023 'Surveyed Flows' are contained within Table 7.14, below, whilst Table 7.15 contains the results for the '2033 Base Flow' and the '2033 With Development Flows' scenarios, with the full LINSIG output being contained within **Appendix 12.**

| Approach | 2023 Surveyed Flows | | | |
|---|---|---|---|---|
| | Weekday AM | | Weekday PM | |
| | DoS | MMQ | DoS | MMQ |
| **A56 North ahead** | 56.6% | 14 | 41.6% | 9 |
| **M66 Off-Slip left** | 4.1% | 0 | 10.9% | 0 |
| **M66 Off-Slip right** | 39.7% | 8 | 75.3% | 20 |
| **A56 South ahead** | 56.8% | 14 | 74.2% | 20 |

**Table 7.14 Summary of LINSIG for the A56 Walmersley Road / M66 Off-Slip – 2023 Surveyed Flows**

7.11.14 The 2024 surveyed flows result in some queuing at this junction. This reflects the observations of average queuing levels at the time of the survey.

| Approach | 2033 Base Flows | | | | 2033 With Dev | | | |
|---|---|---|---|---|---|---|---|---|
| | Weekday AM | | Weekday PM | | Weekday AM | | Weekday PM | |
| | DoS | MMQ | DoS | MMQ | DoS | MMQ | DoS | MMQ |
| **A56 North ahead** | 61.3% | 16 | 44.3% | 10 | 64.1% | 17 | 46.5% | 11 |
| **M66 Off-Slip left** | 4.3% | 0 | 11.5% | 0 | 4.5% | 0 | 12.2% | 0 |
| **M66 Off-Slip right** | 42.1% | 9 | 81.6% | 24 | 44.2% | 9 | 85.5% | 26 |
| **A56 South ahead** | 61.6% | 15 | 82.7% | 24 | 64.6% | 16 | 86.6% | 26 |

**Table 7.15 Summary of LINSIG for A56 Walmersley Road / M66 Off-Slip – 2033 Assessment Flows**

7.11.15 As can be seen from the above table, the A56 Walmersley Road / M66 Off-Slip signals are predicted to operate within capacity during both the 2033 base and with development scenarios and the impact of the development proposals at the junction is forecast to be negligible with a maximum increase in queue levels of just 2 vehicles.

**Junction 3: A56 Walmersley Road / M66 On-Slip**

7.11.16 To assess the operation of the A56 Walmersley Road / M66 On-Slip, the PICADY module of the JUNCTIONS 11 computer program has been used.

7.11.17 The results for the 2023 'Surveyed Flow' scenarios are contained within Table 7.16, below, whilst Table 7.17 contains the results for the 2033 'Base Flow' and the '2033 With Development Flow' scenarios. The full ARCADY output is contained within **Appendix 13.**

| Movement | 2023 Surveyed Flows | | | |
|---|---|---|---|---|
| | Weekday AM | | Weekday PM | |
| | Max RFC | Max Queue | Max RFC | Max Queue |
| A56 Manchester Road (S) Right Turn | 0.63 | 2 | 0.21 | 0 |

**Table 7.16 Summary of PICADY for the A56 Walmersley Road / M66 On-Slip – 2023 Surveyed Flows**

7.11.18 As can be seen in Table 7.16, the 2024 surveyed flows result in little or no queuing at this junction. This reflects the observations at the time of the survey.

| Movement | 2033 Base Flows | | | | 2033 With Development | | | |
|---|---|---|---|---|---|---|---|---|
| | Weekday AM | | Weekday PM | | Weekday AM | | Weekday PM | |
| | Max RFC | Max Queue | Max RFC | Max Queue | Max RFC | Max Queue | Max RFC | Max Queue |
| A56 Manchester Road (S) Right Turn | 0.76 | 3 | 0.24 | 0 | 0.87 | 6 | 0.29 | 0 |

**Table 7.17 Summary of PICADY for the A56 Walmersley Road / M66 On-Slip – 2033 Assess**

7.11.19 A56 Walmersley Road / M66 On-Slip roundabout junction is predicted to operate within capacity in both the 2033 Base Flow Scenario and the 2033 future year assessment scenario. With minimal forecast increase in queueing.

## 7.12 Capacity Assessment Summary

7.12.1 In summary, the capacity assessment undertaken as part of this traffic impact analysis has demonstrated the following:

- The proposed site access junction has been designed to accord with highway design standards and will have sufficient capacity to accommodate the proposed development traffic.

- The proposed development will have a minimal impact at all the other assessed junctions on the local highway network.

7.12.2 It is therefore concluded that the development proposals will result in a minimal impact and can be accommodated on the local highway network.

## 7.13 Impact on Holcroft Moss

*7.13.1* Eddisons are aware of the recently adopted Supplementary Planning Document 'Holcroft Moss Planning Obligations', which advises that:

*'Any proposals that would result in increased traffic flows on the M62 past Holcroft Moss of more than 100 vehicles per day or 20 Heavy Goods Vehicles (HGVs) per day must devise a scheme-specific range of measures to reduce reliance on cars, reduce trip generation, promote ultra-low emission vehicles, and provide a contribution towards restoration measures at Holcroft Moss.'*

7.13.2 Given the nature of the proposed development, the number of HGVs visiting the site would be extremely low so a consideration of HGV numbers would not be relevant.

7.13.3 Holcroft Moss is a circa 20-mile drive from the application site. Given the remoteness of Holcroft Moss, the proposals would have an extremely limited impact on this part of the road network.

7.13.4 There are very few destinations that would result in trips from the site travelling along the relevant section of the M62 and this has been considered as part of the proposed traffic distribution. Only trips between the site and Warrington (the closest large town to Holcroft Moss) are forecast to route via M62 (see **Appendix 7**) and these trips equate to less than 1% of the sites trip generation or circa 18 two-way daily trips.

7.13.5 The impact on Holcroft Moss is therefore considered negligible.

# 8 ACCIDENT ANALYSIS

8.1.1 Stats19 data has been obtained from the Department for Transports published data for the last 5-year period, from 2019 to 2023. This was the most recent data available at the time of writing.

8.1.2 The study area focuses on the following locations;

- A56 Walmersley Road in the vicinity of the proposed site accesses.
- Walmersley Old Road in the vicinity of the proposed secondary site accesses.
- A56 / M66 Junction 1 - Off-Slip.
- A56/ Bass Lane priority junction.
- A56 / M66 Junction 1 – On-Slip.
- A56 / A56 Bury Road priority junction.
- Edenfield Roundabout – A56 / M66 Junction 2.

8.1.3 Table 8.1, below, provides a breakdown of the severity of accidents that have occurred across the network by location:

| Location | Severity | | |
|---|---|---|---|
| | Slight | Serious | Fatal |
| A56 Walmersley Road / Site Access frontage | 0 | 0 | 0 |
| Walmersley Old Road / Site Access frontage | 0 | 0 | 0 |
| A56 / M66 Junction 1 - Off-Slip | 1 | 0 | 0 |
| A56/ Bass Lane priority junction | 2 | 0 | 0 |
| A56 / M66 Junction 1 – On-Slip | 1 | 0 | 0 |
| A56 / A56 Bury Road | 1 | 0 | 0 |

| | | | |
|---|---|---|---|
| Edenfield Roundabout – A56 / M66 Junction 2 | 2 | 2 | 0 |
| **TOTAL** | **7** | **2** | **0** |

**Table 8.1 Summary of PICs Within Study Area**

8.1.4 As can be seen from the above, a total of nine recorded accidents have occurred within the study area over the latest five-years. Of the reported incidents, seven accidents resulted in slight injuries, two in serious injuries and no fatalities.

**A56 Walmersley Road in the vicinity of the proposed site accesses**

8.1.5 There have been no recorded accidents on Walmersley Road in the vicinity of the proposed site accesses in the past 5 years, as shown in Figure 8.1 below.

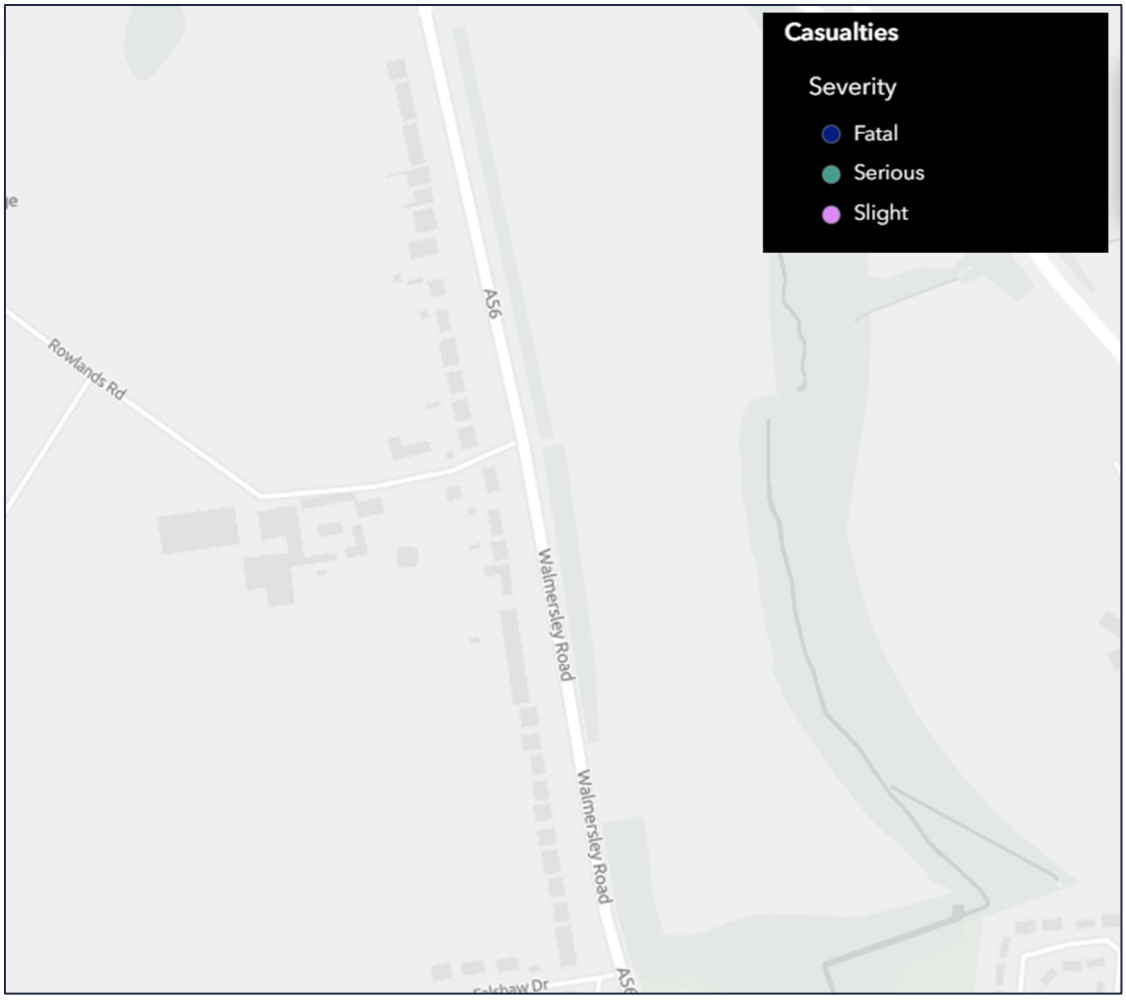



**Figure 8.1 – DfT Stats 19 Accident Plot – A56 Walmersley Road / Site Frontage**

8.1.6 The data reviewed has not identified any accidents at this location and therefore it is considered that the road is operating in a safe and efficient manner in the vicinity of the proposed site access points.

**Walmersley Old Road in the vicinity of the proposed secondary site accesses.**

8.1.7 There have been no recorded accidents on Walmersley Old Road in the vicinity of the proposed secondary site accesses in the past 5 years, as shown in Figure 8.2 below.

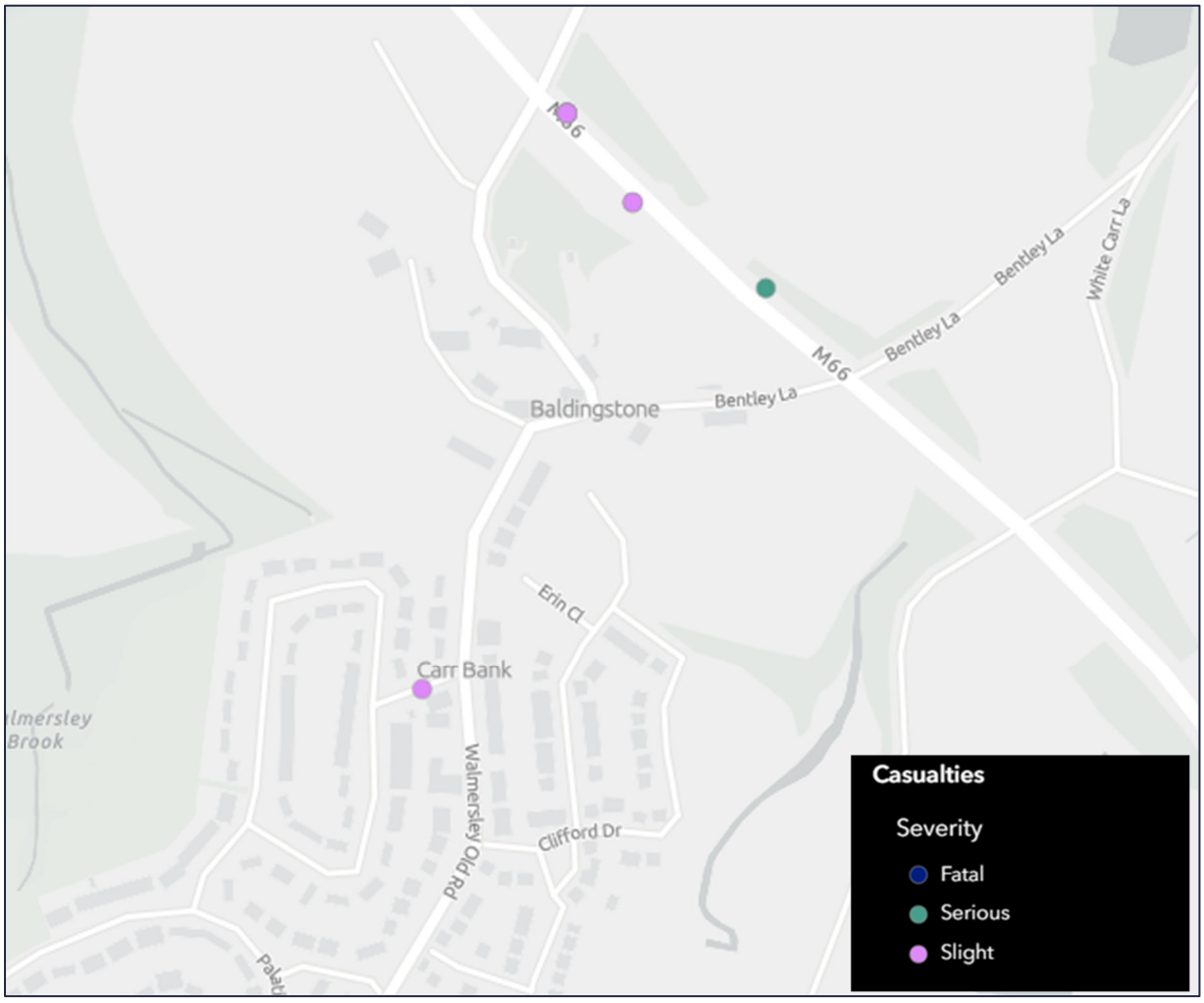



**Figure 8.2 – DfT Stats 19 Accident Plot – Walmersley Old Road / Site Frontage**

8.1.8 The data reviewed has not identified any accidents at this location and therefore it is considered that the road is operating in a safe and efficient manner in the vicinity of the proposed site access points.

**A56 / M66 Junction 1 - Off-Slip**

8.1.9 There has been one recorded accident at the A56 / M66 Junction 1 - Off-Slip junction in the past 5 years, as shown in Figure 8.3 below.

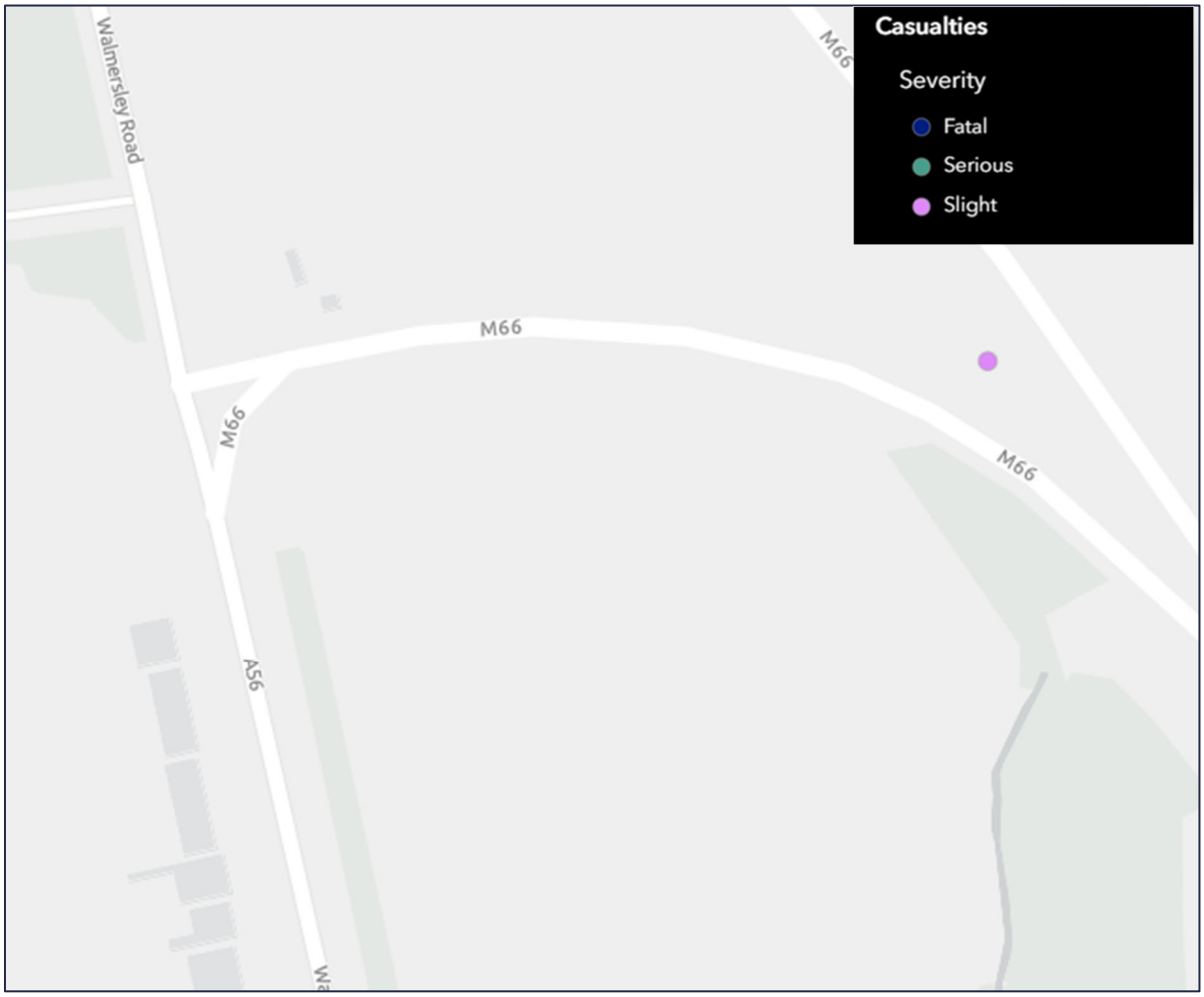



**Figure 8.3 – DfT Stats 19 Accident Plot – A56 / M66 Junction 1 - Off-Slip**

8.1.10 The one accident shown above occurred away from the junction with the A56 and was classified as slight in severity. It involved a vehicular collision, with no pedestrian or cycle accidents occurring at the junction.

### A56/ Bass Lane priority junction

8.1.11 There have been two recorded accidents at the A56/ Bass Lane priority junction in the past 5 years, as shown in Figure 8.4 below.

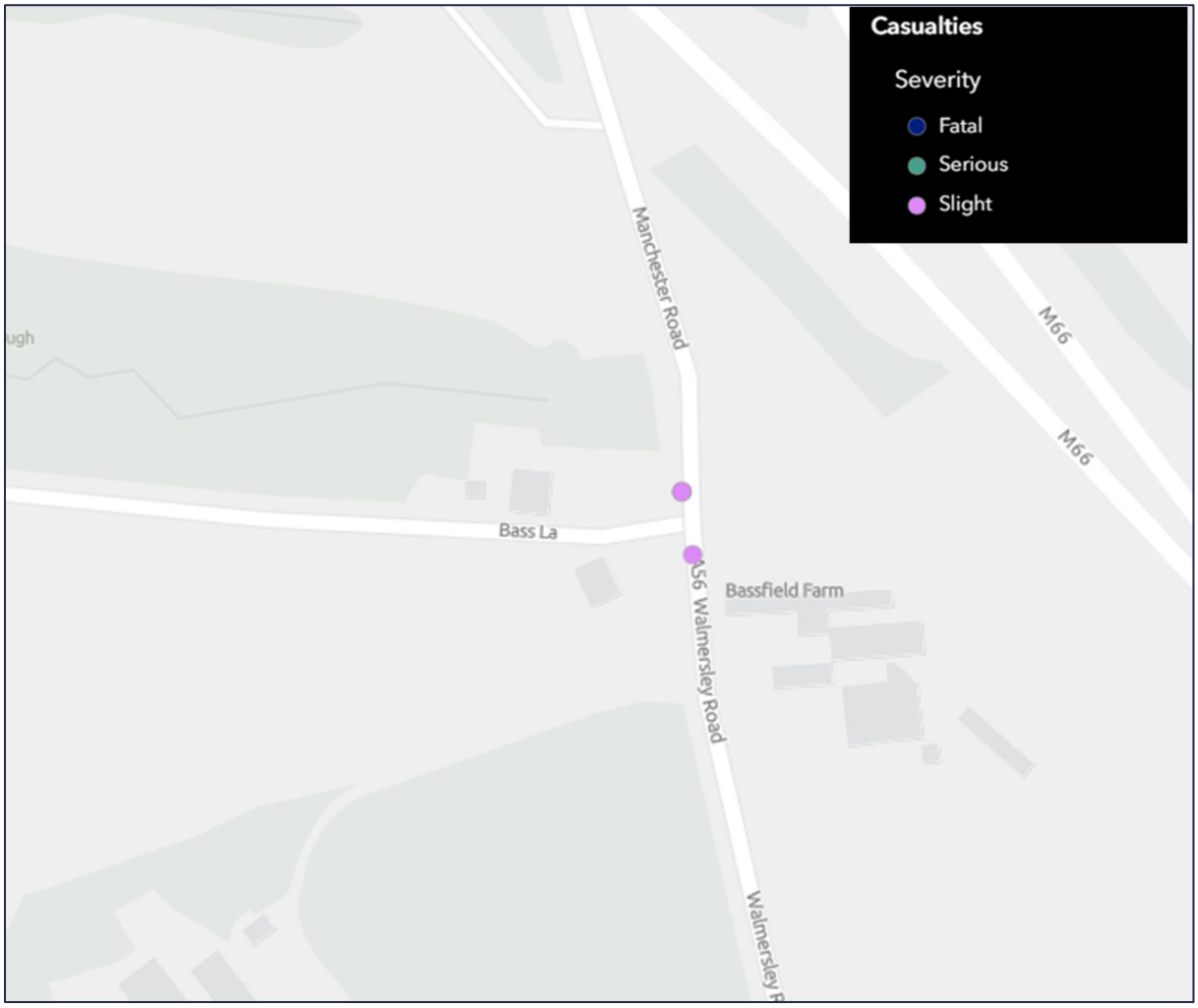



**Figure 8.4 – DfT Stats 19 Accident Plot – A56/ Bass Lane priority junction**

8.1.12 Of the two accidents shown above, both accidents were classified as slight in severity and both accidents involved vehicles with no pedestrian or cycle accidents occurring at the junction.

**A56 / M66 Junction 1 – On-Slip**

8.1.13 There has been one recorded accident at the A56 / M66 Junction 1 – On-Slip in the past 5 years, as shown in Figure 8.5 below.

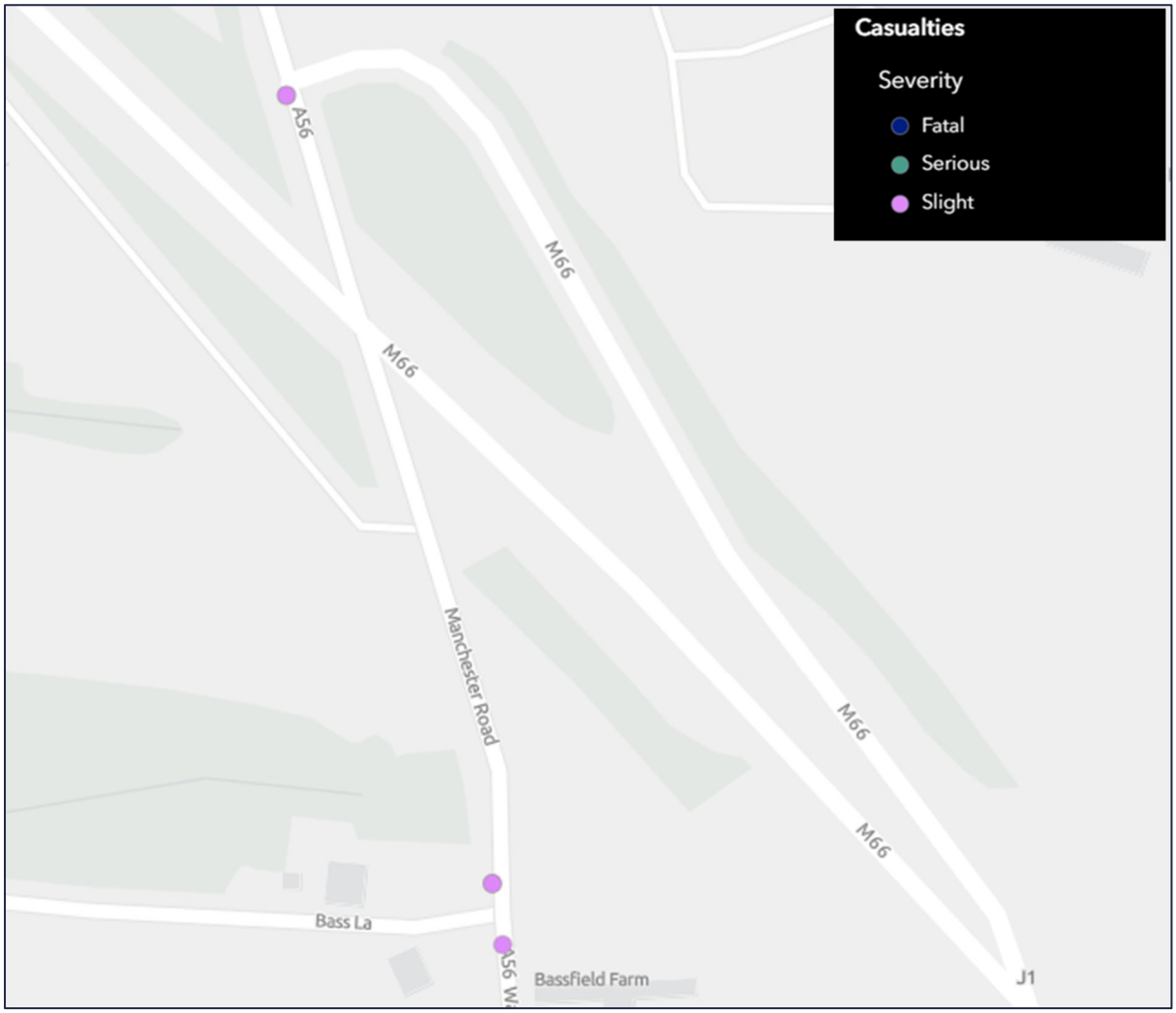



**Figure 8.5 – DfT Stats 19 Accident Plot – A56 / M66 Junction 1 – On-Slip**

8.1.14 The one accident shown above was classified as slight and involved a vehicular collision, with no pedestrian or cycle accidents occurring at the junction.

**A56 / A56 Bury Road priority junction.**

8.1.15 There has been one recorded accident at the A56 / A56 Bury Road priority junction in the past 5 years, as shown in Figure 8.6 below.

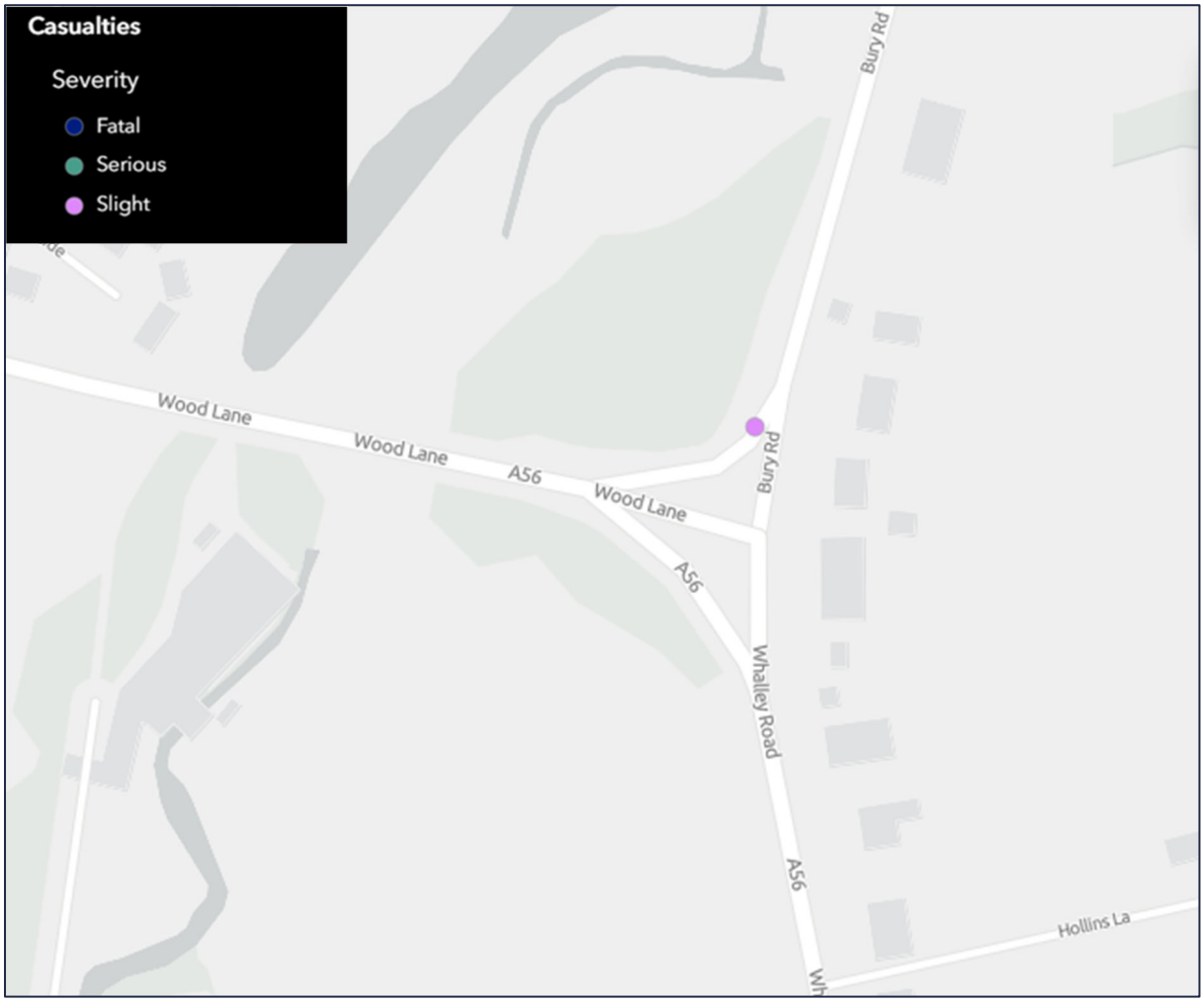



**Figure 8.6 – DfT Stats 19 Accident Plot – A56 / A56 Bury Road**

8.1.16 The one accident shown above was classified as slight and involved a vehicular collision, with no pedestrian or cycle accidents occurring at the junction.

**Edenfield Roundabout – A56 / M66 Junction 2.**

8.1.17 There have been four recorded accidents at the A56 / M66 Junction 2 roundabout junction in the past 5 years, as shown in Figure 8.7 below.

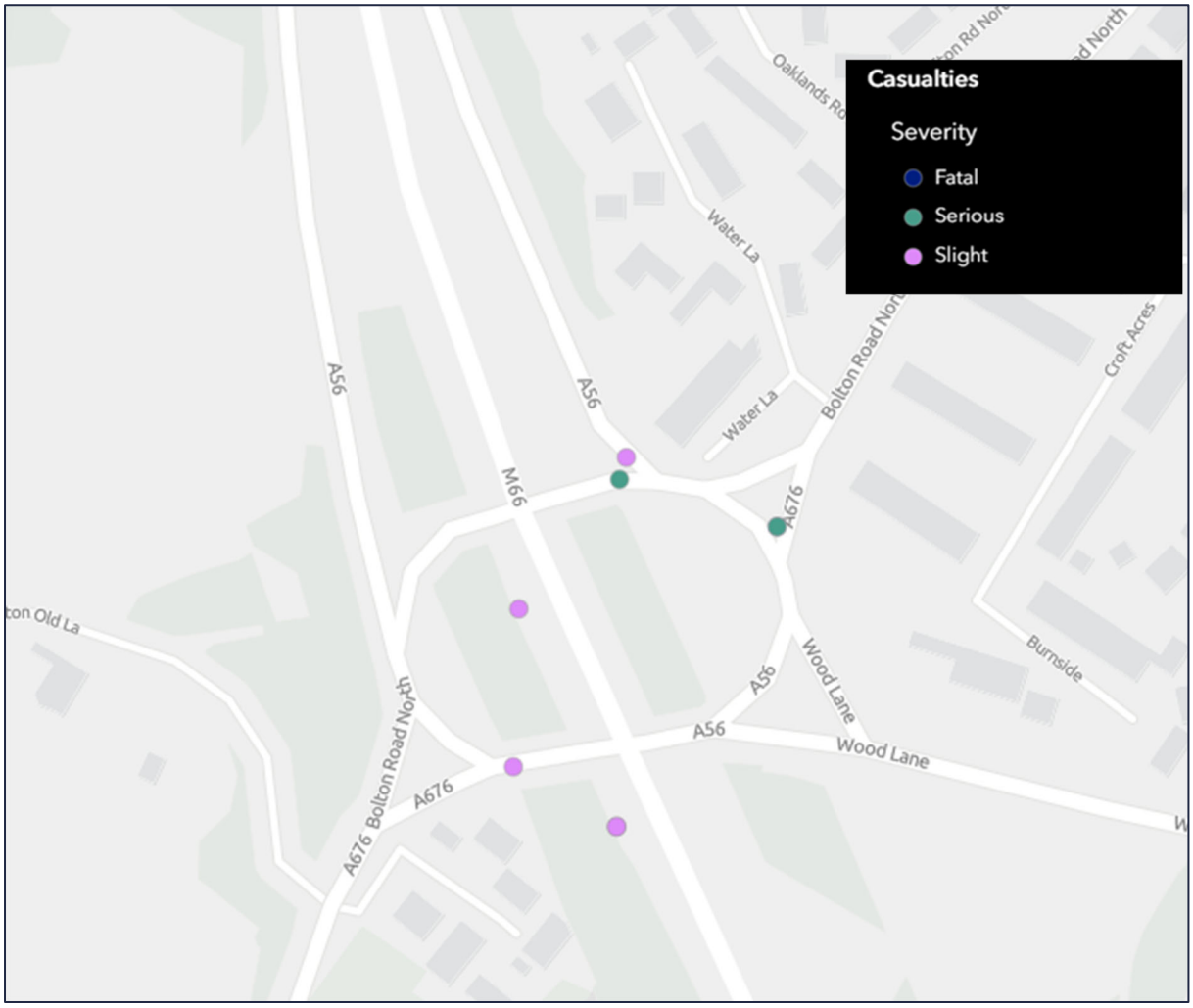



**Figure 8.7 – DfT Stats 19 Accident Plot – Edenfield Roundabout – A56 / M66 Junction 2**

8.1.18 Of the four accidents occurring on Edenfield Roundabout and its approaches, two accidents were classified as serious and two accidents were classified as slight in severity. The serious accident in the vicinity of the M66 off-slip involved a pedal cyclist whilst all other accidents involved vehicles with no pedestrian accidents occurring at the junction.

## 8.2 Accident Analysis Summary

8.2.1 Whilst any accident is regrettable, given the level of traffic the highway network in the study area experiences and the number of accidents across the study area, equating to an average 1.8 accidents per year, it is not considered that it suffers from an unduly poor safety record and there is no reason why this should alter as a result of the proposed development.

8.2.2 The evidence shows that there are no particular engineering issues or problems with the road network or junction layouts and there are no reasons why this situation should be materially worsened as a consequence of the development proposals.

# 9 CONCLUSIONS

9.1.1 Eddisons have been instructed by Hollins Strategic Land LLP to advise on the traffic and transport issues relating to an outline planning application for a residential led development on land to the east of Walmersley Road in Bury.

*9.1.2* The proposals seek outline planning permission for:

*'Outline planning application with all matters reserved other than access for mixed use development for up to 350 dwellings, up to 2,500 sq mts employment/commercial uses, a local centre comprising up to 249 sq mts of retail floorspace, mobility hub, public open space and associated infrastructure.'*

The proposed quantum of development is as follows:

- Up to 350 dwellings.
- Up to 2500 sqm employment.
- Up to 249 sqm local centre.

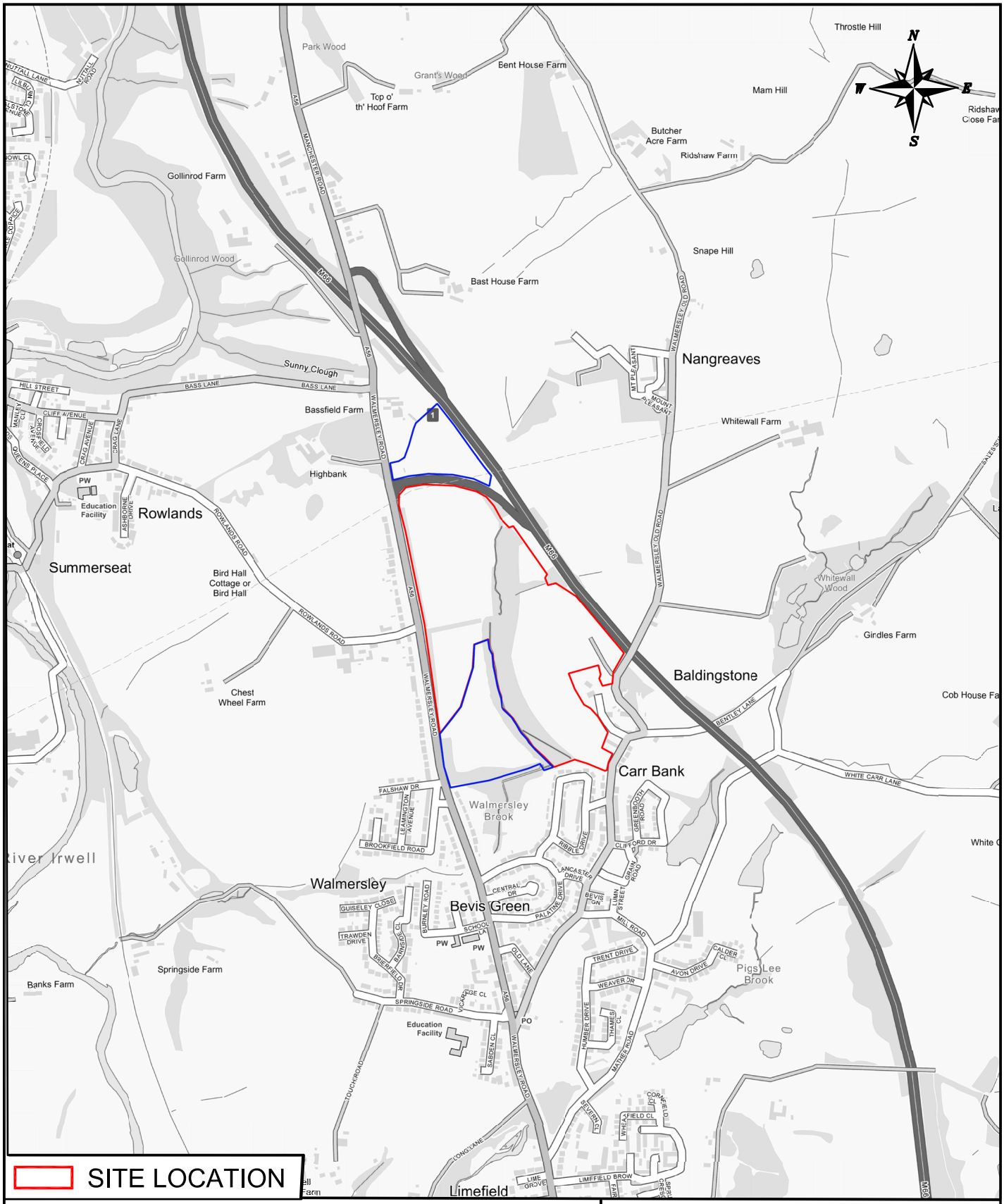
9.1.3 The following conclusions have been drawn regarding the proposed development:

- The proposed development will be accessed by safe and efficient vehicular access arrangements;
- The proposed development complies with national and local planning policy;
- The site promotes sustainable transport in accordance with NPPF as it facilitates sustainable development and contributes to wider sustainability objectives;
- The proposed development benefits from being highly accessible by walking / wheeling with the existing pedestrian footways providing access to a wide of range of services;
- The proposed development is ideally located to encourage journeys by bus via a number of bus services available in the vicinity of the site;

- A Travel Plan will be implemented to encourage the use of non-car modes;
- The traffic impact assessments undertaken have shown that the proposals will not have a material impact or give rise to any highways related issues. It can therefore be concluded that the proposed development would be able to be accommodated onto the local highway network;
- There is no evidence to suggest that the highway network has an unduly poor safety record and there are no reasons why the proposals would have an adverse effect on road safety or the number of accidents on the local highway network.

9.1.4 In conclusion, the proposed development will provide a sustainable development in transport terms and planning permission should be granted in accordance with the NPPF.

# PLANS




SITE LOCATION

CLIENT:

HOLLINS STRATEGIC LAND

DRAWING TITLE:

LAND TO THE EAST OF WALMERSLEY ROAD, BURY

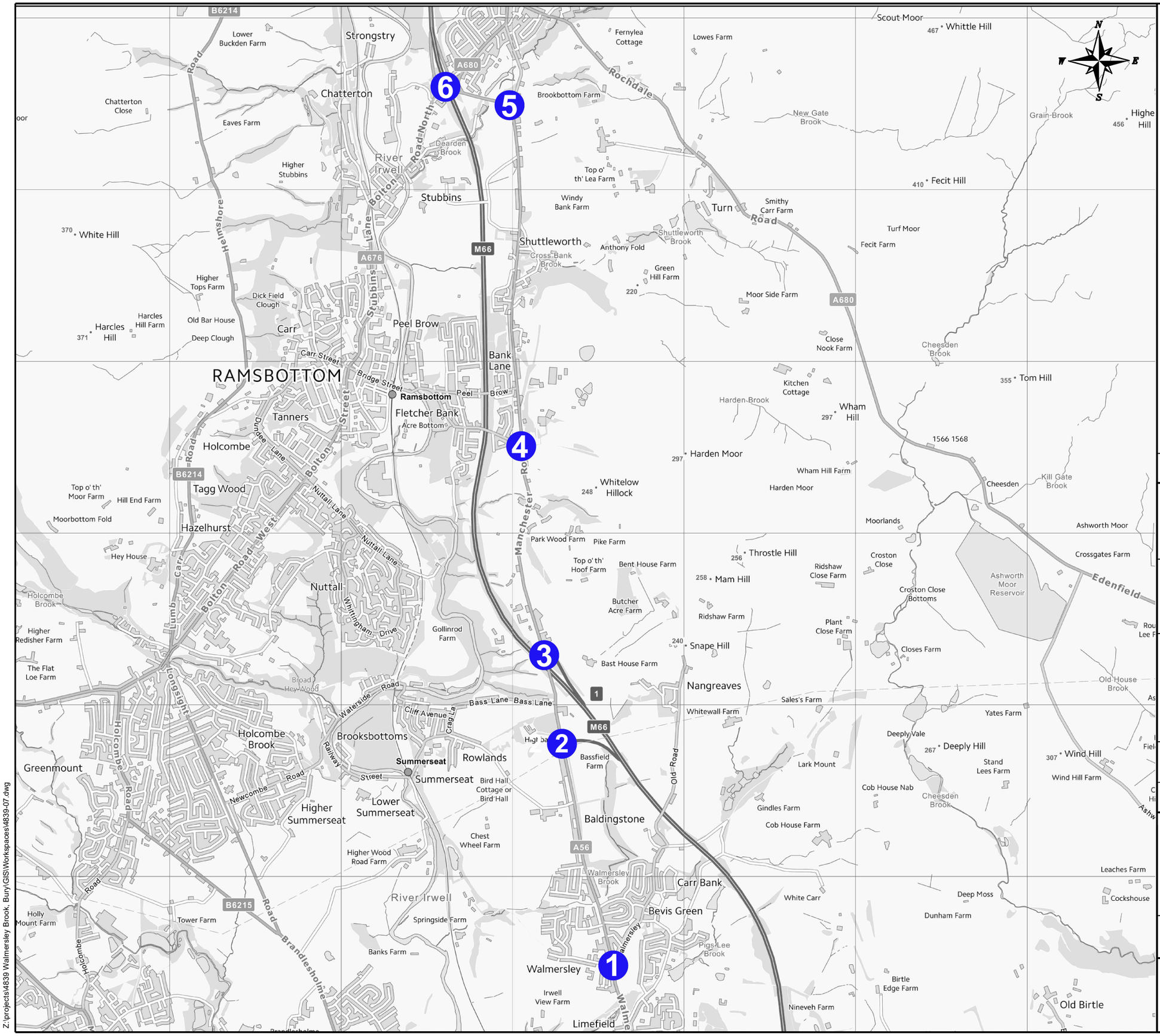
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M3 4LY

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Tel: 0161 837 7380
Web: www.eddisons.com/services/transport-planning


| DRAWING NUMBER: | REVISION: |
|---|---|
| 4839-01 | - |

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## NOTES

1. A56 Walmersley Road / Walmersley Old Road / Springside Road
2. A56 Walmersley Road / M66 Off-Slip
3. A56 Walmersley Road / M66 On-Slip
4. A56 Manchester Road / Bury New Road
5. A56 Whalley Road / Wood Lane
6. M66 / A56 ( Edenfield) Roundabout

| REV | DETAILS | DRAWN | CHECKED | DATE |
|---|---|---|---|---|
| - | - | - | - | - |

CLIENT:

# HOLLINS STRATEGIC LAND

PROJECT:

LAND TO THE EAST OF WALMERSLEY ROAD, BURY

DRAWING TITLE:

JUNCTION LOCATION PLAN

SCALES:

NTS @ A3

| DRAWN: | CHECKED: | DATE: |
|---|---|---|
| SC | MC | DEC 25 |


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M3 4LY

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Web: www.eddisons.com/services/transport-planning


| DRAWING NUMBER: | REVISION: |
|---|---|
| 4839-07 | - |

Eddisons

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Mast
(Telecommunication)

Proposed Public Open Space
(subject to Change of Use application)

Recreation Ground

Sports Court

Play Area

Reservoir

Mount
Pleasant

ESS

Nangreaves

Mill House

Baldingstone House

CARR
BANK

Longcroft
Cottages

Nabbs Farm

Bassfield
Farm

Bassfield

Pond

Issues

Track

Pipeline

Shelter

LB

El Sub Sta

Letter Box

Bassfield
South

Oak View

Ivy Cottage

Robins Bank

Bank Top

The Barn

Works

PH

Mill Pool

Path (um)

CG

A 56

M 66

WALMERSLEY ROAD

WALMERSLEY OLD ROAD

FALSHAW DRIVE

RIBBLE DRIVE

ERIN CLOSE

GREENBROOTH ROAD

STRATFORD AVENUE

LEAMINGTON AVENUE

BURNLEY ROAD

171.0m

161.2m

148.1m

142.3m

214.0m

200.3m

167.6m

158.5m

Application Site

Site Associated with the Application Site

Primary Access Point

Secondary Access Point

Existing Access Point / Proposed Bridleway Access

Residential Developable Area

Local Centre Including Residential

Employment Zone

Mobility Hub

Focal Dwelling

Key Frontage

Potential Locations for Formal Play

Potential Locations for SuDS

Primary Street

Narrowing of Primary Street

Access Route to Mobility Hub, Local Centre and Employment

Potential Recreational Routes

Potential Bridleway Route

Existing PRoW (Public Rights of Way)

Proposed Area of Public Open Space
(Subject to Change of Use application)

**NOTES:**

SCALE: Do not scale from this drawing.

SETTING OUT: All setting out, levels, dimensions to be agreed on site. Do not use the information on this drawing without checking all dimensions on site. Any discrepancies between drawings, specifications and site works are to be reported to The Urbanists. Order of construction and setting out is to be agreed on site.

CHECK: This drawing must be the latest revision, read in conjunction with all other drawings, details, specifications and schedules. All dimensions are in millimetres unless otherwise stated. Where any contradiction or uncertainty arises between the drawings and/or the schedule of works / specification, it is the Contractor's responsibility to seek varification from The Urbanists before proceeding. No claims will be met by The Urbanists, where the Contractor continues work in absence of such confirmation.

| No. | Date | By | Revision Notes |
|---|---|---|---|

**PROJECT STATUS:**

S2 (SUITABLE FOR INFORMATION)

theurbanists

Client Hollins Strategic Land

Project Land East of Walmersley Road, Bury

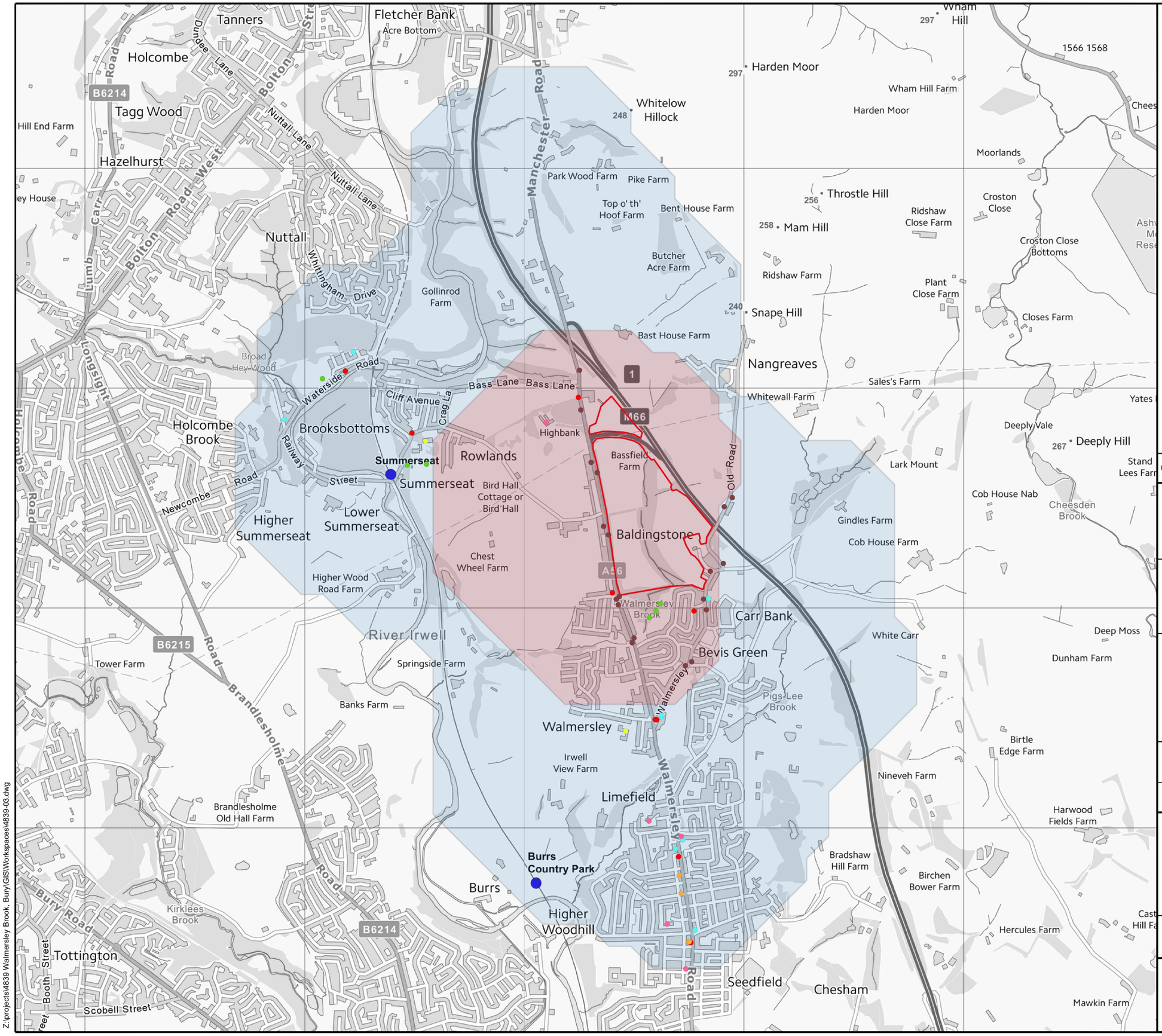
Title Illustrative Masterplan

| Project ID | Organiser | Volume | Level | Type | Role | Dwg | Suit. | Rev. |
|---|---|---|---|---|---|---|---|---|
| 2492 | URB | XX | XX | DR | UD | 011 | S0 | - |

Drawn HW Date 01/12/2025 Checked JD Scale 1:1000 @A1

The Urbanists (Cardiff) - Westgate House - 11 Womanby Street - CF10 1BR
The Urbanists (Bristol) - Generator Building - Finzels Reach - BS1 6BX
T: 029 2023 6133 E: info@theurbanists.net W: www.theurbanists.net

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## NOTES

- Site Location
- 2km Pedestrian Catchment
- 800m Pedestrian Catchment
- Nearest Train Station
- Nearest Bus Stops
- Café/Takeaway/Public House
- Education
- Medical/Healthcare
- Post Box/Post Office
- Sport/Leisure/Park
- Supermarket/Local Food Store

| REV | DETAILS | DRAWN | CHECKED | DATE |
|---|---|---|---|---|

CLIENT:

HOLLINS STRATEGIC LAND

PROJECT:

LAND TO THE EAST OF WALMERSLEY ROAD, BURY

DRAWING TITLE:

2KM & 800M PEDESTRIAN CATCHMENT WITH AMENITIES

SCALES: NTS @ A3

| DRAWN: | CHECKED: | DATE: |
|---|---|---|
| HJ | MC | AUG 25 |


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DRAWING NUMBER: 4839-03

REVISION: -

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# FIGURES

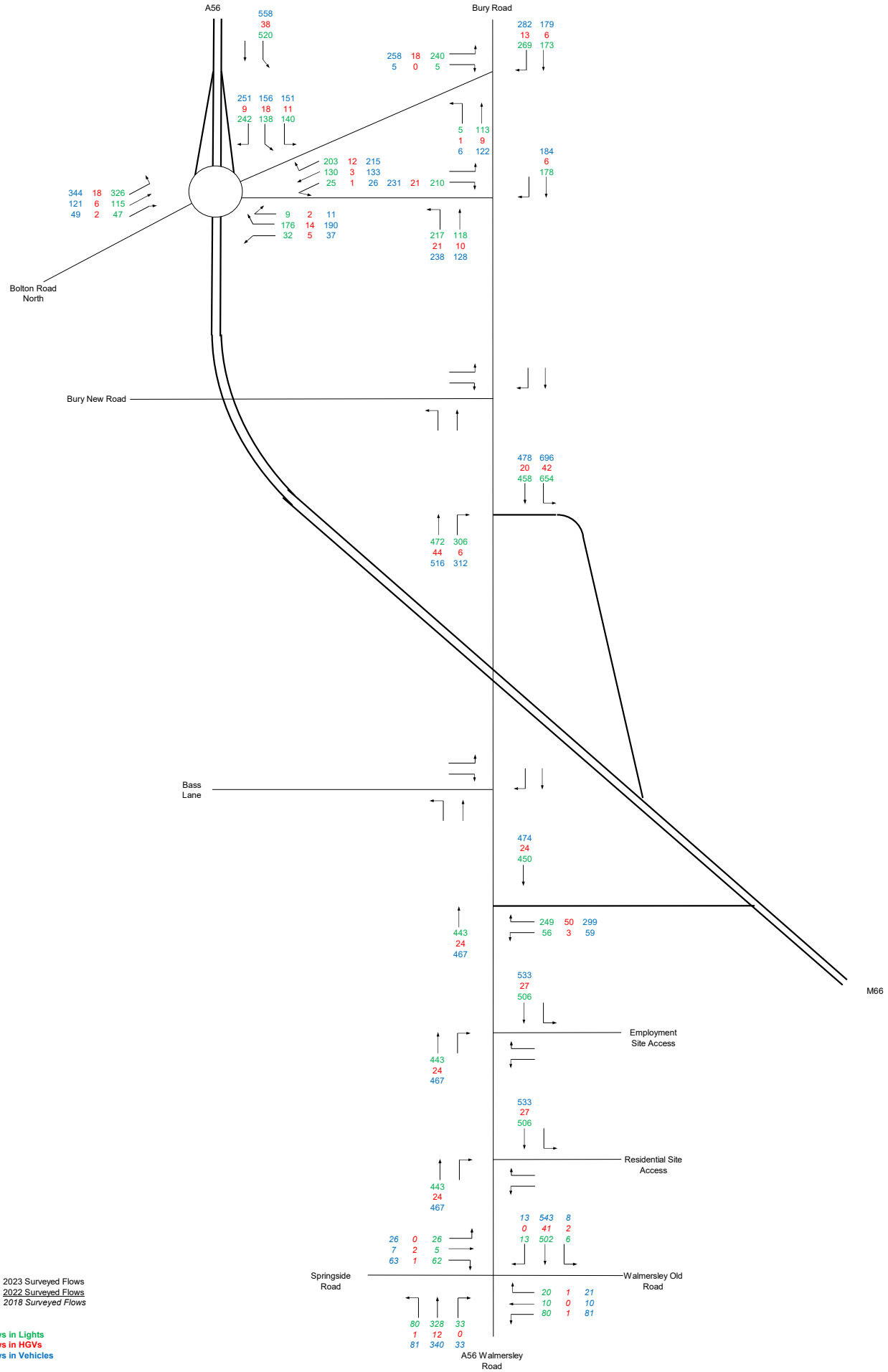
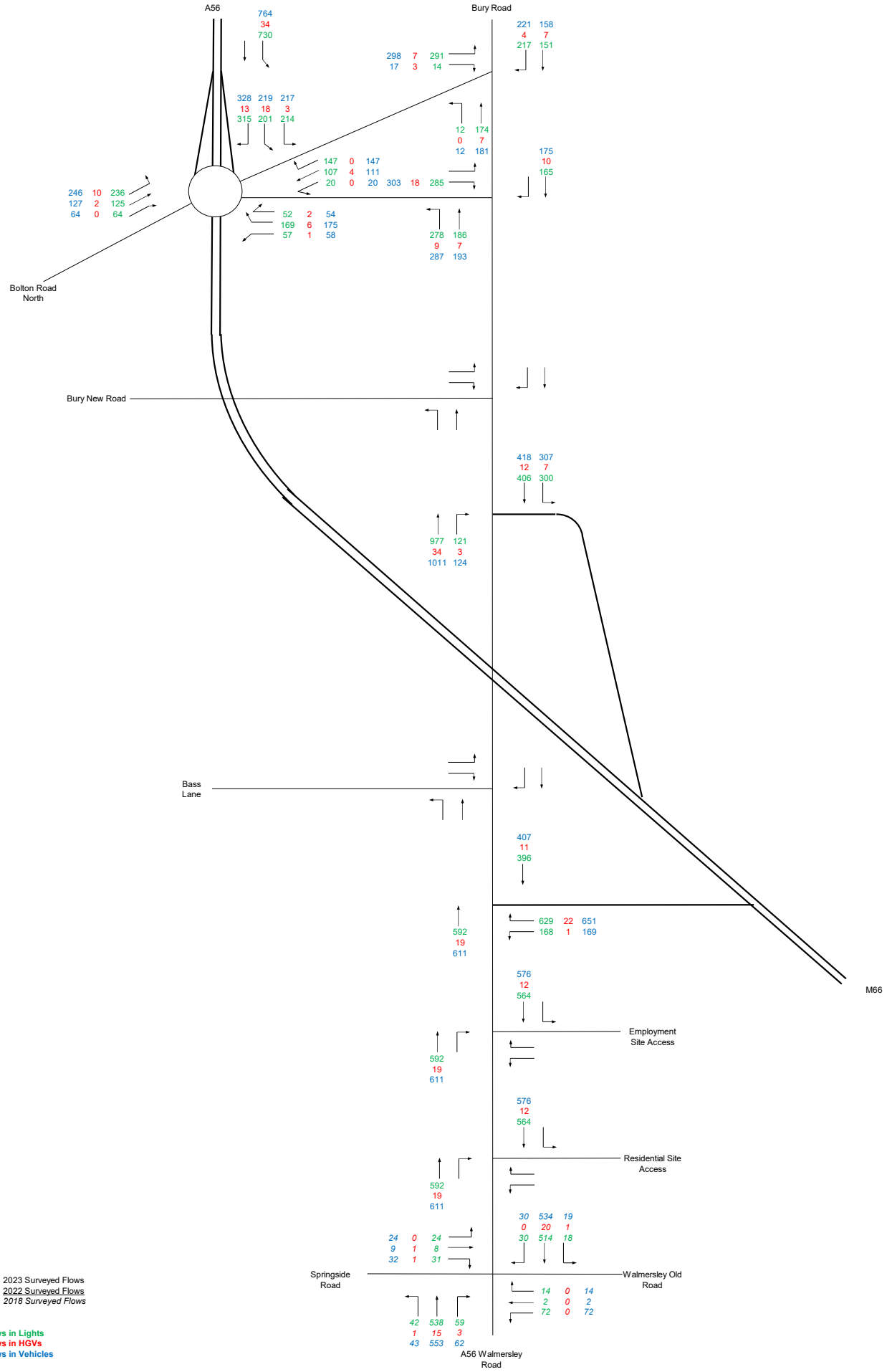



**Figure 1 2023 Surveyed Flows - Weekday AM Peak (0800-0900)**

Eddisons

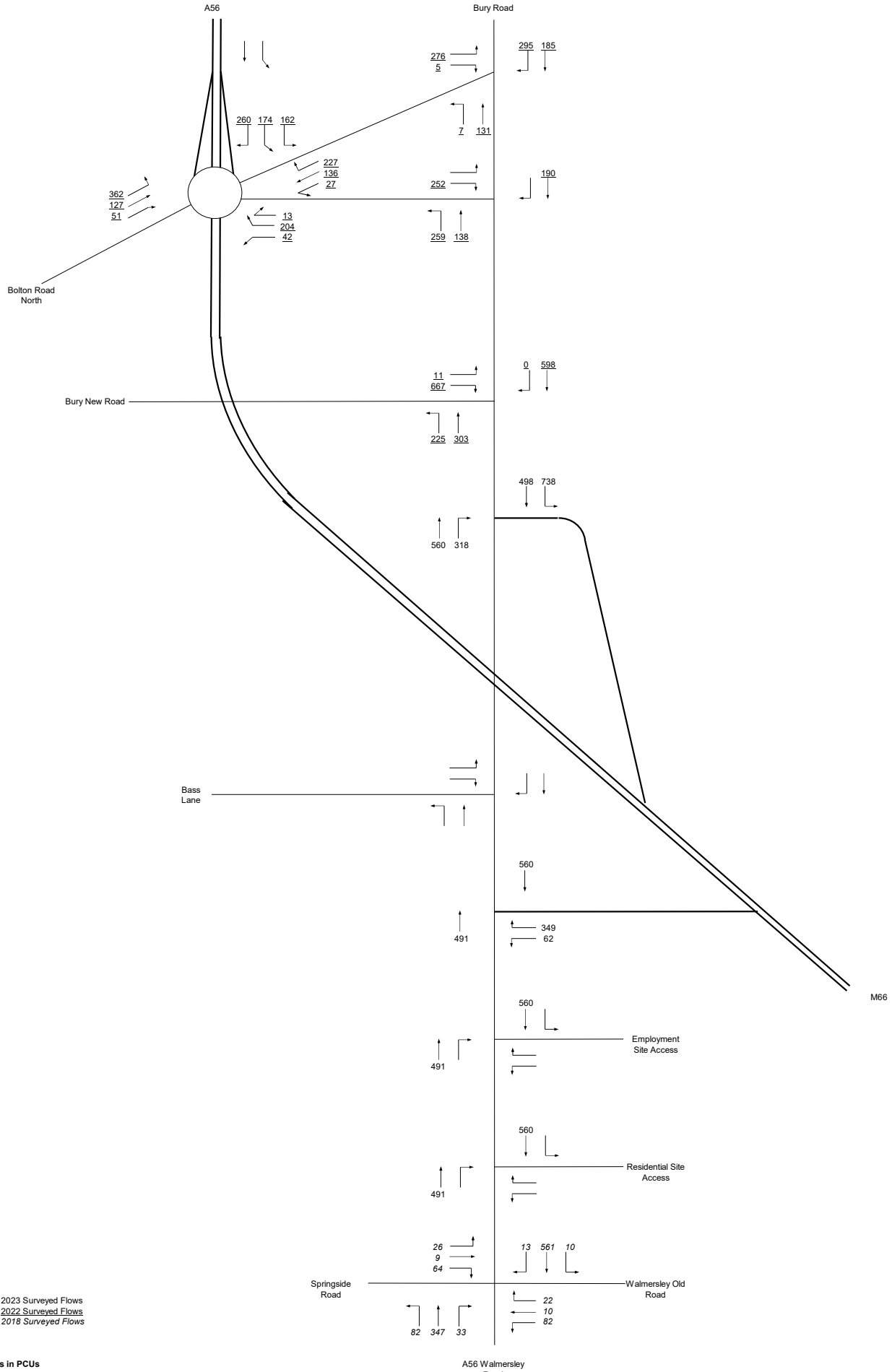



999 2023 Surveyed Flows
999 2022 Surveyed Flows
*999 2018 Surveyed Flows*

**Flows in Lights**
**Flows in HGVs**
**Flows in Vehicles**

**Figure 2 2023 Surveyed Flows - Weekday PM Peak (1630-1730)**

Eddisons

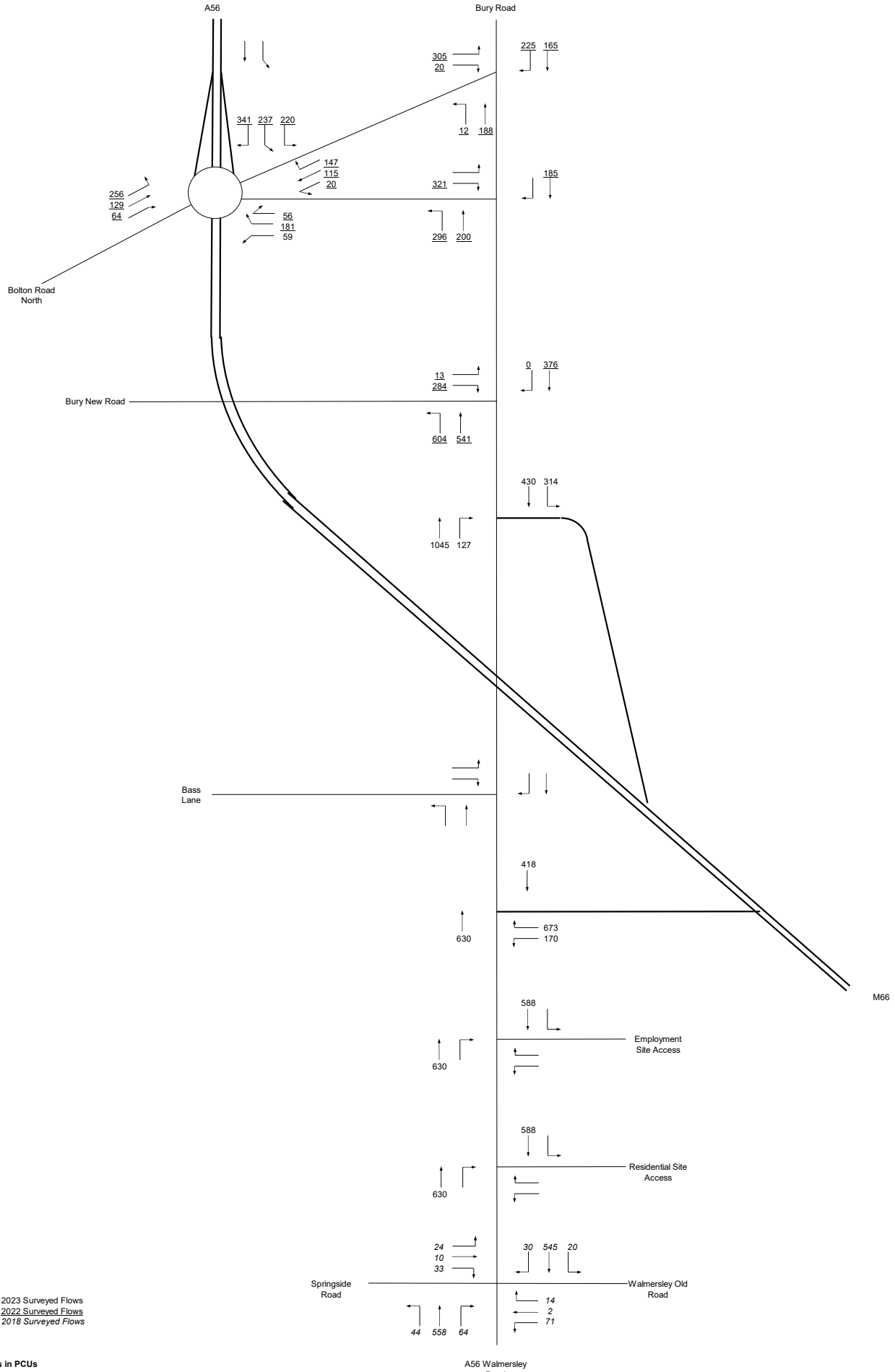



999 2023 Surveyed Flows
999 2022 Surveyed Flows
*999 2018 Surveyed Flows*

**Flows in PCUs**

**Figure 3 2023 Surveyed Flows - Weekday AM Peak (0800-0900) - PCUs**

Eddisons




999 2023 Surveyed Flows
999 2022 Surveyed Flows
*999 2018 Surveyed Flows*

**Flows in PCUs**

**Figure 4 2023 Surveyed Flows - Weekday PM Peak (1630-1730) - PCUs**

Eddisons

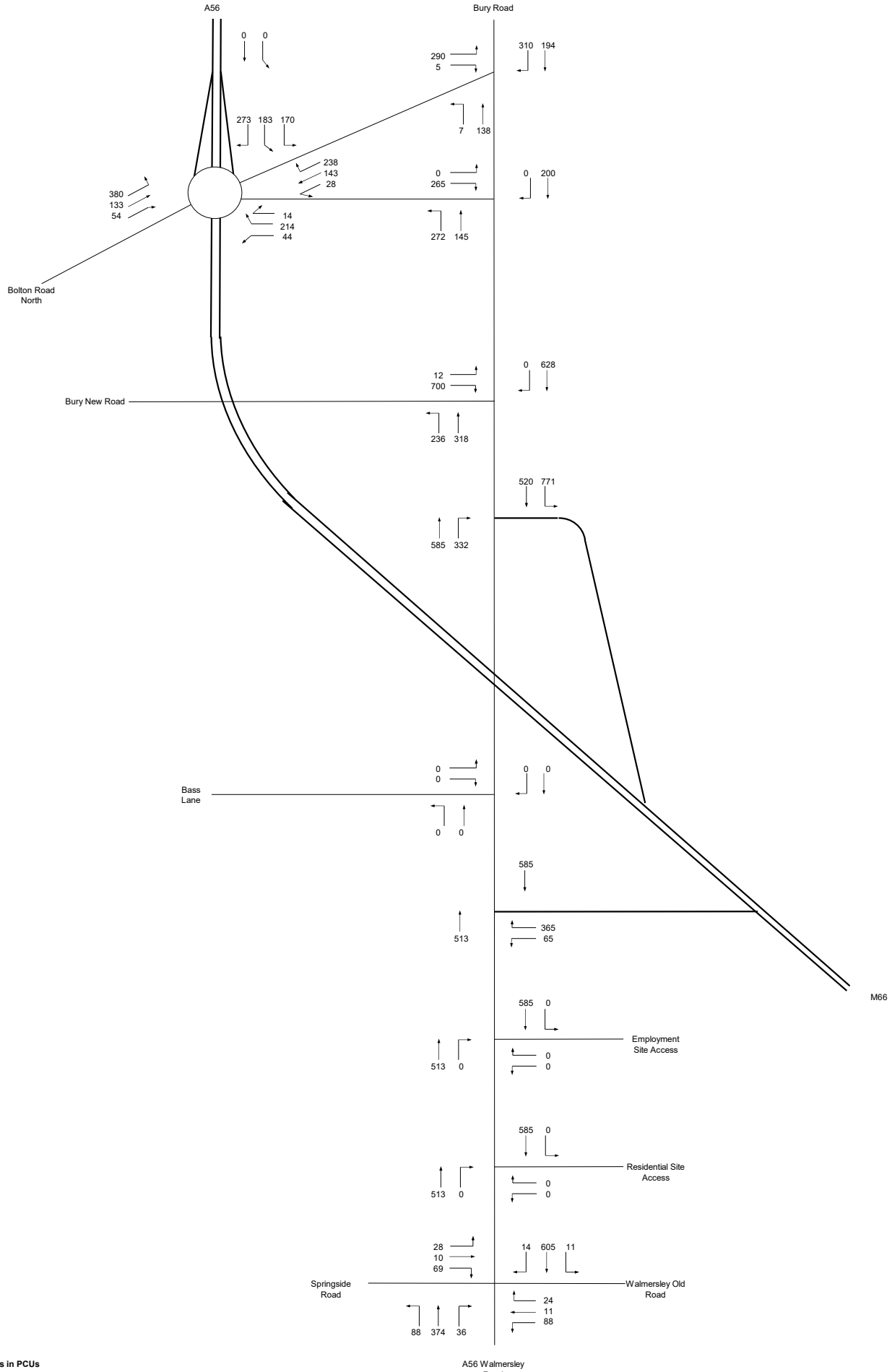



**Figure 5 2028 Growthed (Year of Opening) Flows - Weekday AM Peak (0800-0900) - PCUs**

Eddisons

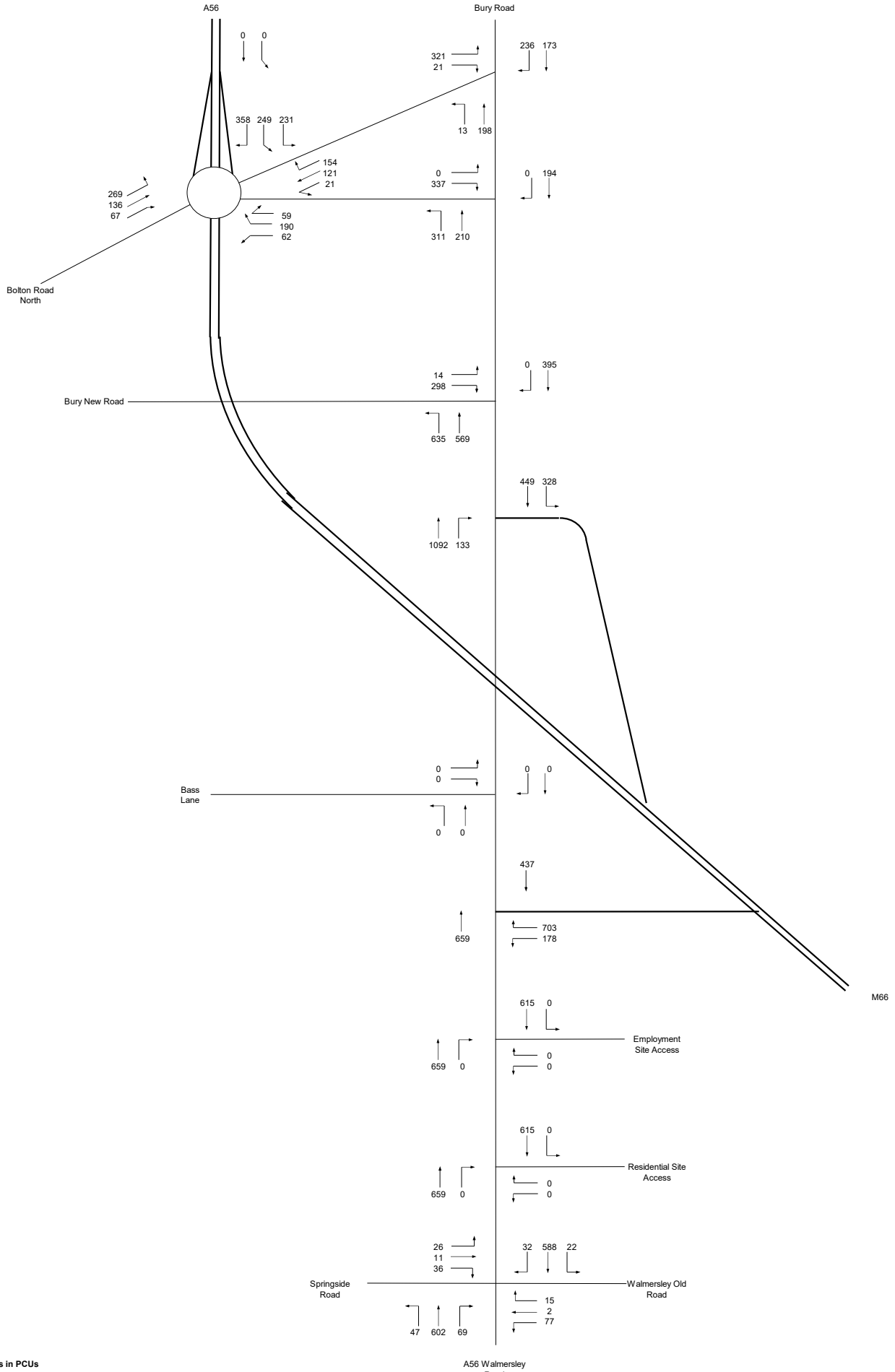



**Figure 6 2028 Growthed (Year of Opening) Flows - Weekday PM Peak (1630-1730) - PCUs**

Eddisons

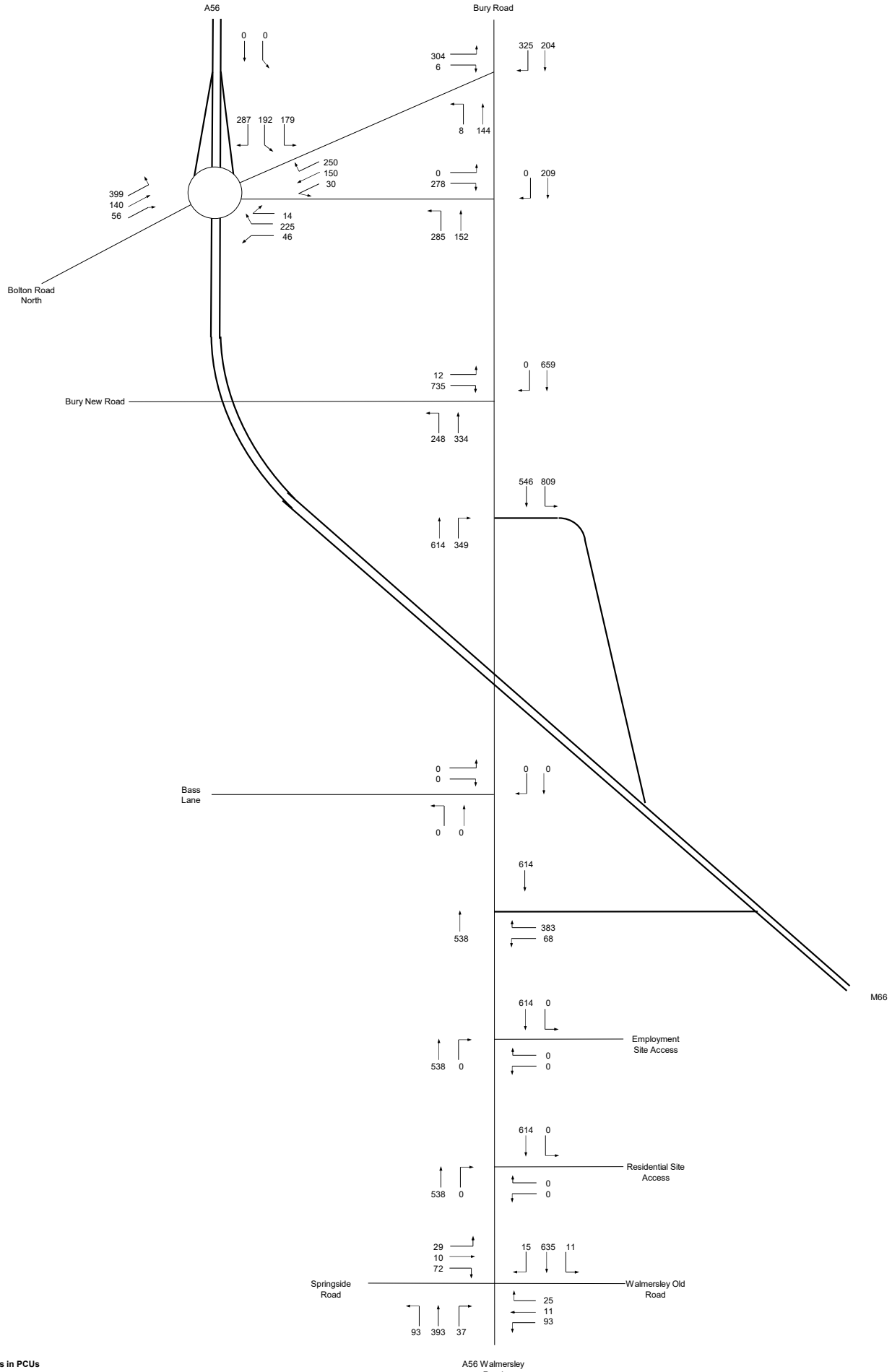



**Figure 7 2033 Growthed (Future Year) Flows - Weekday AM Peak (0800-0900) - PCUs**

Eddisons

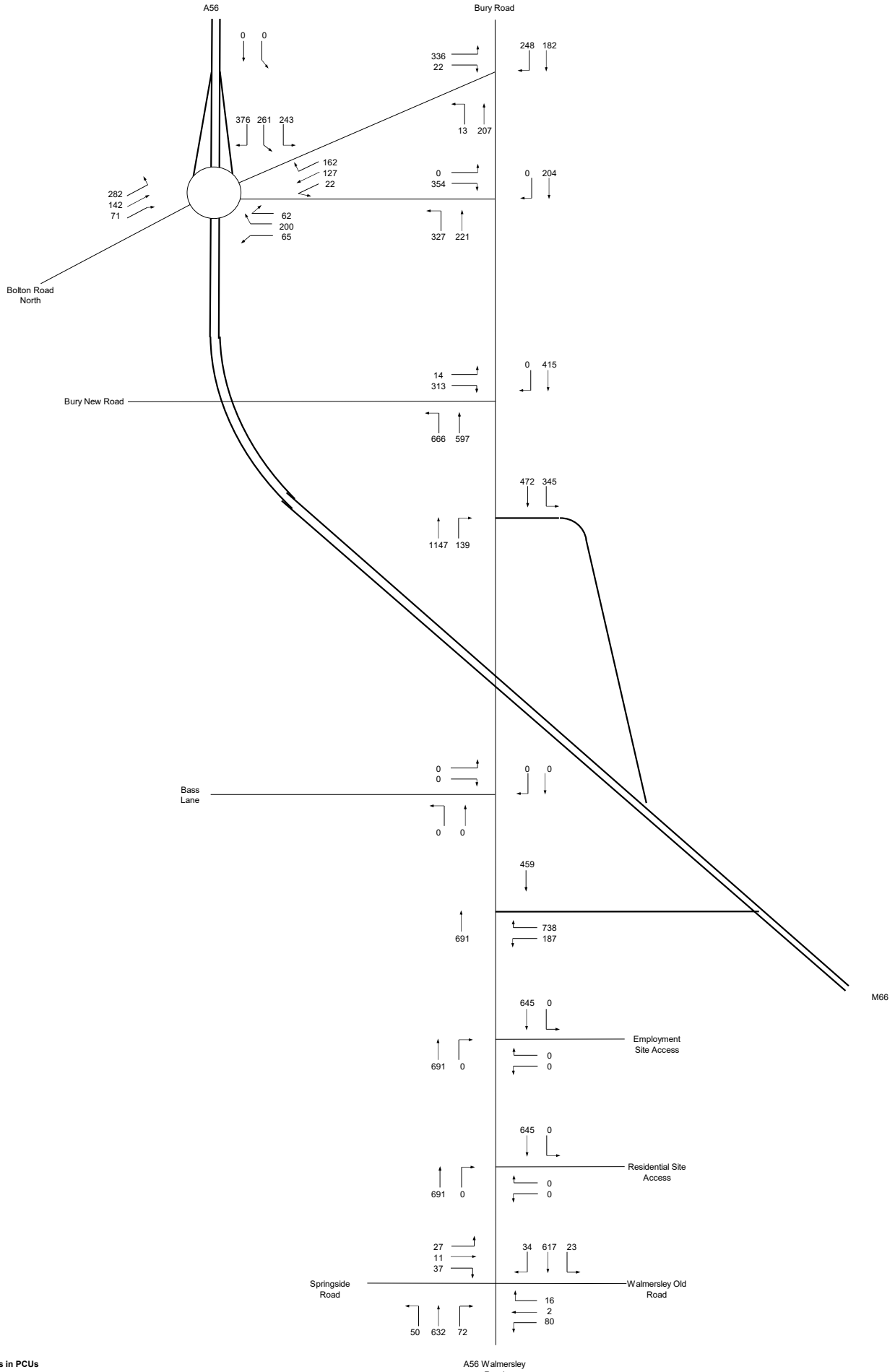



**Figure 8 2033 Growthed (Future Year) Flows - Weekday PM Peak (1630-1730) - PCUs**

Eddisons

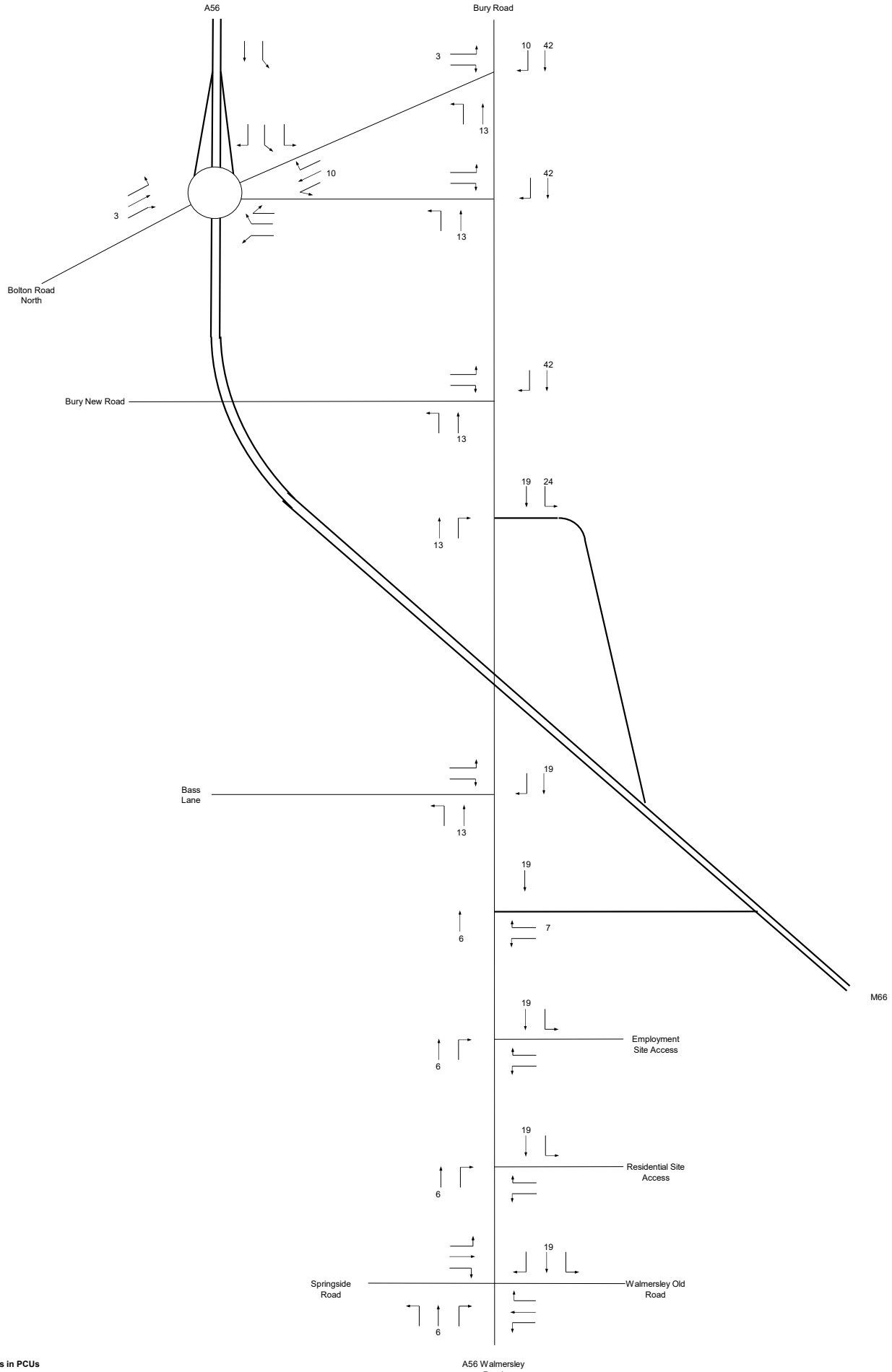



**Figure 9 Committed Development Flows - Edenfiled (TW Site) - Weekday AM Peak**

Eddisons

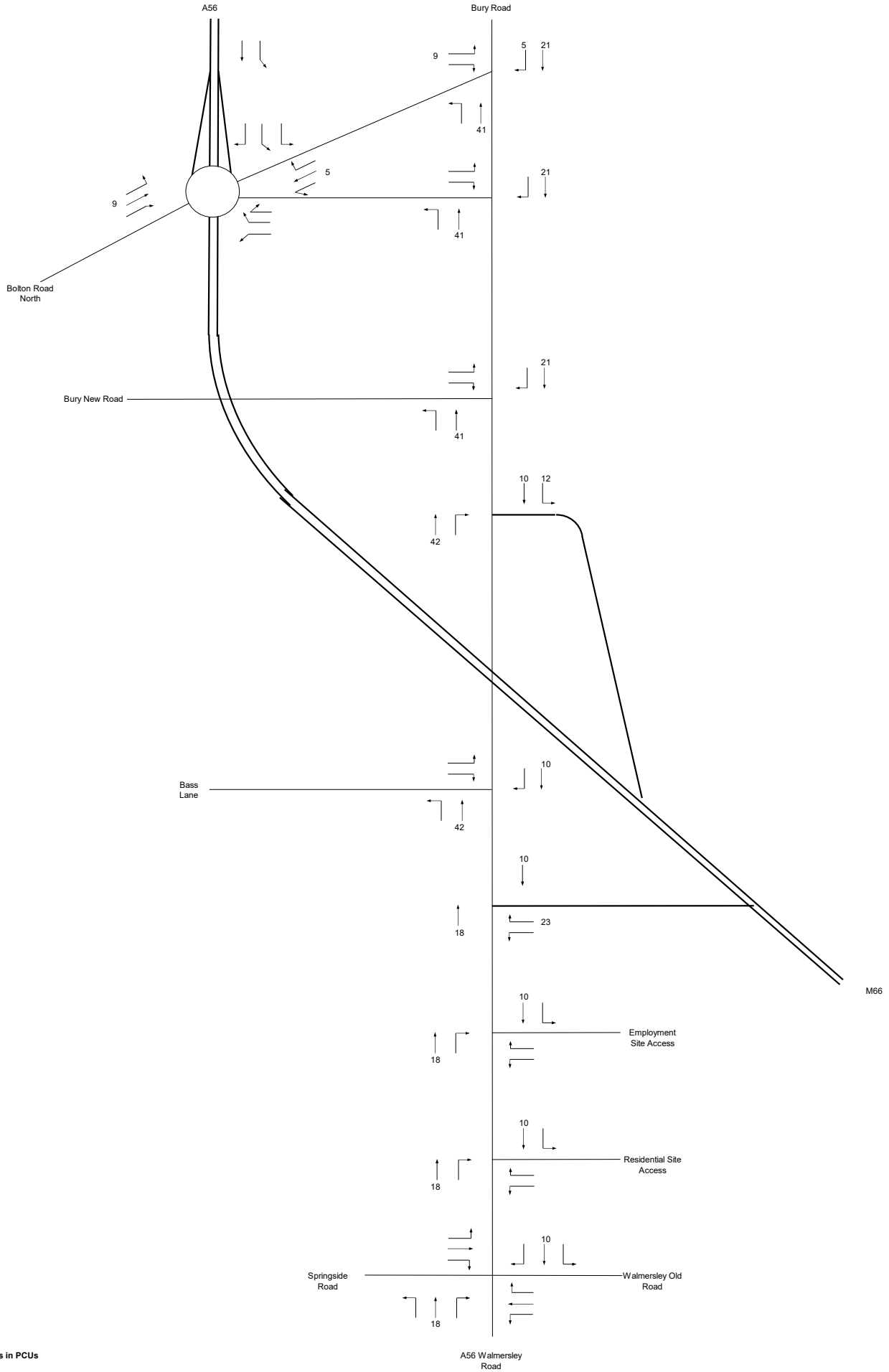



**Figure 10 Committed Development Flows - Edenfiled (TW Site) - Weekday PM Peak**

Eddisons

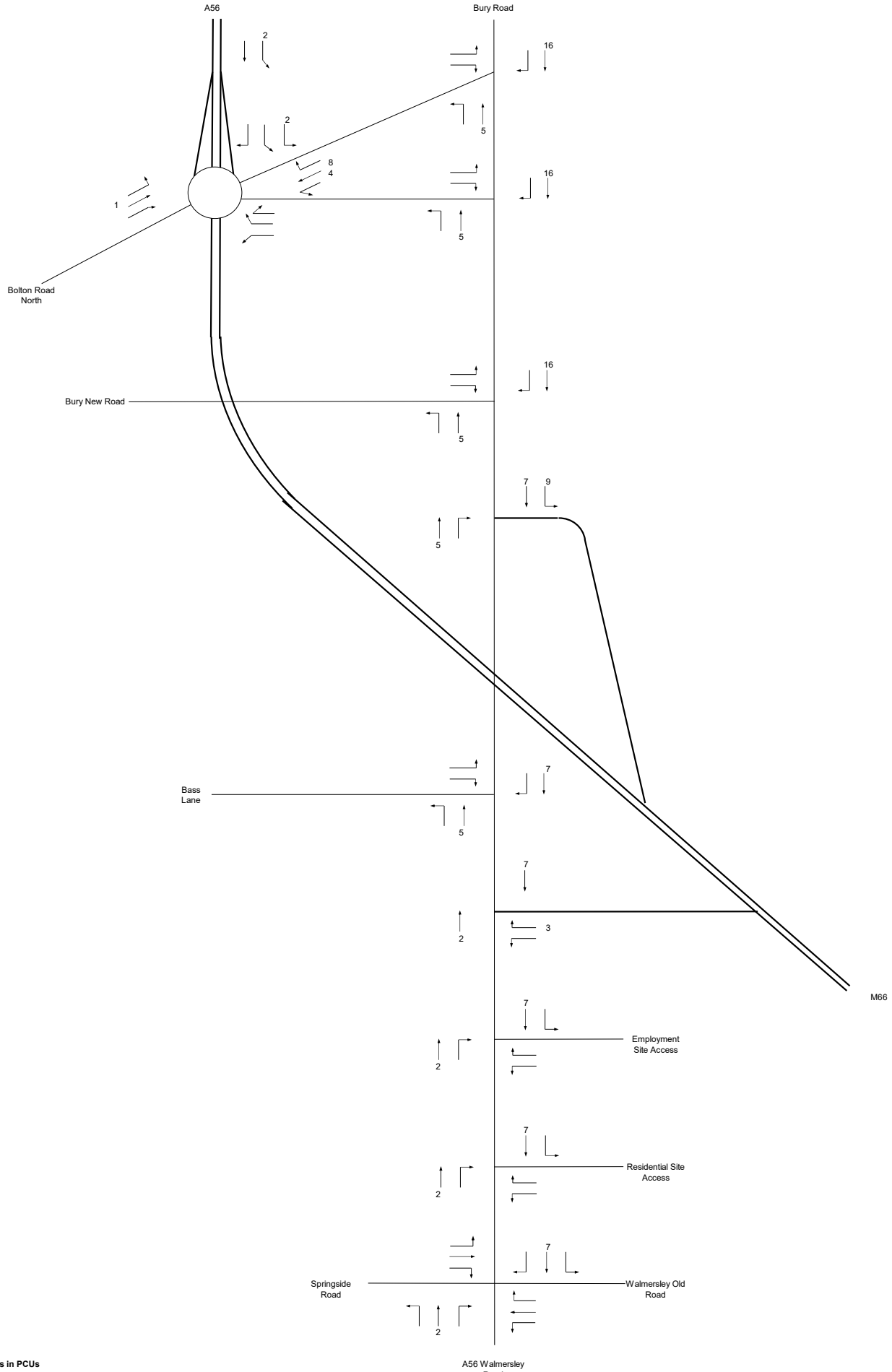



**Figure 11 Committed Development Flows - Edenfiled (Church Lane Site) - Weekday AM Peak**

Eddisons

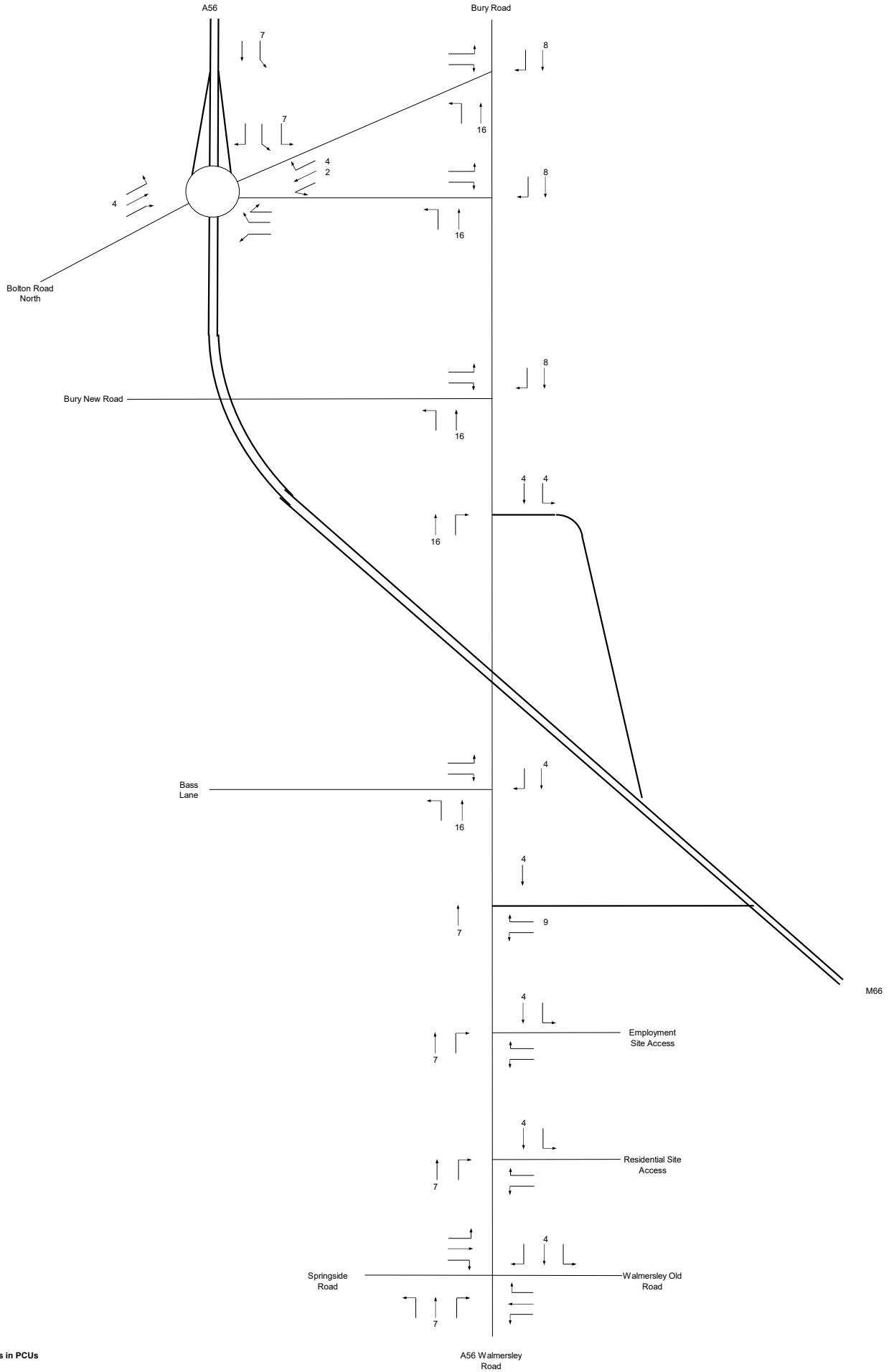



**Figure 12 Committed Development Flows - Edenfiled (Church Lane Site) - Weekday PM Peak**

Eddisons

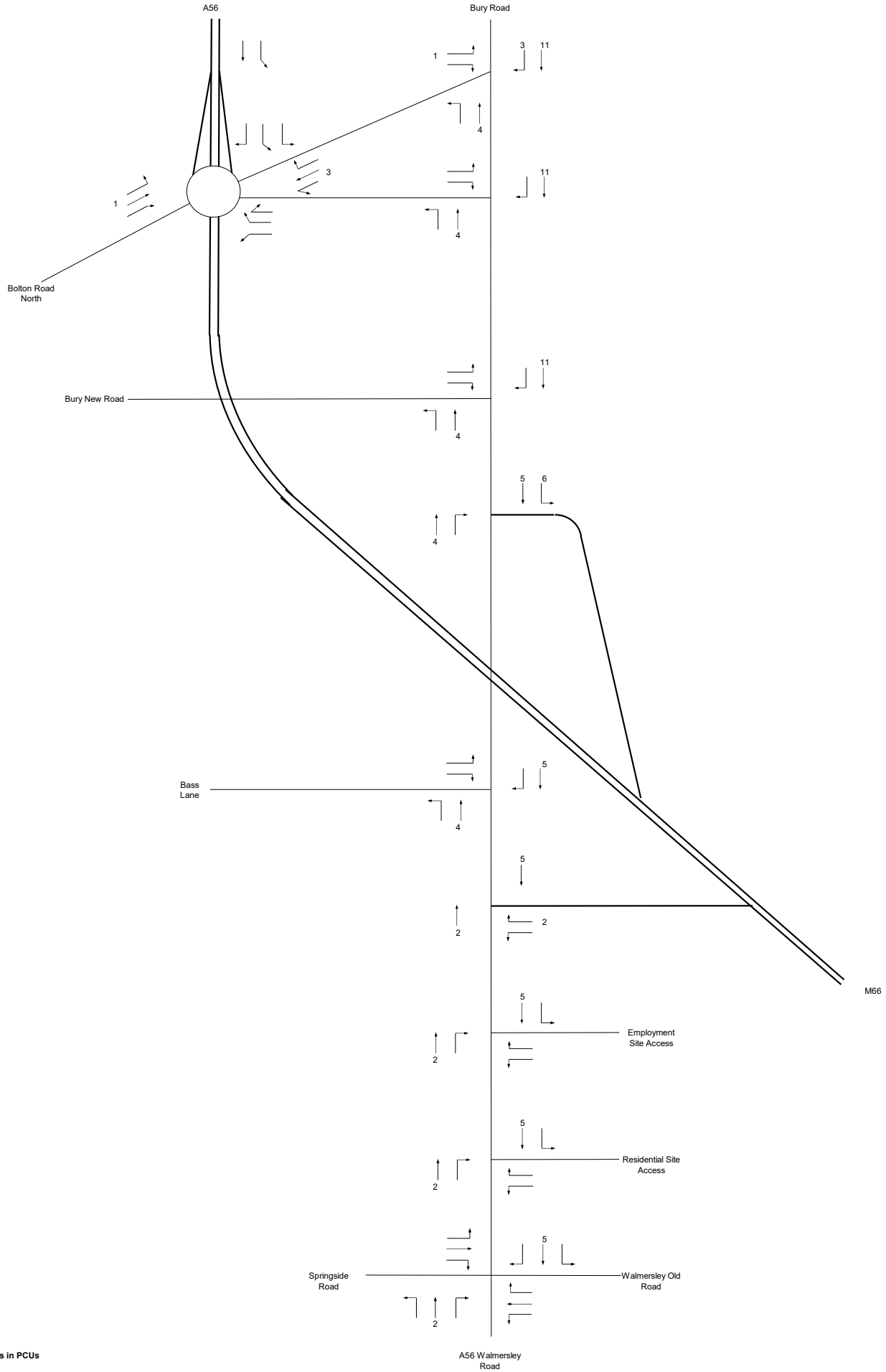



**Figure 13 Committed Development Flows - Edenfiled (Peel Land Site) - Weekday AM Peak**

Eddisons

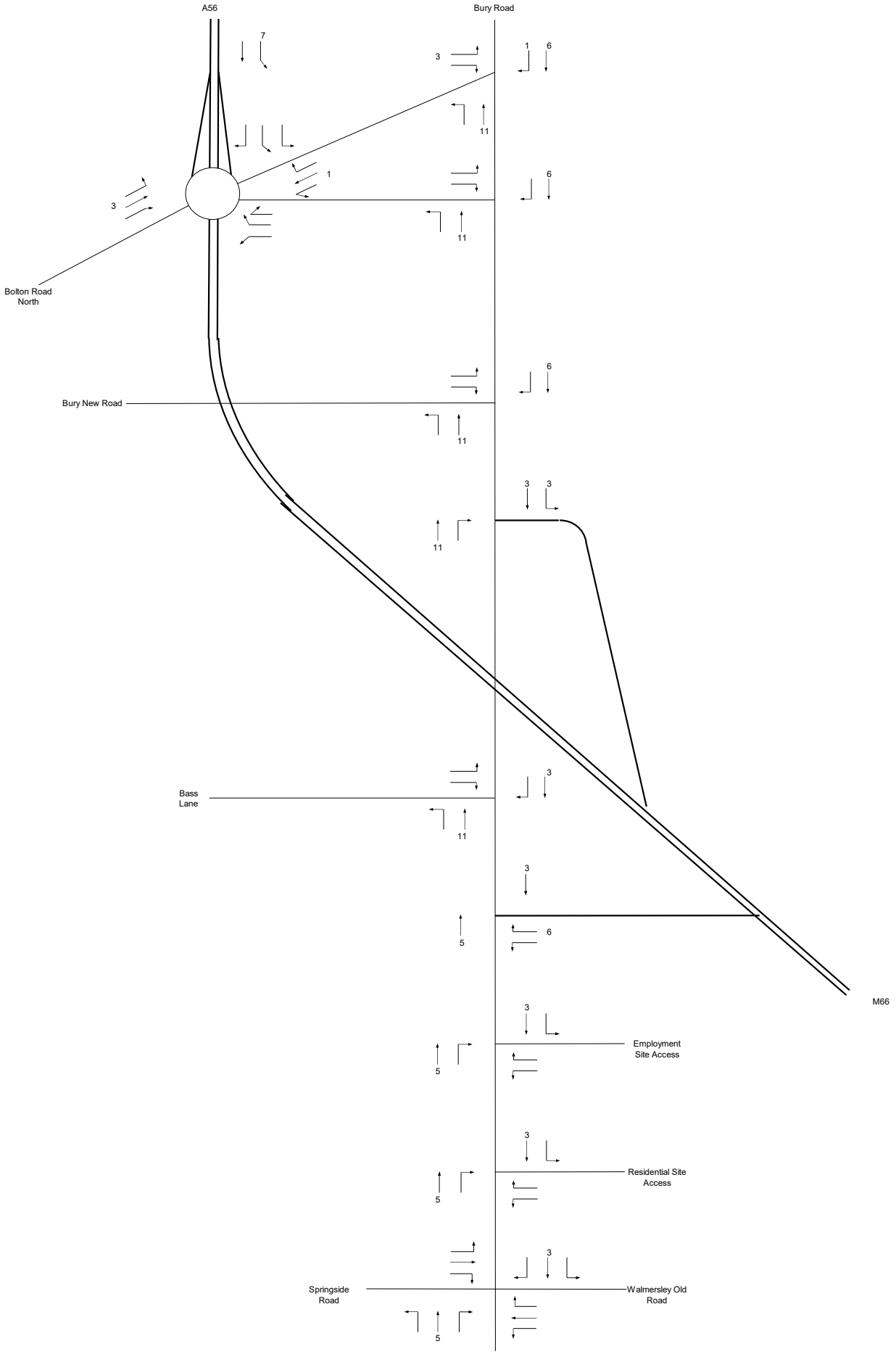



**Figure 14 Committed Development Flows - Edenfiled (Peel Land Site) - Weekday PM Peak**

Eddisons

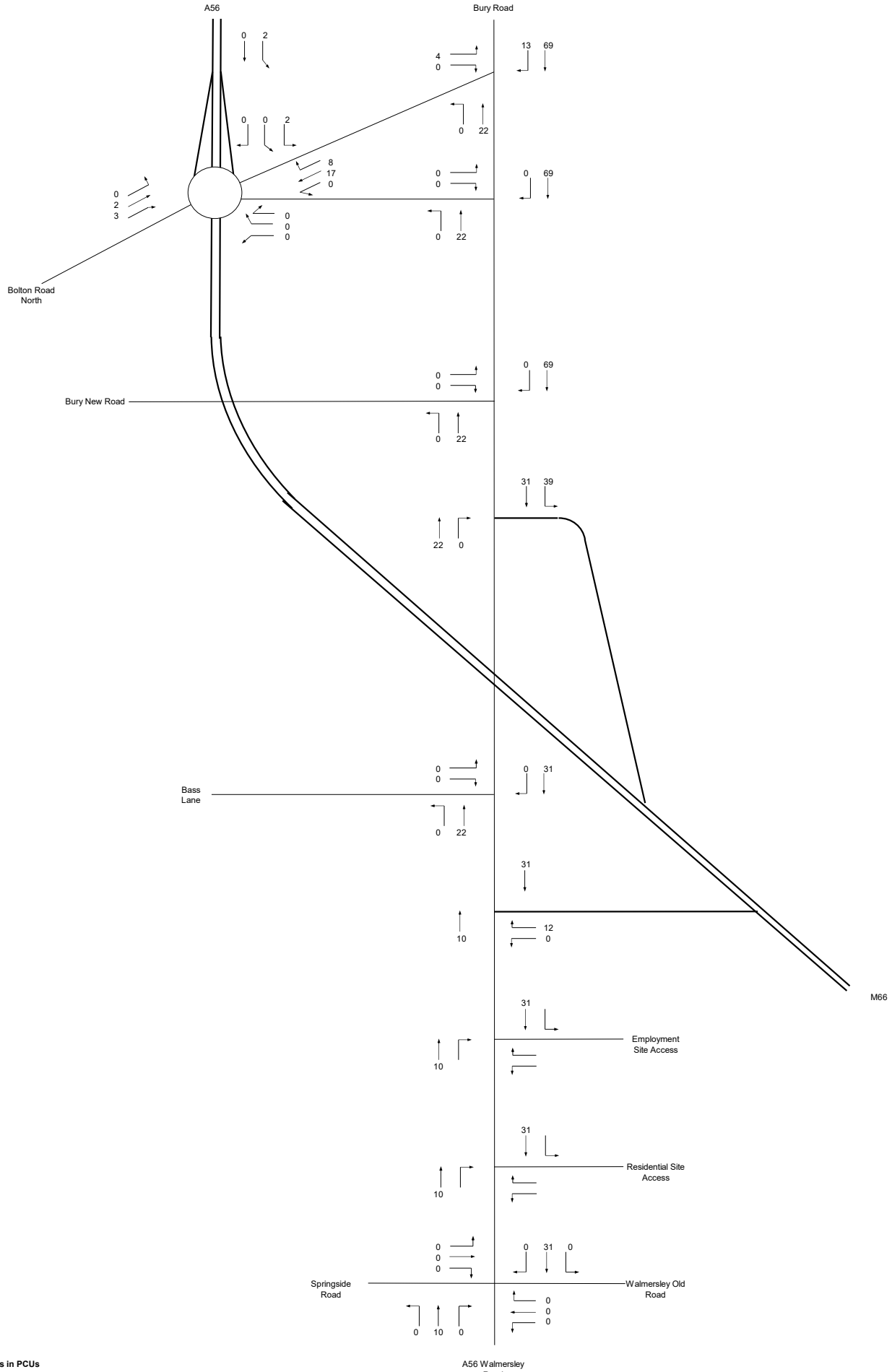
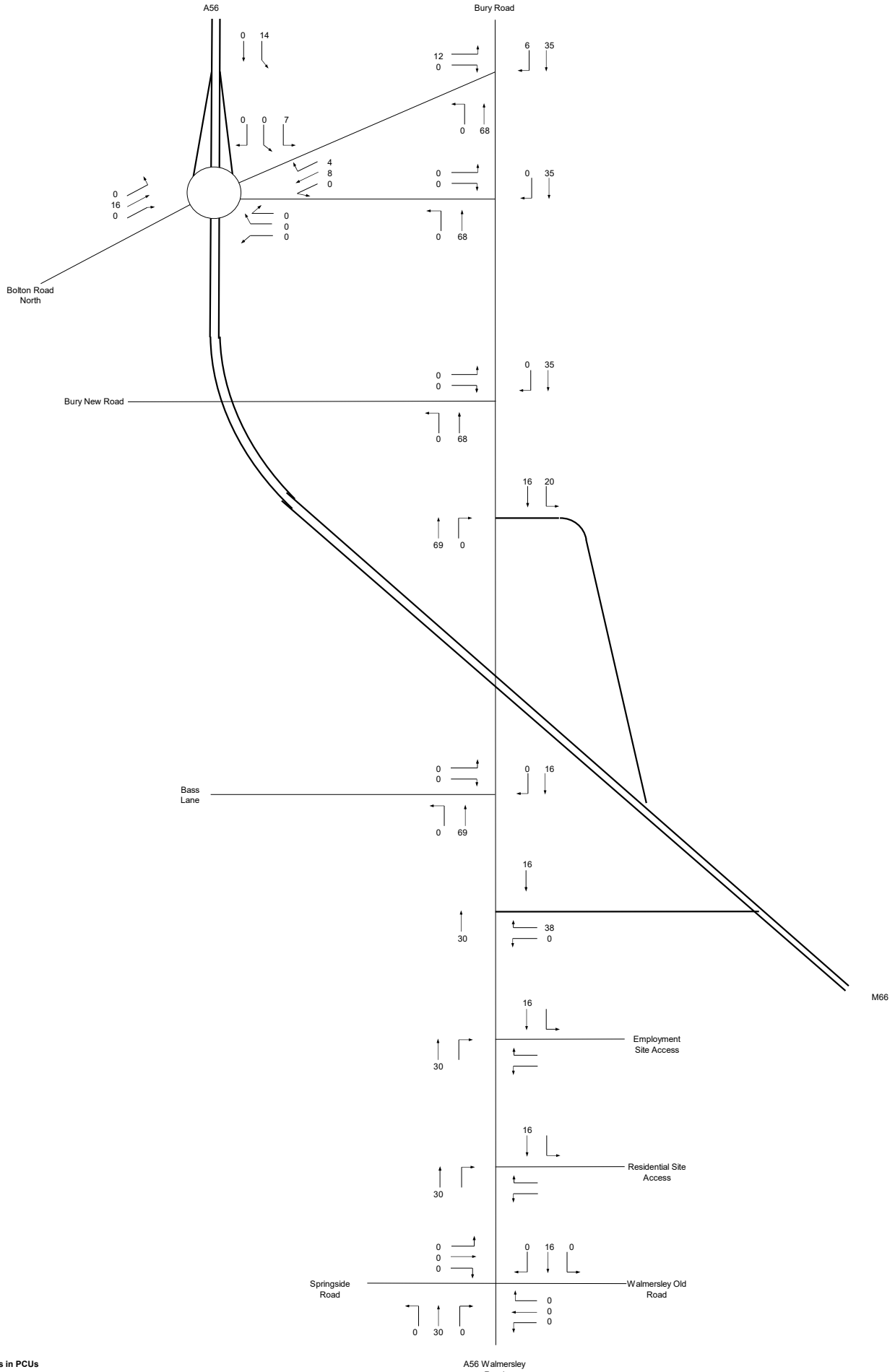



**Figure 15 Total Committed Development Flows - Weekday AM Peak**

Eddisons




**Flows in PCUs**

**Figure 16 Total Committed Development Flows - Weekday PM Peak**

Eddisons

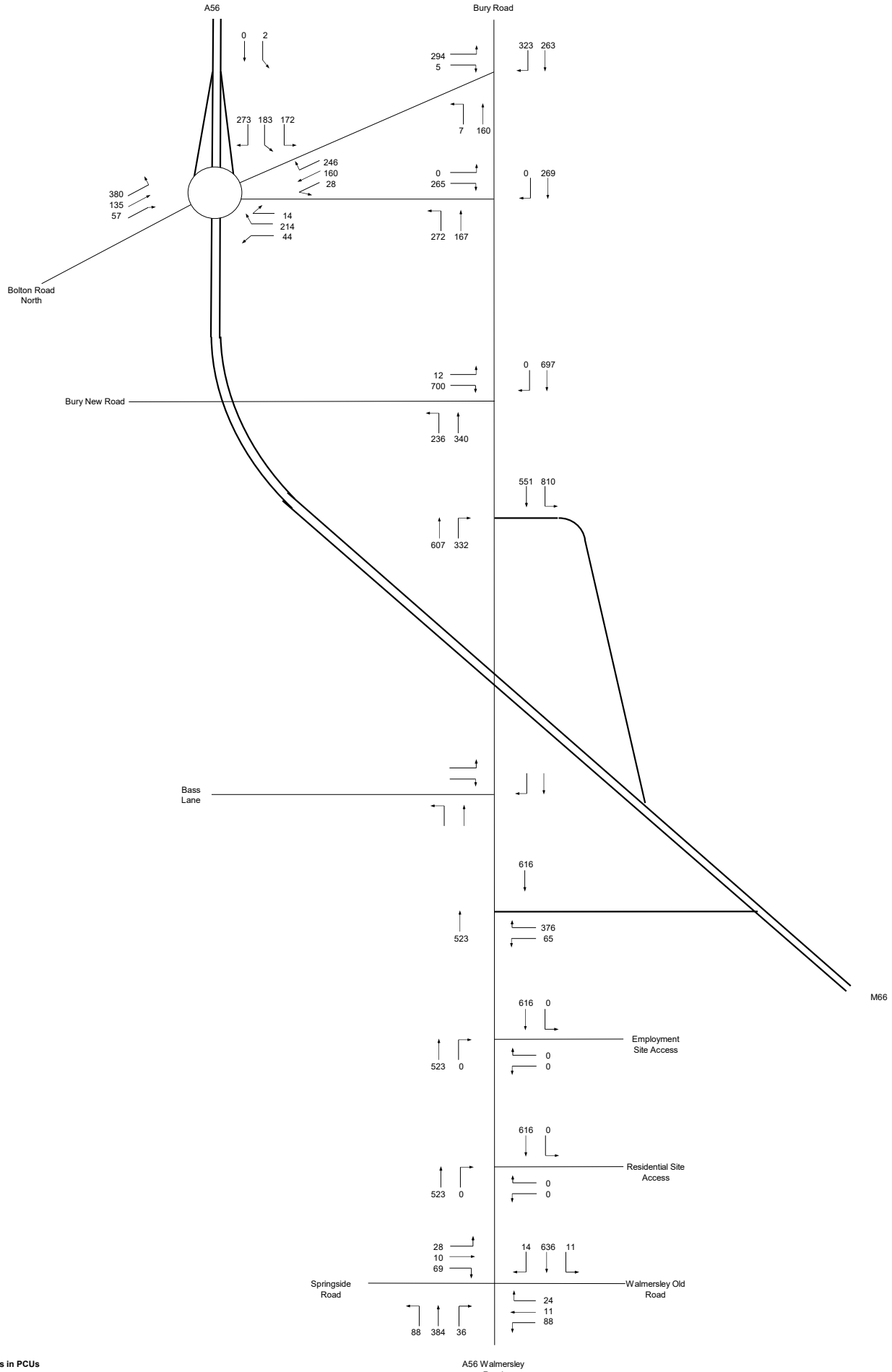



**Figure 17 2028 Base Flows - Weekday AM Peak (0800-0900)**

Eddisons

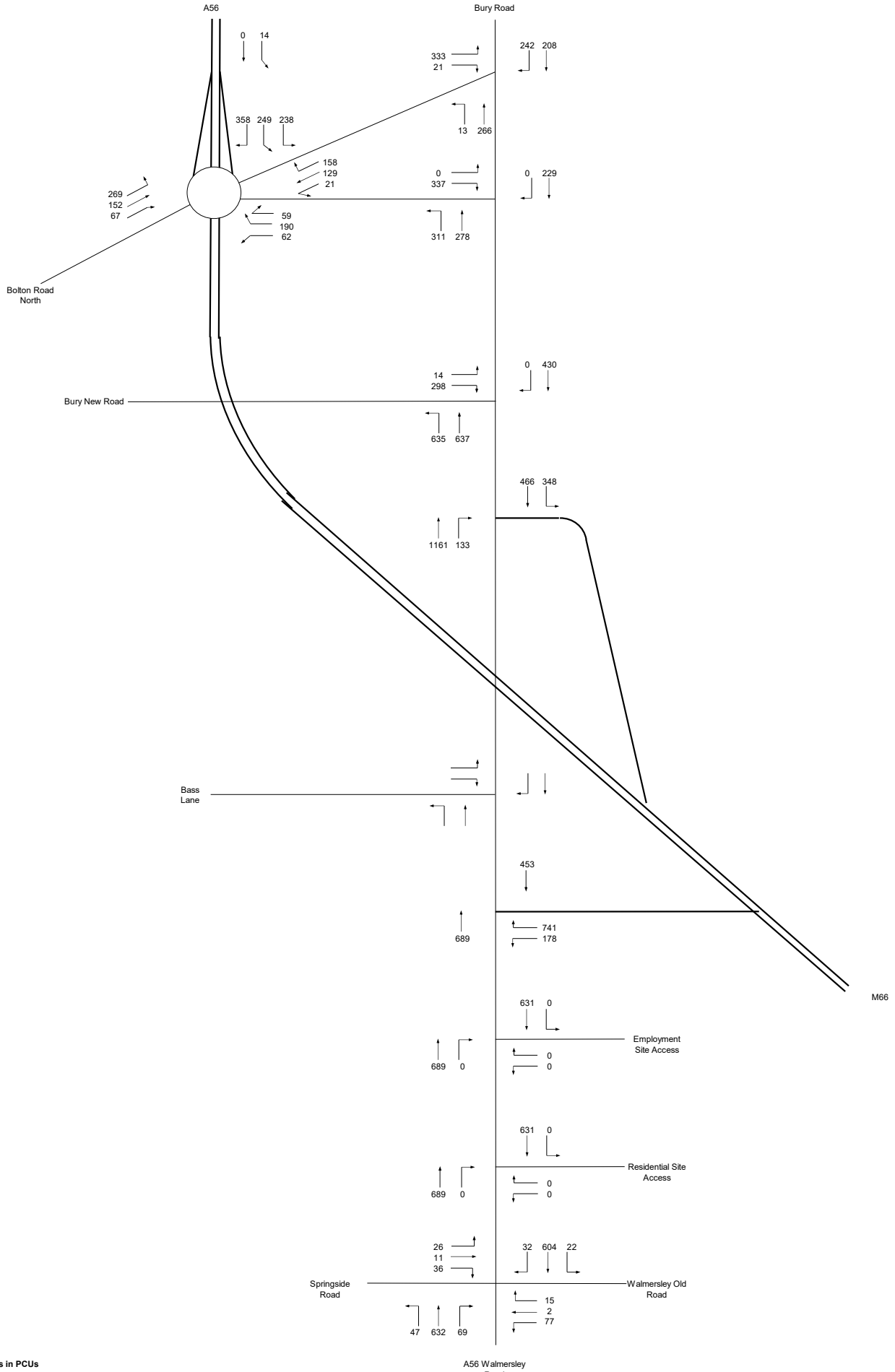
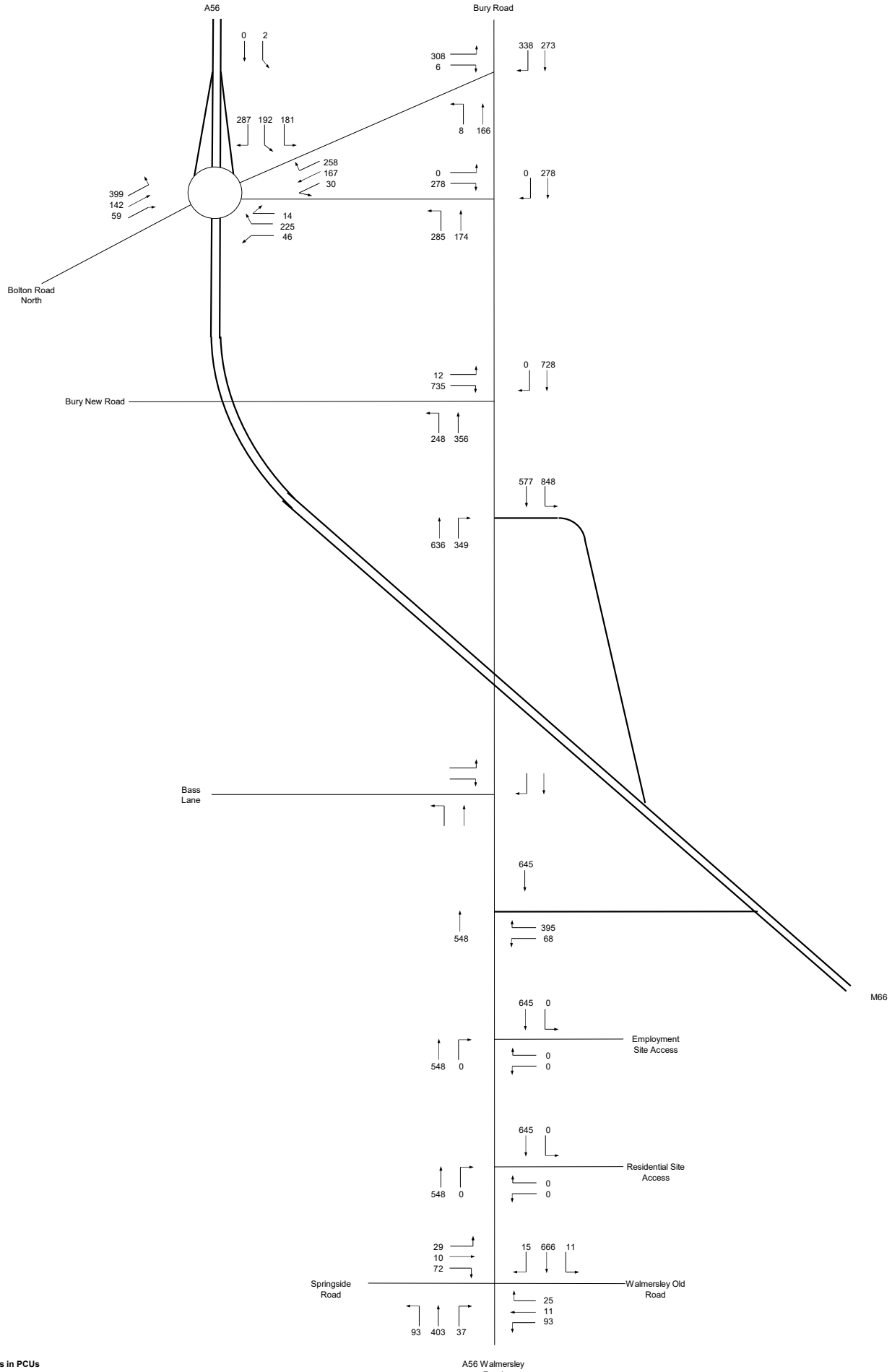



**Figure 18 2028 Base Flows - Weekday PM Peak (1630-1730)**

Eddisons




**Flows in PCUs**

**Figure 19 2033 Base Flows - Weekday AM Peak (0800-0900)**

Eddisons

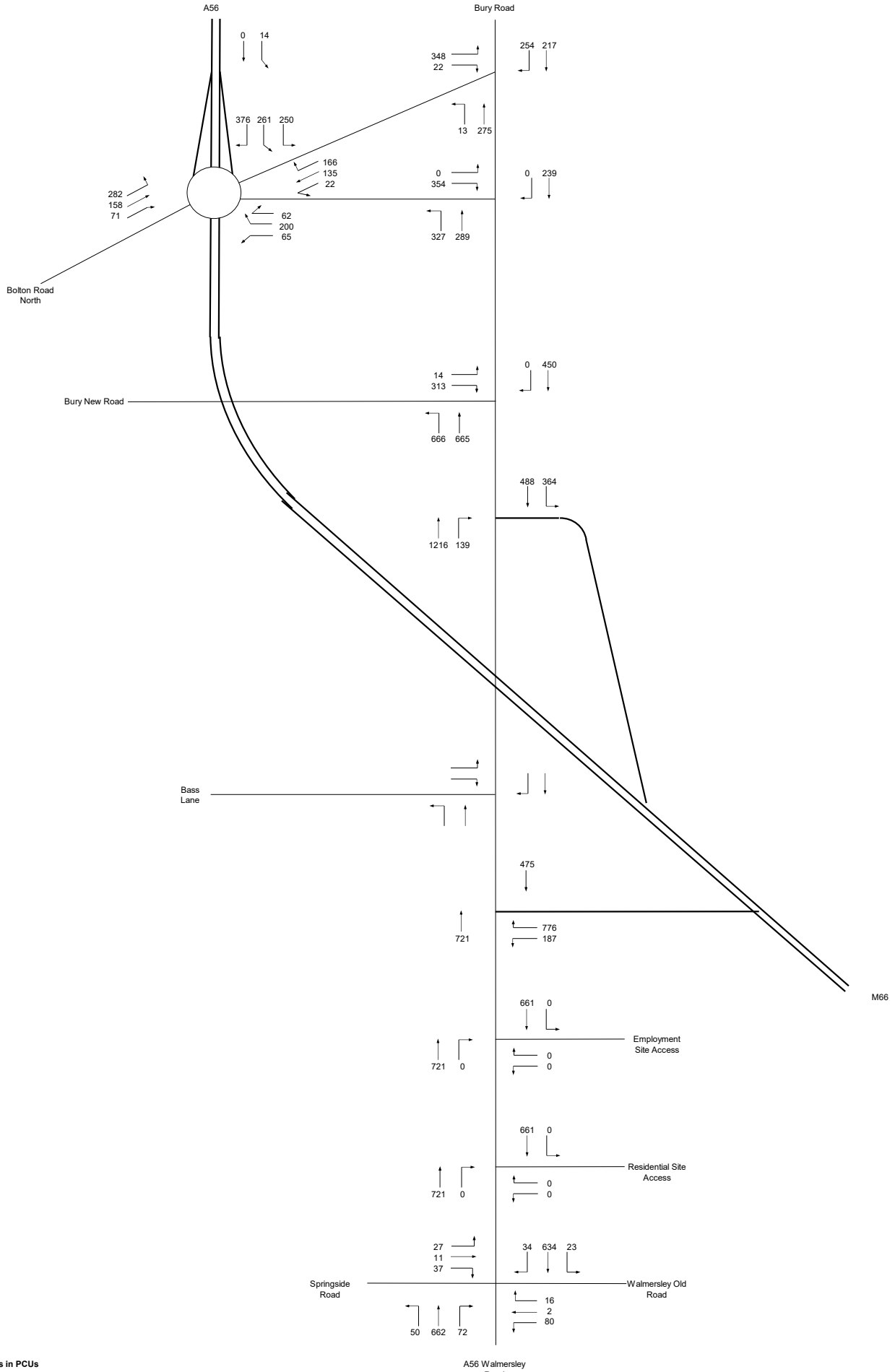



**Figure 20 2033 Base Flows - Weekday PM Peak (1630-1730)**

Eddisons

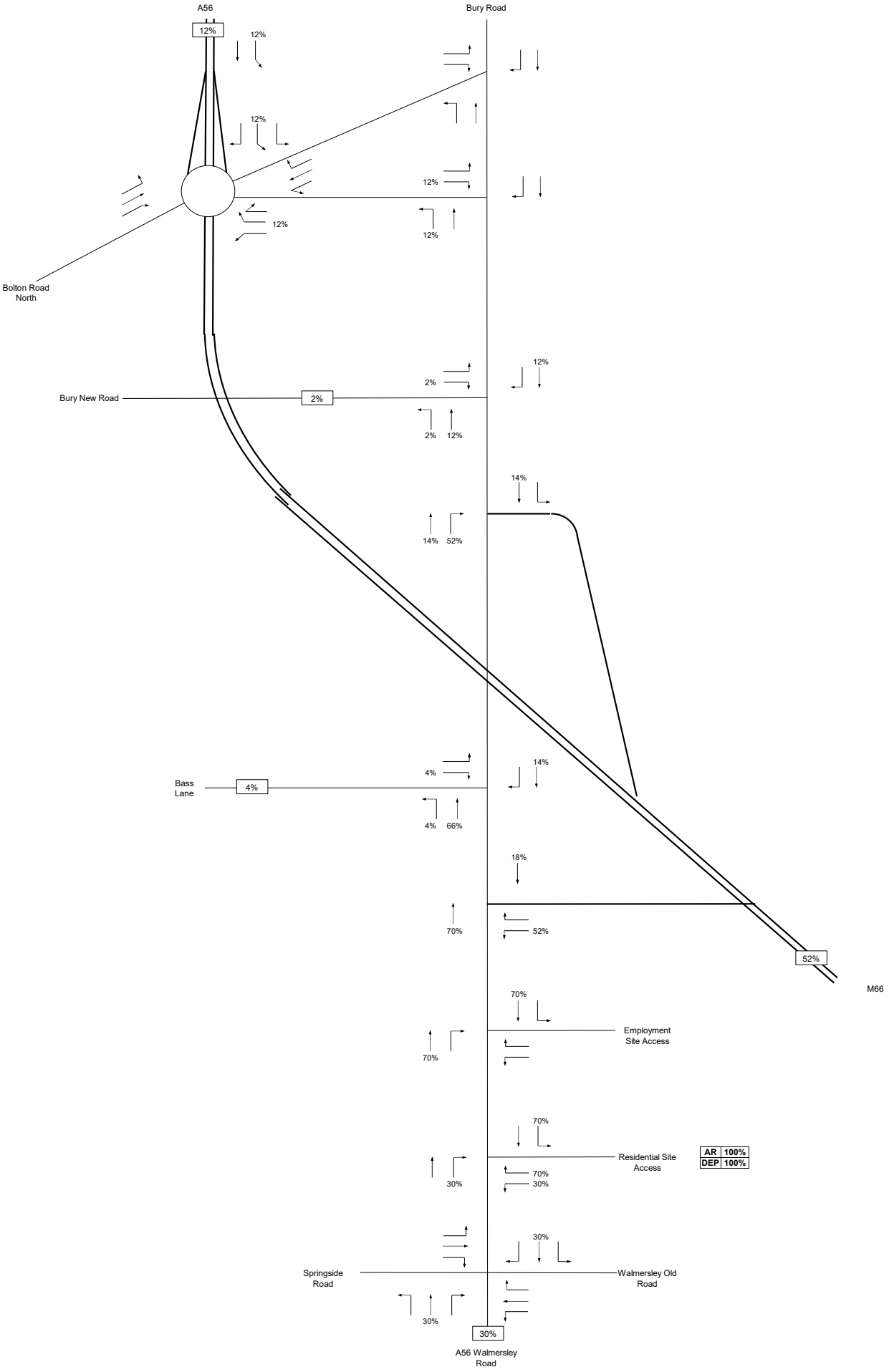



**Figure 21 Proposed Residential Trip Distribution**

Eddisons

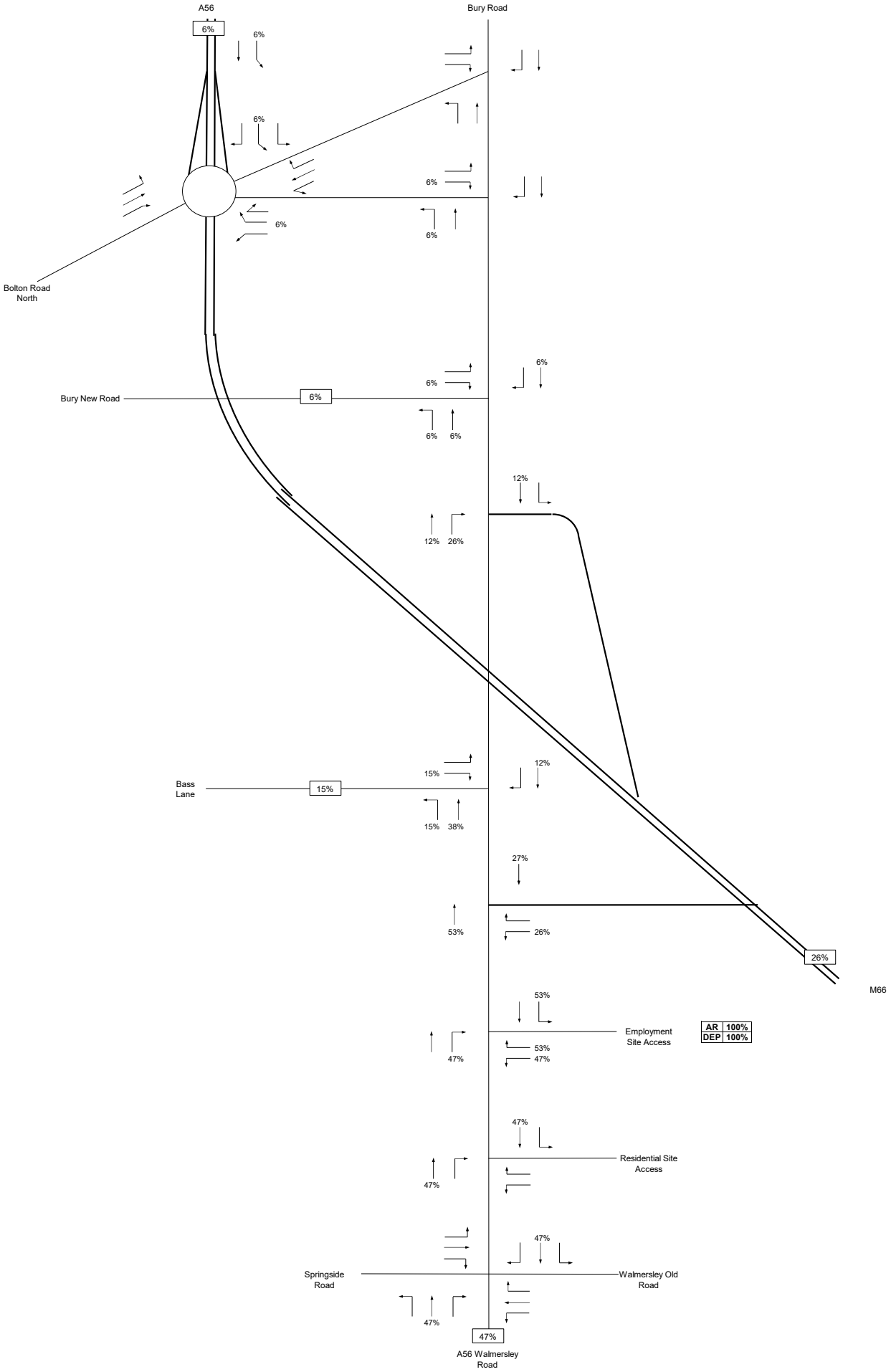



**Figure 22 Proposed Employment Trip Distribution**

Eddisons

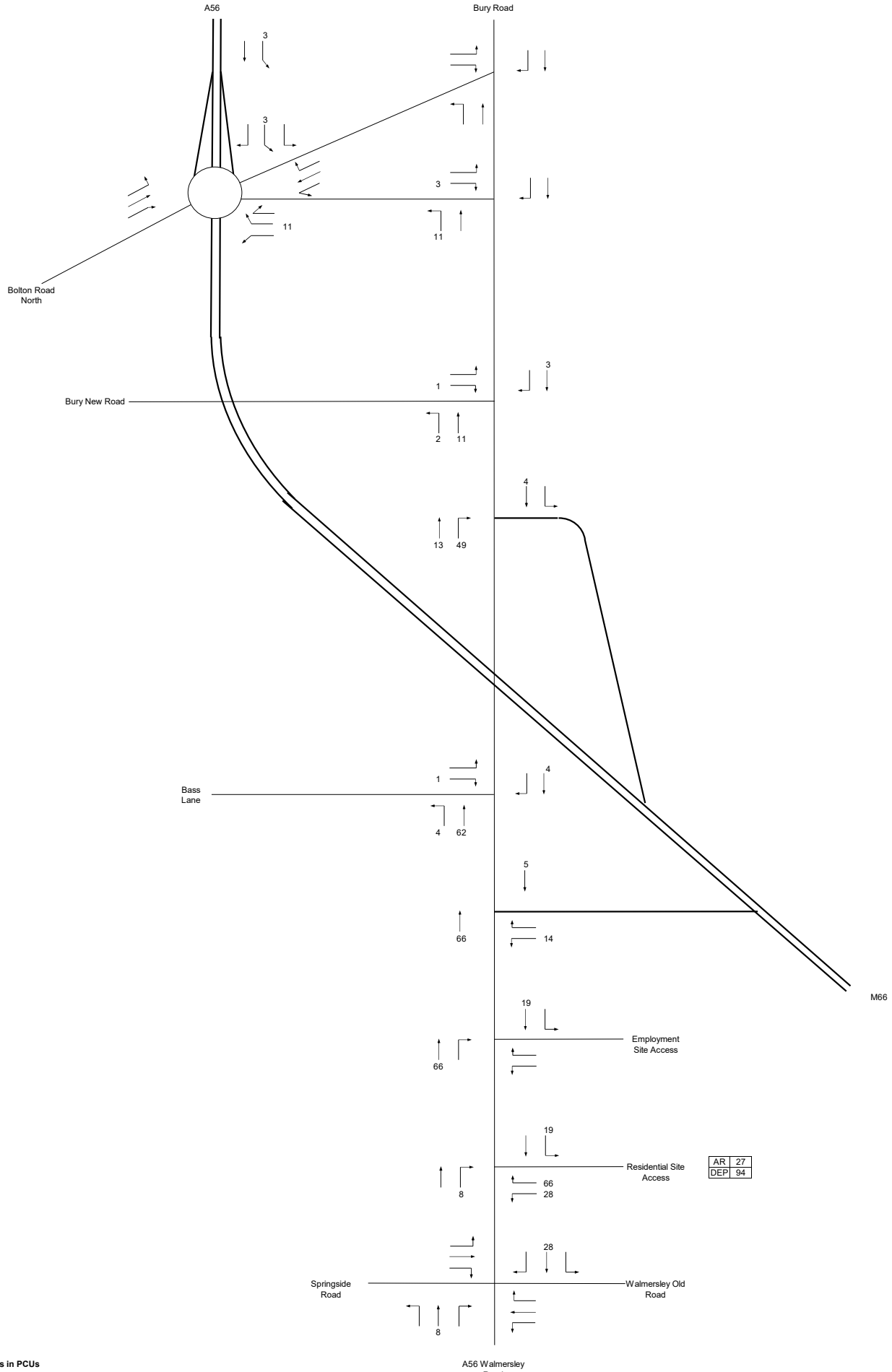



**Figure 23 Proposed Development Trips - Residential Trips - Weekday AM Peak (0800-0900)**

Eddisons

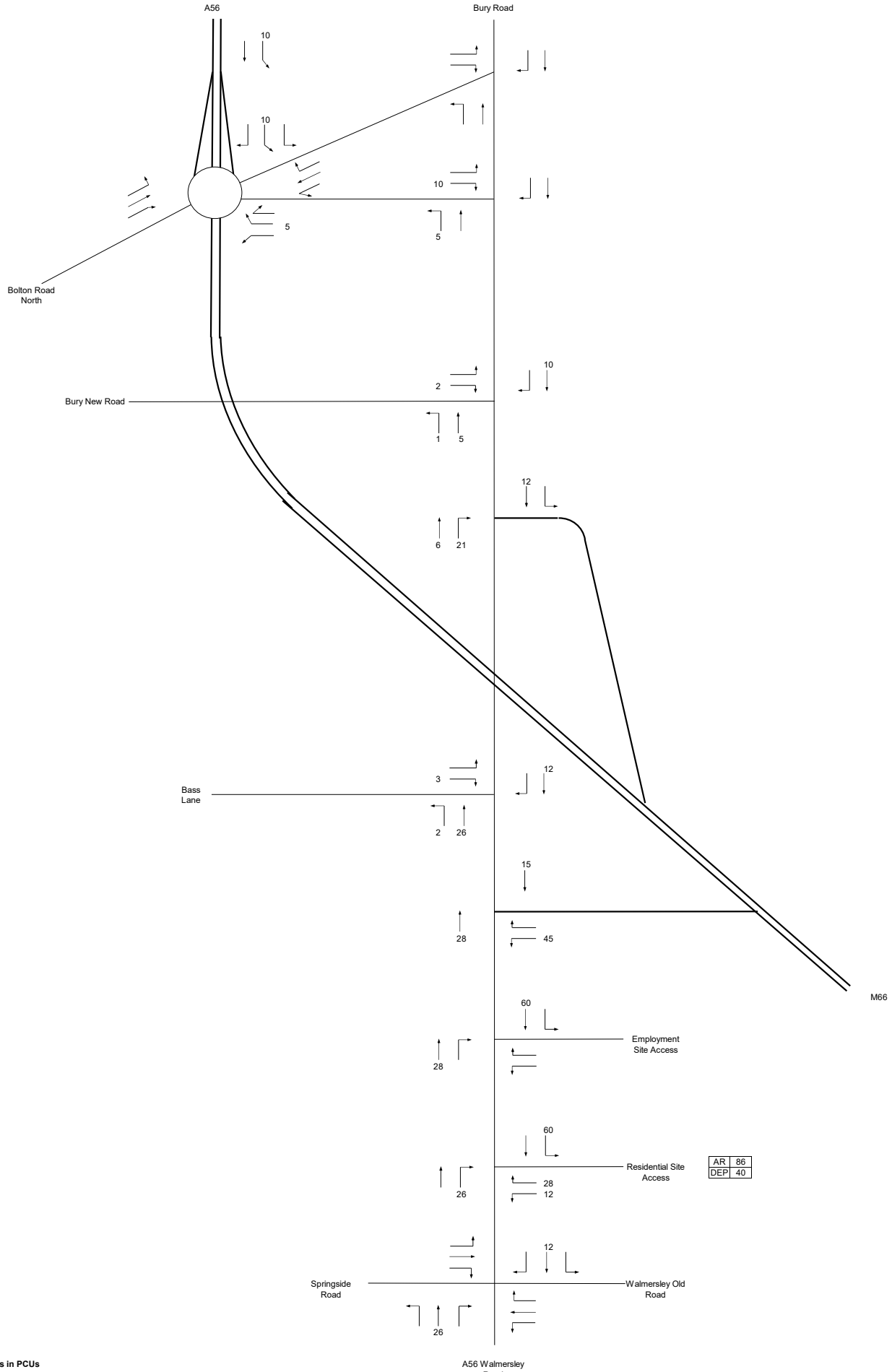



**Figure 24 Proposed Development Trips - Residential Trips - Weekday PM Peak (1630-1730)**

Eddisons

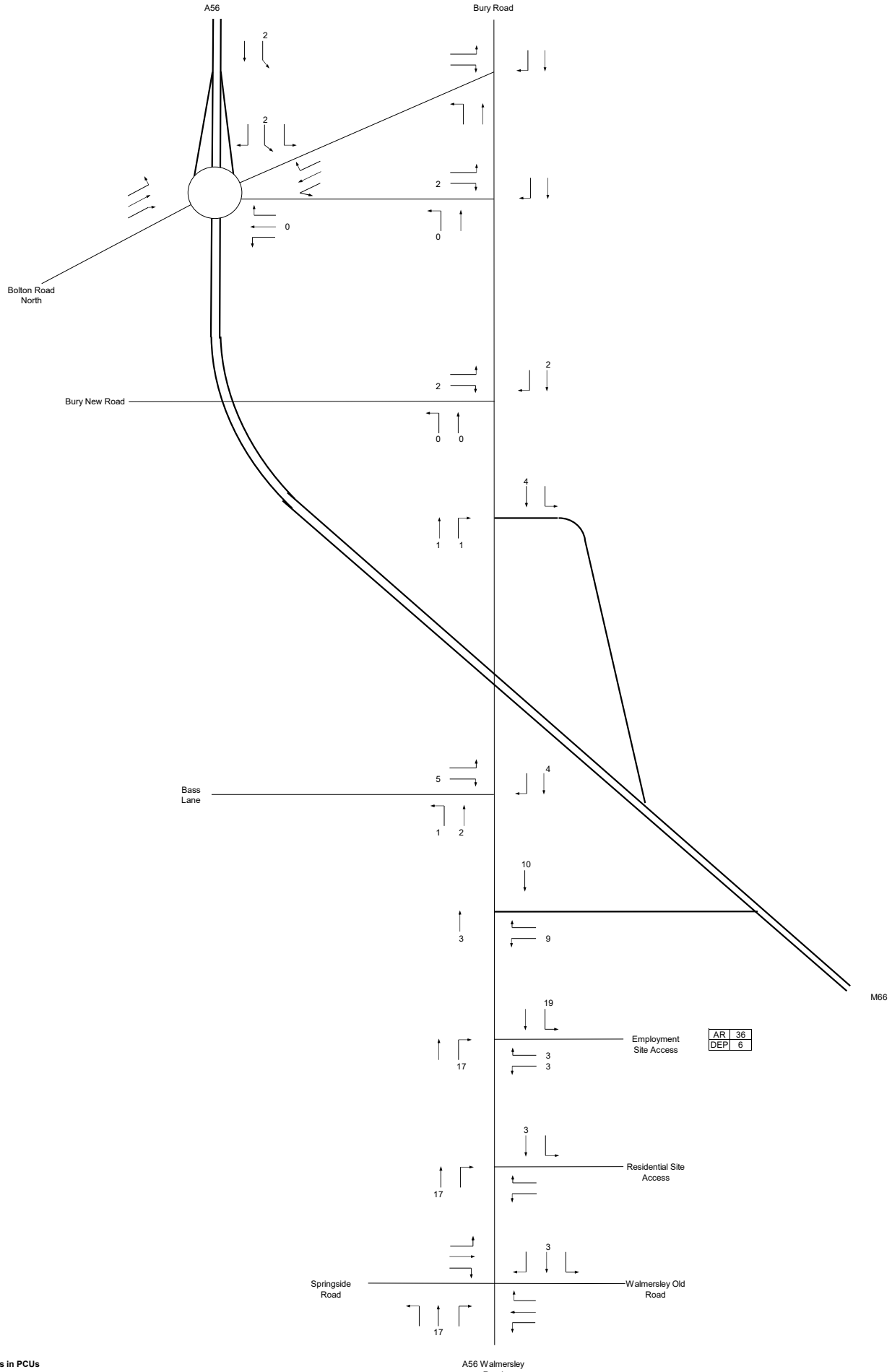
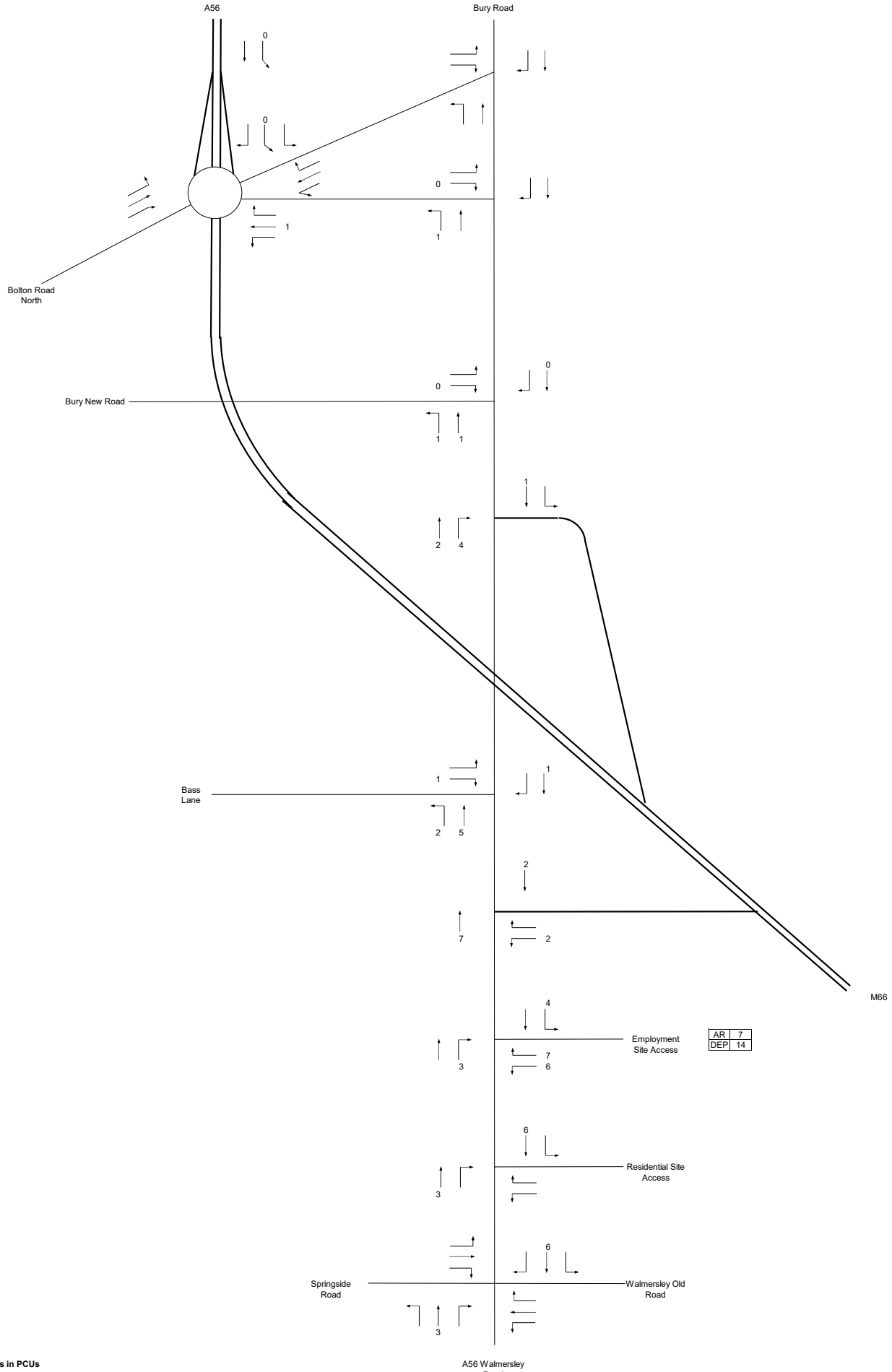



**Figure 25 Proposed Development Trips - Employment Trips - Weekday AM Peak (0800-0900)**

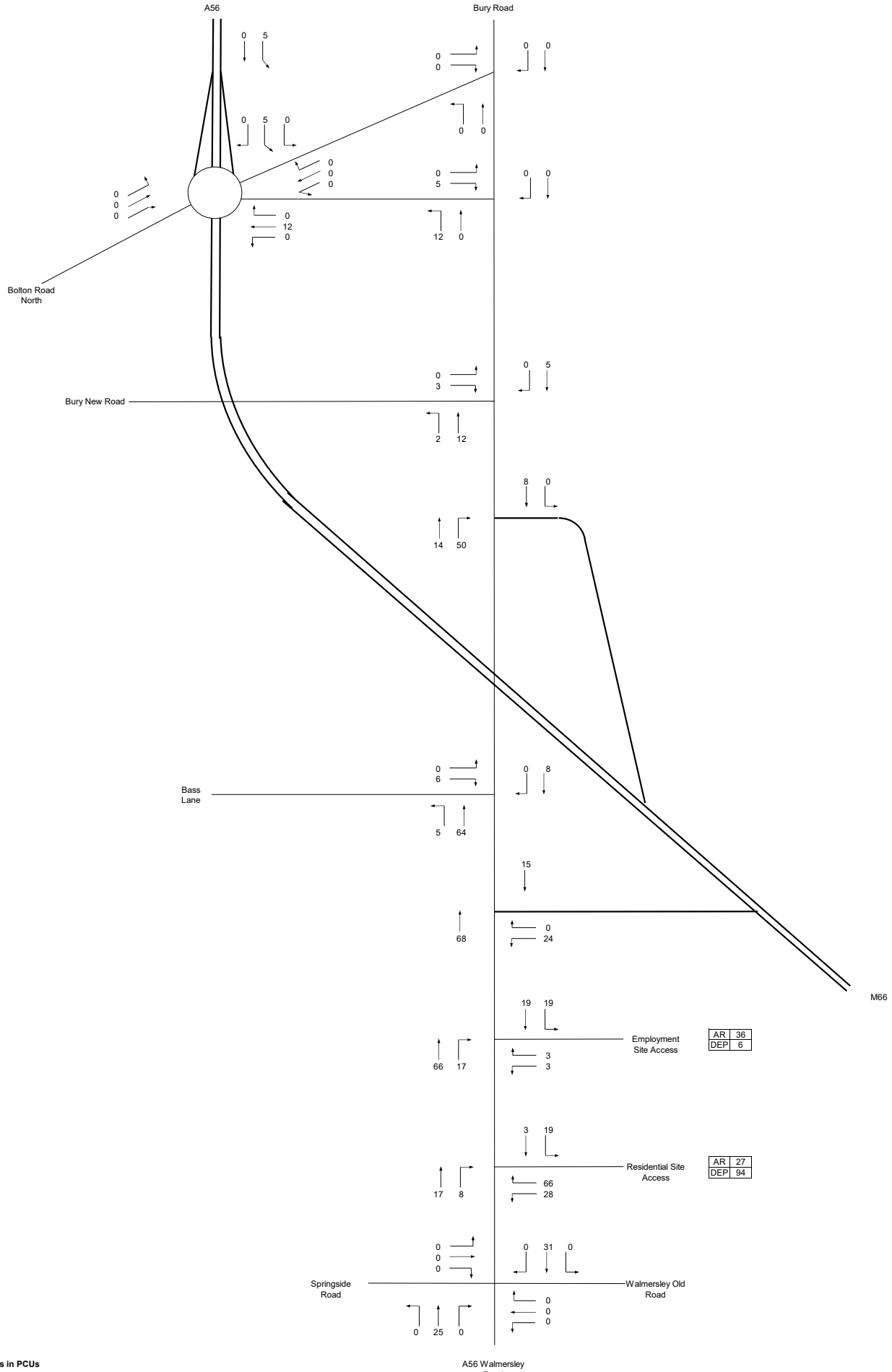
Eddisons




**Flows in PCUs**

**Figure 26 Proposed Development Trips - Employment Trips - Weekday PM Peak (1630-1730)**

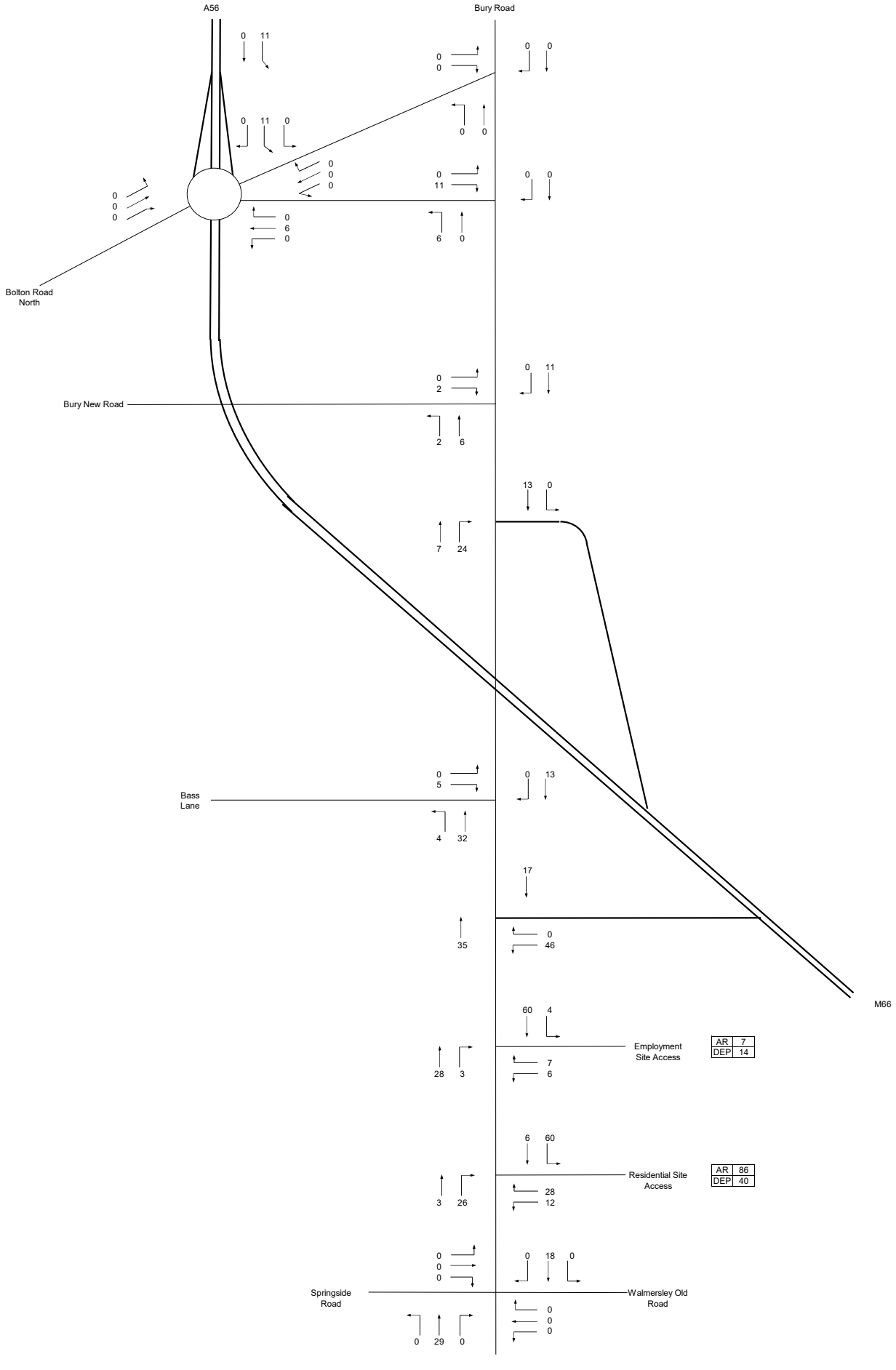
Eddisons




**Flows in PCUs**

**Figure 27 Proposed Development Trips - Total Trips - Weekday AM Peak (0800-0900)**

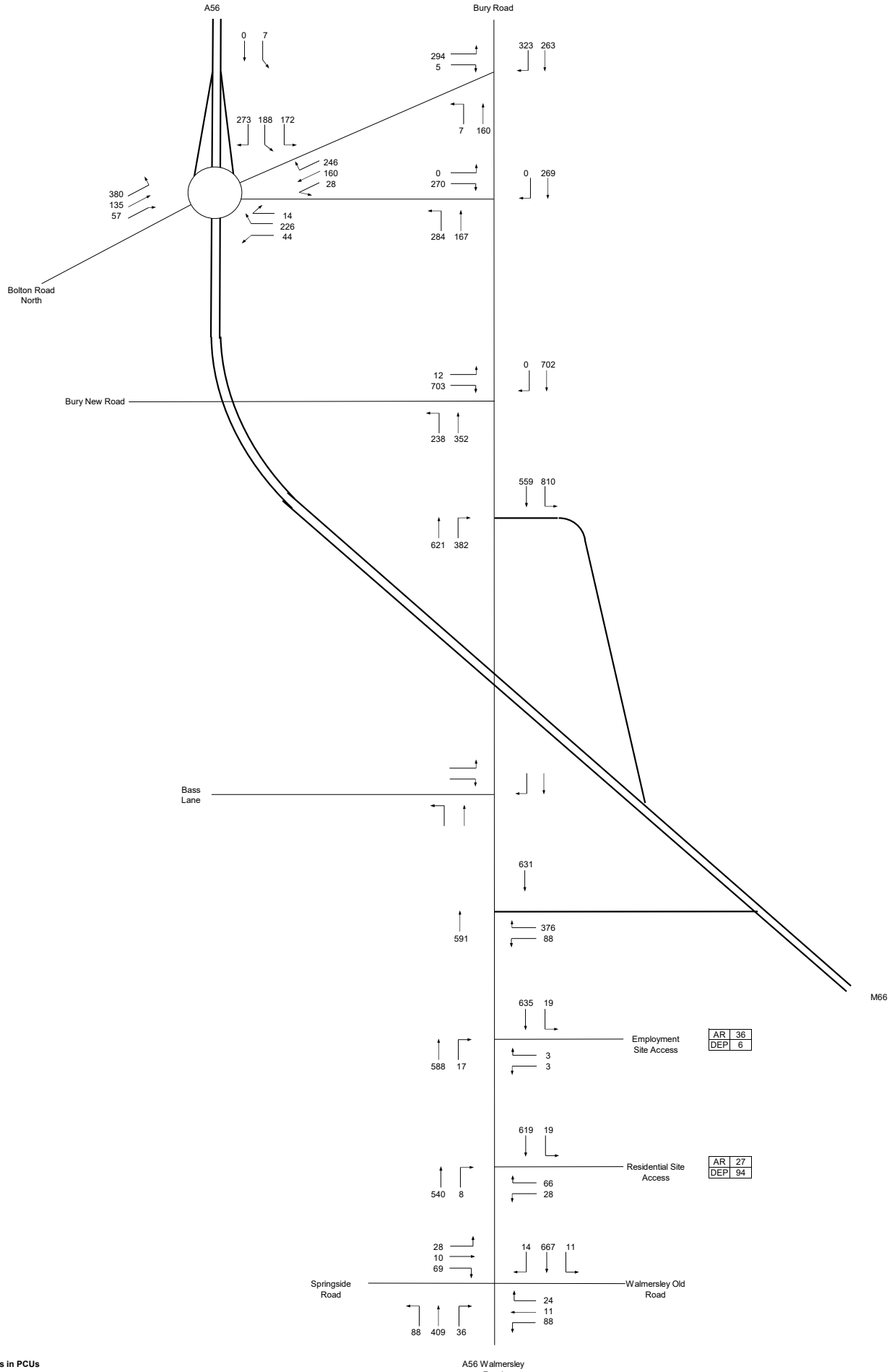
Eddisons




**Flows in PCUs**

**Figure 28 Proposed Development Trips - Total Trips- Weekday PM Peak (1630-1730)**

Eddisons




**Flows in PCUs**

**Figure 29 2028 With Development Flows - Weekday AM Peak (0800-0900)**

Eddisons

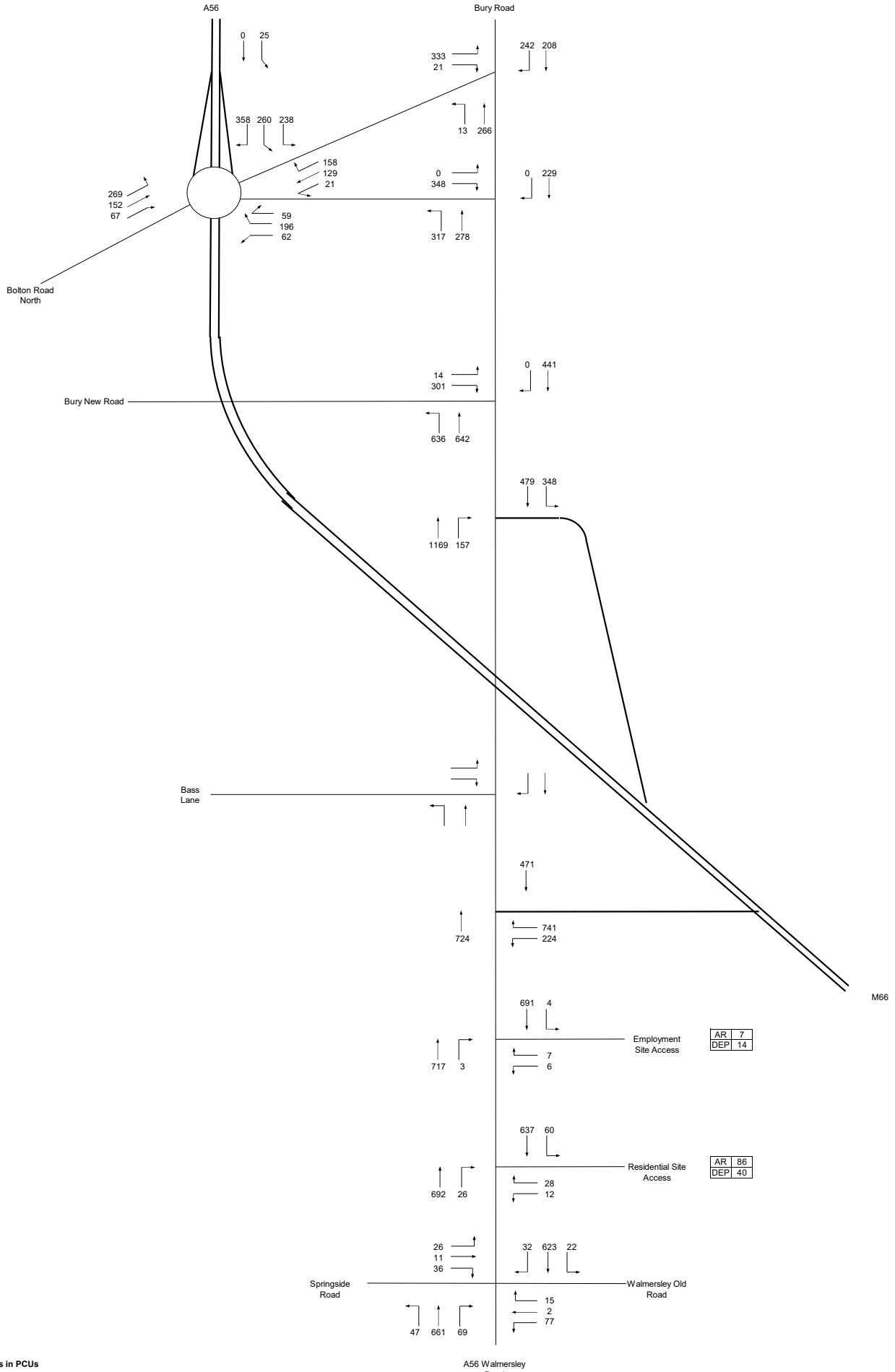
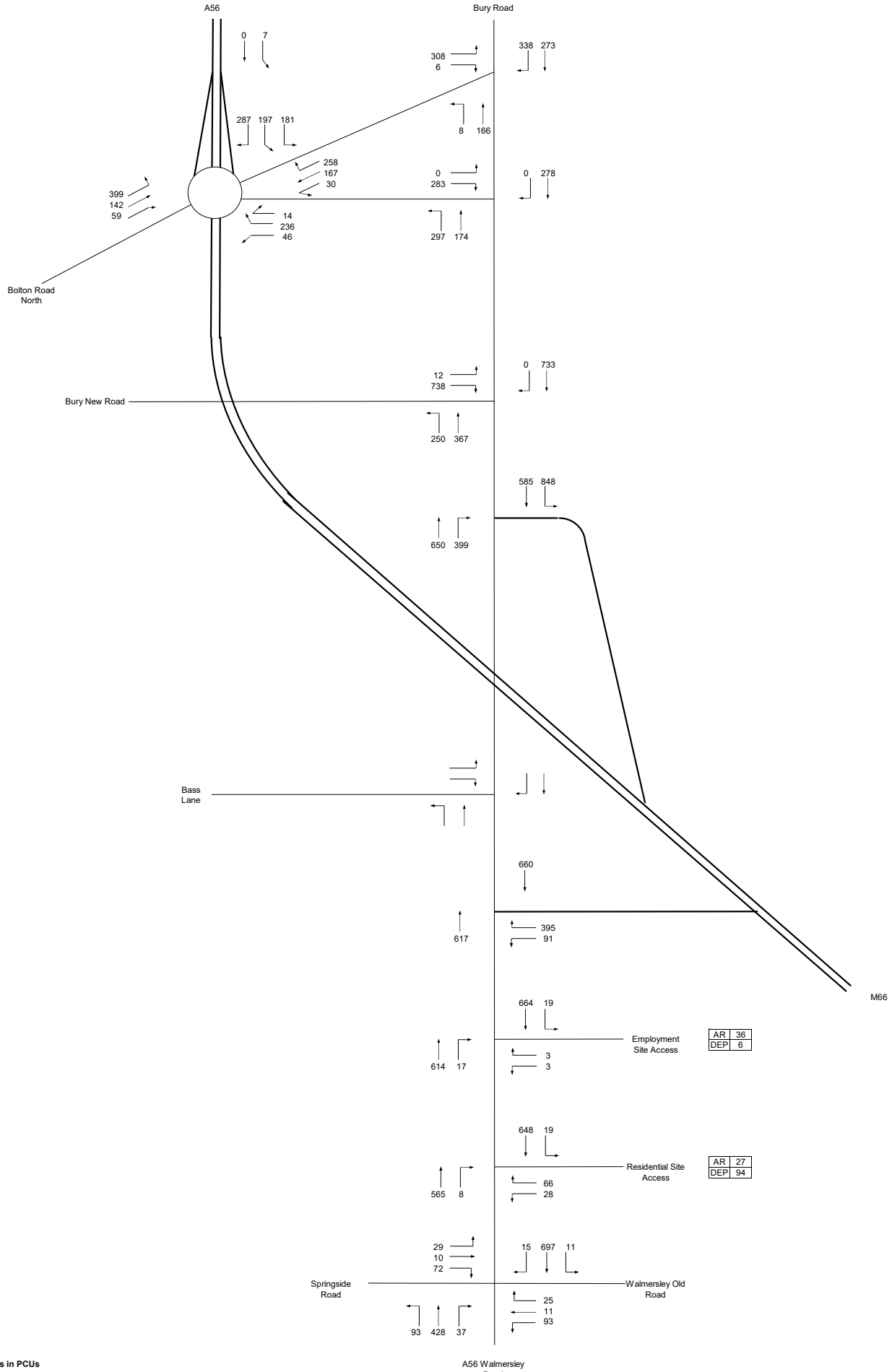



**Figure 30 2028 With Development Flows - Weekday AM Peak (0800-0900)**

Eddisons




**Flows in PCUs**

**Figure 31 2033 With Development Flows - Weekday AM Peak (0800-0900)**

Eddisons

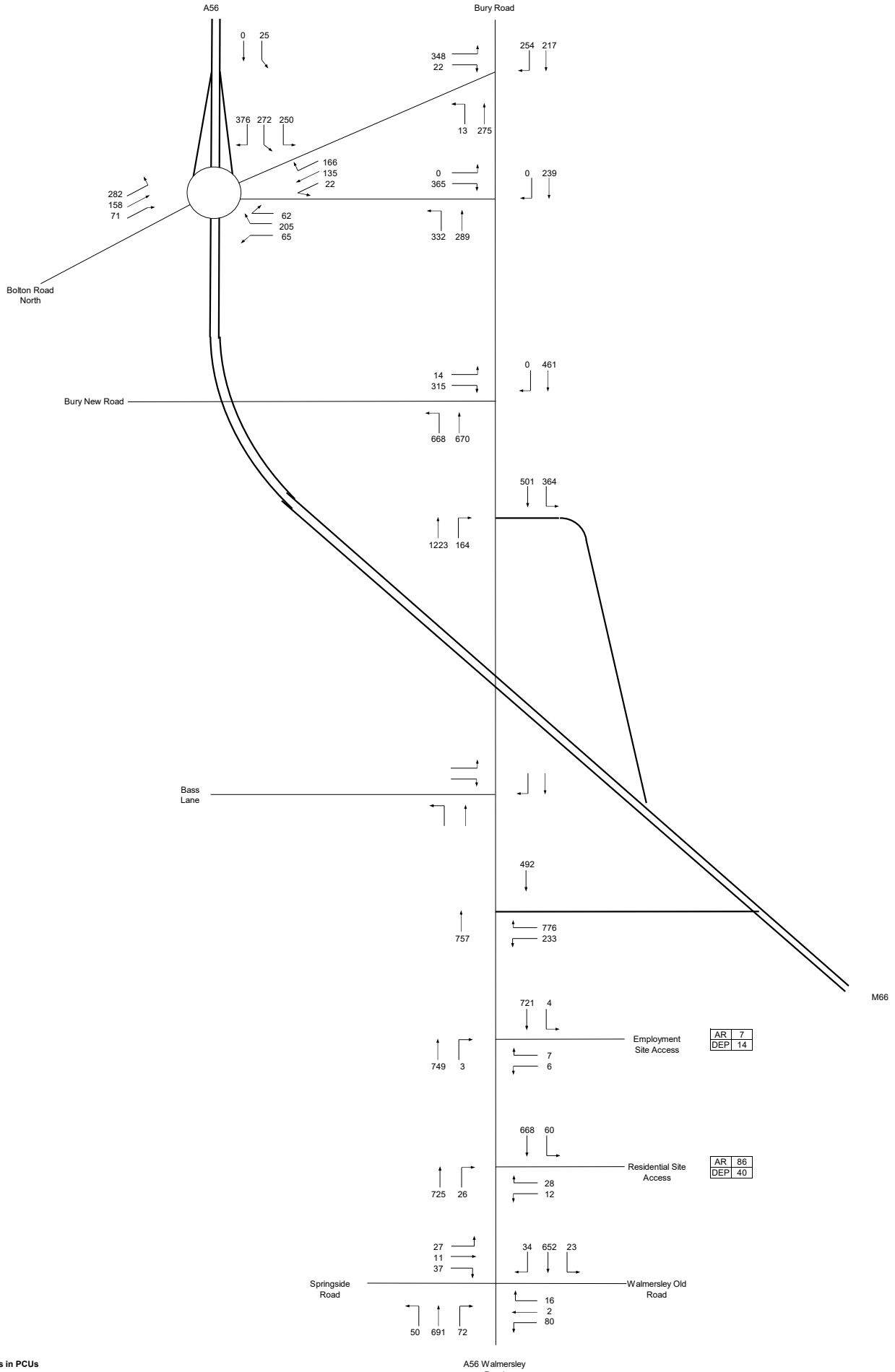
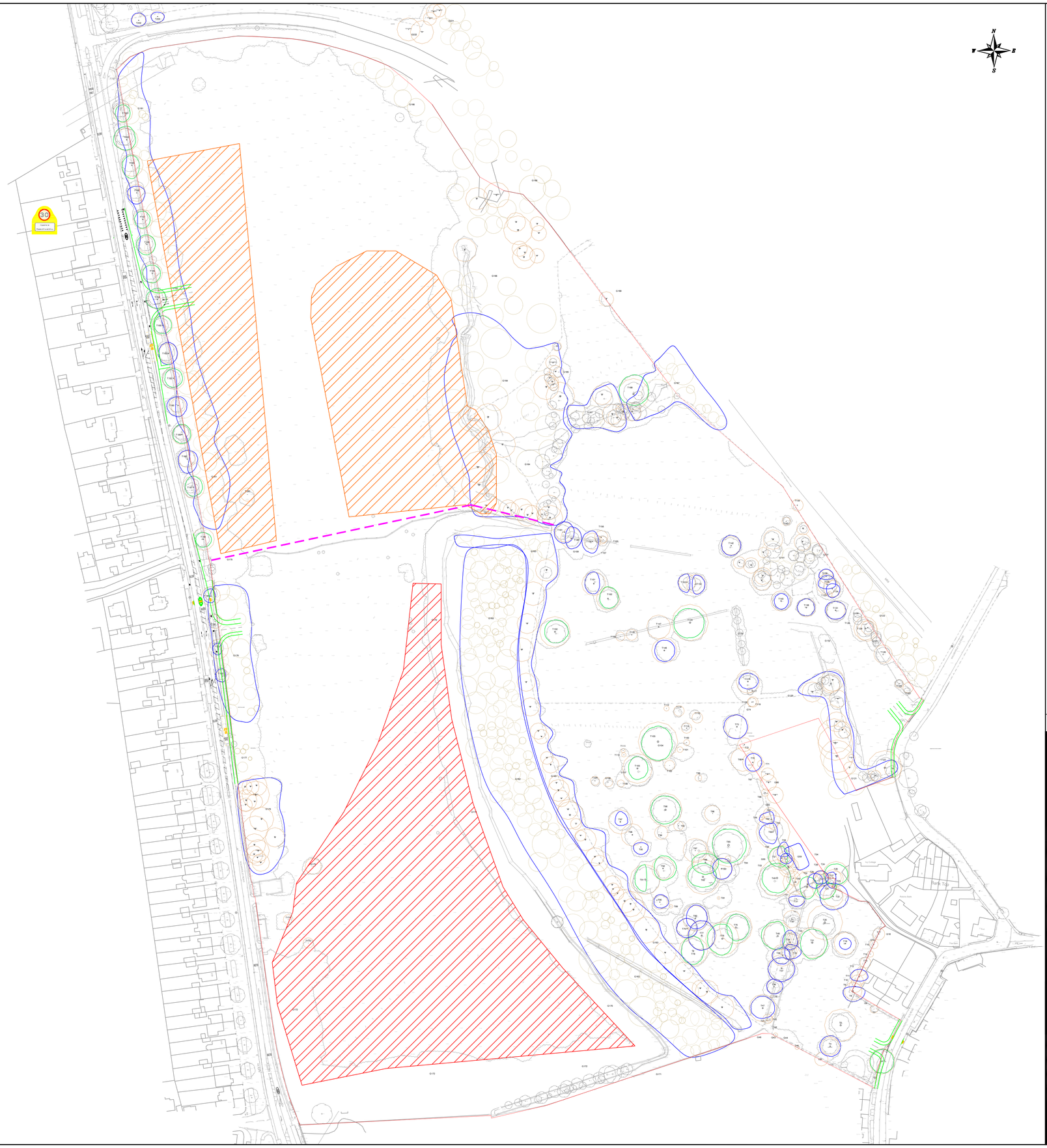



**Figure 32 2033 With Development Flows - Weekday PM Peak (1630-1730)**

Eddisons

# APPENDICES

# APPENDIX 1




# NOTES

THIS IS NOT A CONSTRUCTION DRAWING AND IS FOR INDICATIVE PURPOSES ONLY. THE DRAWING WILL BE SUBJECT TO CHANGE FOLLOWING LOCAL AUTHORITY REVIEW AND CONFIRMATION OF PUBLIC HIGHWAY AND THIRD PARTY LAND BOUNDARIES.
LOCAL AUTHORITY: BURY COUNCIL
TOTAL AREA OF SITE: 26.8Ha

FIELD NORTH OF GIN HALL - INERT WASTE DEPOST (1987)
INERT SOILS
E39 TRIAL PIT INVESTIGATION (MARCH 2013)

GIN HALL LANDFILL (1985-1992)
INERT, INDUSTRIAL, COMMERCIAL AND HOUSEHOLD.

BOUNDARIES TRANSPOSED FROM E3P 10-112-00

| REV | DETAILS | DRAWN | CHECKED | DATE |
|---|---|---|---|---|
| - | - | - | - | - |

CLIENT:
HOLLINS STRATEGIC LAND

PROJECT:
LAND TO THE EAST OF WALMERSLEY ROAD, BURY

DRAWING TITLE:
OVERLAY PLAN

SCALES:
1:1250 @ A1

| DRAWN: | CHECKED: | DATE: |
|---|---|---|
| LB | MTC | AUG 25 |

Eddisons
340 Deansgate
Manchester
M3 4LY

Email: info@croftts.co.uk
Tel: 0161 837 7380
Web:
www.eddisons.com/services/transport-planning

DRAWING NUMBER: 4839-F06
REVISION: -

Eddisons

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PROPOSED 30MPH SPEED LIMIT GATEWAY FEATURE WITH SIGNAGE AND MARKINGS. EXACT LOCATION FOR SIGNAGE AND MARKINGS TO BE AGREED AT DETAILED DESIGN STAGE.

2.4x43M VISIBILITY SPLAY (MfS 30MPH)

FOOTWAY TO TIE INTO EXISTING

2.0 3.25 6.5 2.0

R12.0M

FOOTWAY TO TIE INTO EXISTING

3.0 3.0

BUS STOP TO RELOCATED FURTHER SOUTH AND BE UPGRADED WITH SHELTER. EXACT DETAILS AND LOCATION TO BE AGREED AT DETAILED DESIGN STAGE WITH TFGM.

2.4x43M VISIBILITY SPLAY (MfS 30MPH)

PROPOSED SHARED PEDESTRIAN, CYCLEWAY AND BRIDLEWAY

2.4x43M VISIBILITY SPLAY (MfS 30MPH)

50.0M JUNCTION SPACING AS PER CLAUSE 2.23, CD 123

FOOTWAY TO TIE INTO EXISTING

NEW UNCONTROLLED CROSSING WITH REFUGE ISLAND

3.0 5.5 3.0

R10.0M

3.0 3.0 3.0

2.4x43M VISIBILITY SPLAY (MfS 30MPH)

BUS STOP TO REMAIN AND BE UPGRADED WITH SHELTER. EXACT DETAILS TO BE AGREED AT DETAILED DESIGN STAGE WITH TFGM.

WALMERSLEY ROAD (40MPH)

ADOPTED HIGHWAY PLAN

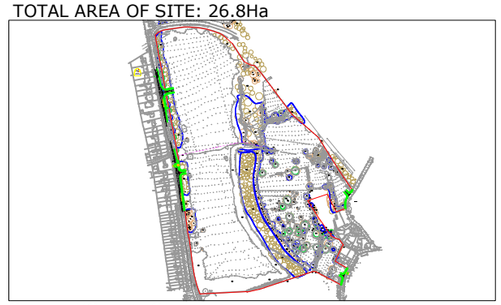
NORTH SOUTH AERIAL VIEW

# NOTES

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THE DRAWING WILL BE SUBJECT TO CHANGE FOLLOWING LOCAL AUTHORITY REVIEW AND CONFIRMATION OF PUBLIC HIGHWAY AND THIRD PARTY LAND BOUNDARIES.

- INDICATIVE SITE BOUNDARY
- DENOTES NEW KERBS
- EXISTING ADOPTED HIGHWAY
- PROPOSED SHARED PEDESTRIAN, CYCLE & BRIDLEWAY

LOCAL AUTHORITY: BURY COUNCIL
TOTAL AREA OF SITE: 26.8Ha



SITE LAYOUT NTS

| REV | DETAILS | DRAWN | CHECKED | DATE |
|---|---|---|---|---|
| C | DESIGN AMENDED TO MASTERPLAN | LB | MC | OCT 25 |
| B | TOPO UPDATED | LB | MC | AUG 25 |
| A | TOPO ADDED | LB | MC | AUG 25 |

CLIENT:
HOLLINS STRATEGIC LAND

PROJECT:
LAND TO THE EAST OF WALMERSLEY ROAD, BURY

DRAWING TITLE:
PROPOSED SITE ACCESS PLAN

SCALES: 1:1000 @ A3

DRAWN: LB | CHECKED: MTC | DATE: JUN 25

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340 Deansgate
Manchester
M3 4LY

Email: info@croftts.co.uk
Tel: 0161 837 7380
Web: www.eddisons.com/services/transport-planning

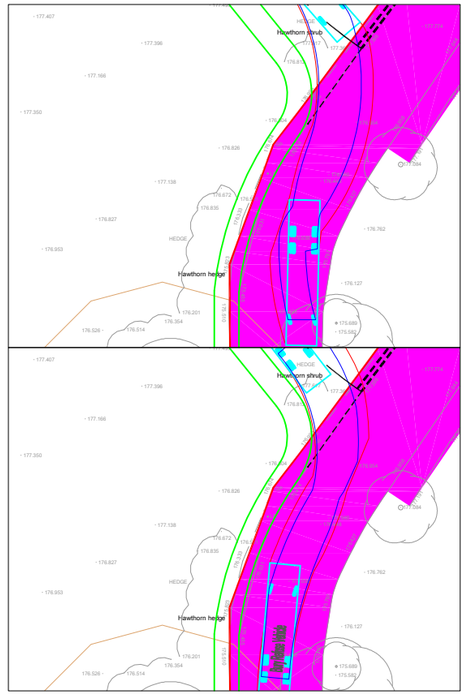
DRAWING NUMBER: 4839-F01
REVISION: C

Eddisons

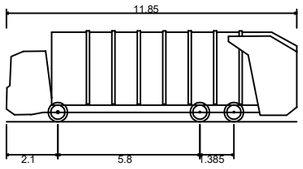
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NORTH SOUTH AERIAL VIEW




SWEPT PATH ANALYSIS: BURY REFUSE



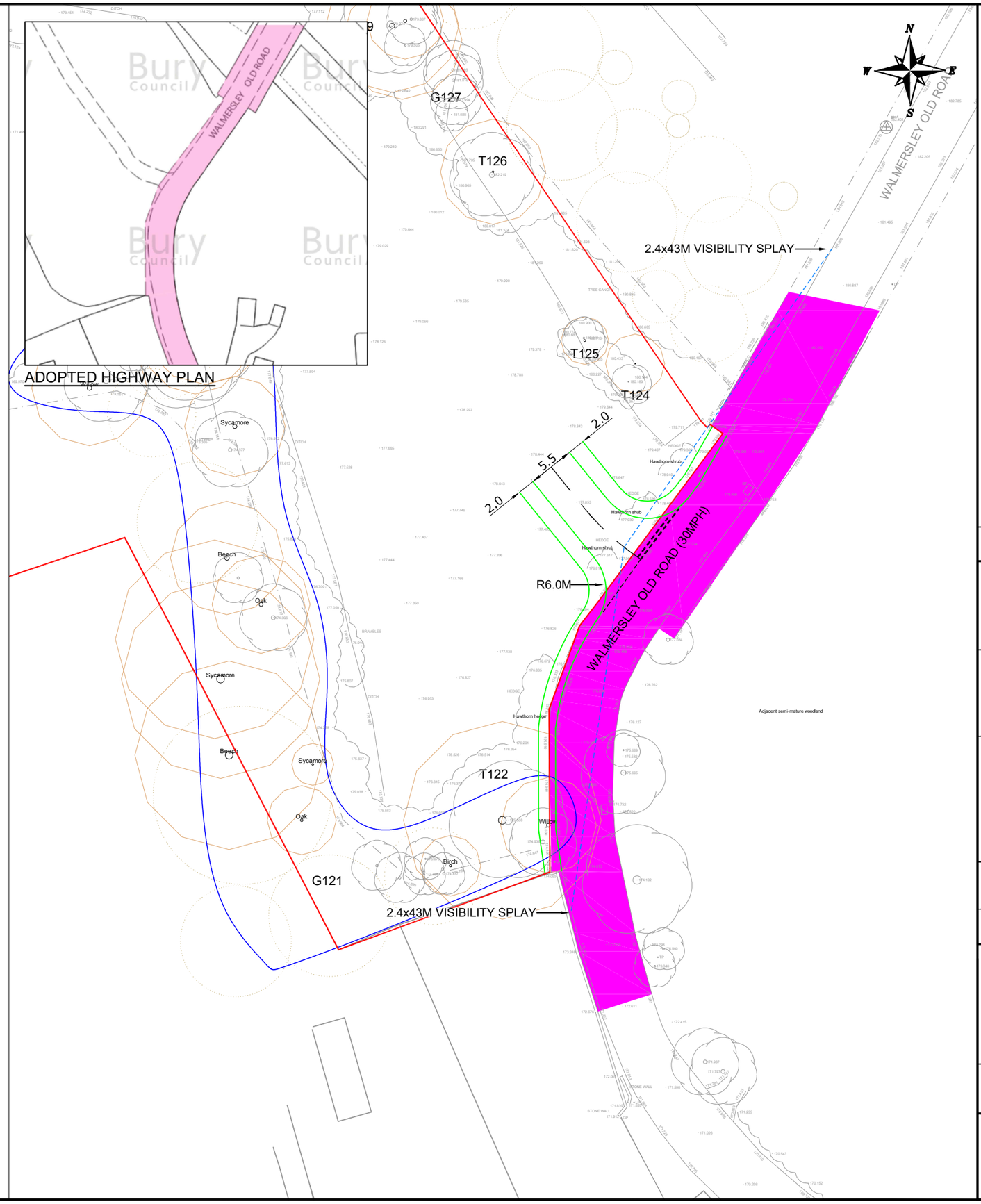

| | |
|---|---|
| Bury Refuse Vehicle | |
| Overall Length | 11.850m |
| Overall Width | 2.500m |
| Overall Body Height | 3.707m |
| Min Body Ground Clearance | 0.260m |
| Track Width | 2.250m |
| Lock to lock time | 4.00s |
| Kerb to Kerb Turning Radius | 11.000m |







ADOPTED HIGHWAY PLAN




## NOTES

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INDICATIVE SITE BOUNDARY

DENOTES NEW KERBS

EXISTING ADOPTED HIGHWAY

LOCAL AUTHORITY: BURY COUNCIL
TOTAL AREA OF SITE: 26.8Ha



SITE LAYOUT NTS

| REV | DETAILS | DRAWN | CHECKED | DATE |
|---|---|---|---|---|
| C | DESIGN AMENDED TO MASTERPLAN | LB | MC | OCT 25 |
| B | TOPO UPDATED | LB | MC | AUG 25 |
| A | TOPO ADDED | LB | MC | AUG 25 |

CLIENT:
HOLLINS STRATEGIC LAND

PROJECT:
LAND TO THE EAST OF WALMERSLEY ROAD, BURY

DRAWING TITLE:
PROPOSED SITE ACCESS PLAN

SCALES:
1:500 @ A3

| DRAWN: | CHECKED: | DATE: |
|---|---|---|
| LB | MTC | JUN 25 |


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340 Deansgate
Manchester
M3 4LY

Email: info@croftts.co.uk
Tel: 0161 837 7380
Web: www.eddisons.com/services/transport-planning

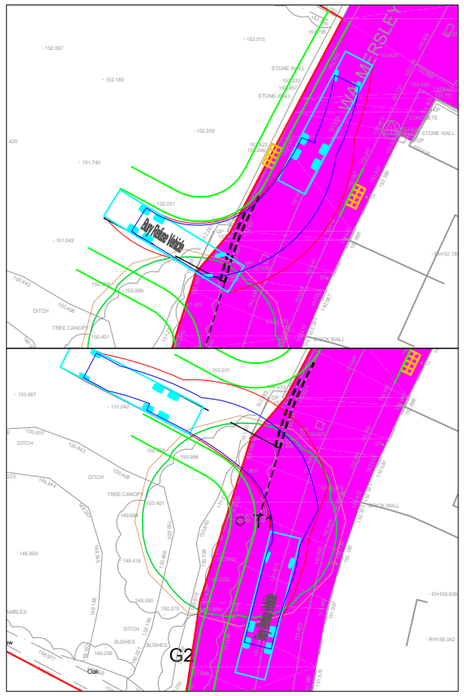

DRAWING NUMBER: 4839-F04
REVISION: C

Eddisons

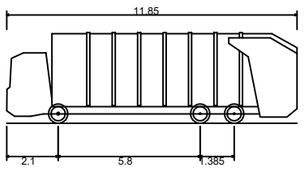
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NORTH SOUTH AERIAL VIEW




SWEPT PATH ANALYSIS: BURY REFUSE



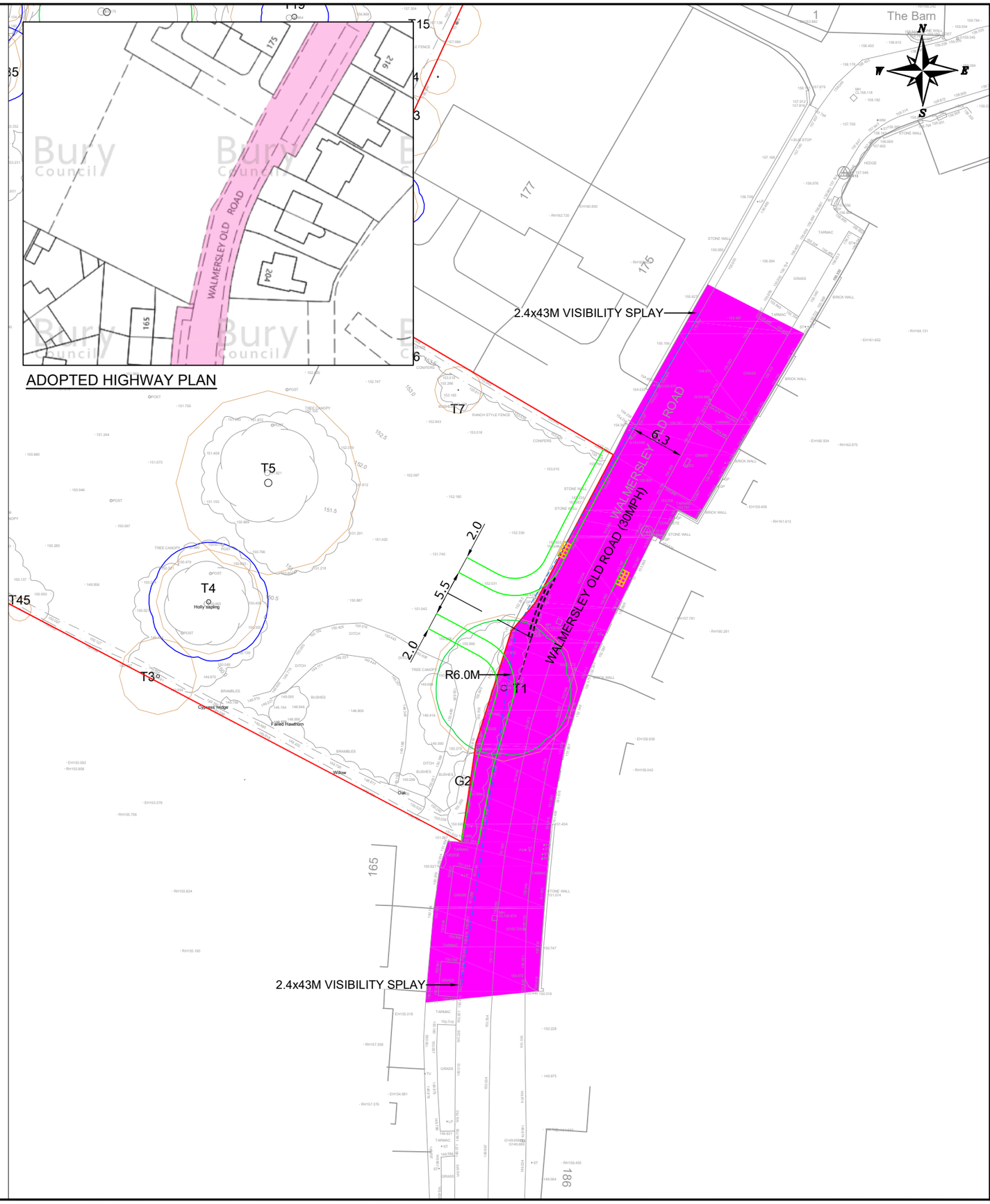

| | |
|---|---|
| Bury Refuse Vehicle | |
| Overall Length | 11.850m |
| Overall Width | 2.500m |
| Overall Body Height | 3.707m |
| Min Body Ground Clearance | 0.260m |
| Track Width | 2.250m |
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ADOPTED HIGHWAY PLAN




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INDICATIVE SITE BOUNDARY

DENOTES NEW KERBS

EXISTING ADOPTED HIGHWAY

LOCAL AUTHORITY: BURY COUNCIL
TOTAL AREA OF SITE: 26.8Ha



SITE LAYOUT NTS

| REV | DETAILS | DRAWN | CHECKED | DATE |
|---|---|---|---|---|
| C | DESIGN AMENDED TO MASTERPLAN | LB | MC | OCT 25 |
| B | TOPO UPDATED | LB | MC | AUG 25 |
| A | TOPO ADDED | LB | MC | AUG 25 |

CLIENT:
HOLLINS STRATEGIC LAND

PROJECT:
LAND TO THE EAST OF WALMERSLEY ROAD, BURY

DRAWING TITLE:
PROPOSED SITE ACCESS PLAN

SCALES:
1:500 @ A3

| DRAWN: | CHECKED: | DATE: |
|---|---|---|
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DRAWING NUMBER: 4839-F05
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# APPENDIX 2

Proposed Residential Development
Land East of Walmersley Road, Bury

**February 2026**

# FRAMEWORK TRAVEL PLAN

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# REPORT

| | |
|---|---|
| **DOCUMENT:** | Travel Plan |
| **PROJECT:** | Proposed Residential Development, Land East of Walmersley Road, Bury |
| **CLIENT:** | Hollins Strategic Land LLP |
| **JOB NUMBER:** | 4839 |
| **FILE ORIGIN:** | Z:\projects\4839 Walmersley Brook, Bury\Docs\Reports |

# DOCUMENT CHECKING:

| | | |
|---|---|---|
| **Primary Author:** | HJ | **Initialled:** |
| **Contributor** | HJ | **Initialled:** |
| **Review By:** | MTC | **Initialled:** |

| Issue | Date | Status | Checked for Issue |
|---|---|---|---|
| **1** | 03-02-26 | Final | |
| **2** | | | |
| **3** | | | |
| **4** | | | |

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# 1 INTRODUCTION

## 1.1 Introduction

1.1.1 Eddisons have been instructed by Hollins Strategic Land LLP (HSL) to advise on the traffic and transport issues relating to an outline planning application for a residential led development on land to the east of Walmersley Road in the Walmersley area of Bury.

1.1.2 This document will set out the principal strategies that will be put in place once residents are occupying the dwellings to encourage sustainable travel.

1.1.3 The Department for Transport has guidance on the preparation of travel plans which are of relevance to this proposed development in 'Good Practice Guidelines: Delivering Travel Plans through the Planning Process – Published in April 2009'.

1.1.4 An initial resident Travel Survey will be undertaken within 3 months of the development reaching 50% occupancy to establish travel modes of residents and visitors and following this, specific targets will be set and agreed with the Travel Plan team at Bury Council.

## 1.2 Structure of the Travel Plan

1.2.1 Following this introduction, Section 2 details Travel Plan Policy and guidance and presents the 'Travel Plan Pyramid'.

1.2.2 Section 3 sets out a series of management measures that will be implemented as part of the Travel Plan. Section 4 of the Travel Plan considers the accessibility of the site by non-car modes, including walking, cycling and public transport.

1.2.3 Section 5 discusses the initial targets for reducing trips by the private car while Section 6 details the monitoring and assessment of the Travel Plan.

## 1.3 Existing Site

1.3.1 The site lies immediately to the north of Bury within the Walmersley area, circa 3km to the north of Bury town centre. The site comprises of approximately 19.9ha of undeveloped land and is bounded to the north and east by the M66 (and junction 1's slip road), to the south by the existing Walmersley settlement area, and to the west by Walmersley Road (A56).

1.3.2 The location of the site is shown on **Plan 1** of the accompanying Transport Assessment.

## 1.4 Development Proposals

1.4.1 The proposals seek planning permission for:

*'Outline planning application with all matters reserved other than access for mixed use development for up to 350 dwellings, up to 2,500 sq mts employment/commercial uses, a local centre comprising up to 249 sq mts of retail floorspace, mobility hub, public open space and associated infrastructure.'*

1.4.2 It is proposed that vehicular access will be taken direct from the A56 in the form two priority junctions along the Walmersley Road frontage. Two secondary minor vehicular access points are proposed to the south of the site onto Walmersley Old Road, albeit these will serve a limited number of dwellings and provide active travel connection points.

1.4.3 Additional active travel connection points are also proposed to link to the existing Public Right of Way network to the northeast of the site and to Hartley Gardens to the south. In addition, a new public bridleway is proposed to provide east to west links through the centre of the site.

1.4.4 The proposed site layout is shown in **Plan 2** of the accompanying Transport Assessment.

## 1.5 The Travel Plan

1.5.1 The aim of the Travel Plan is as follows:

- To encourage residents and visitors to use alternatives to the private car.
- To increase the awareness of the advantages and potential for travel by more environmentally friendly modes; and
- To introduce a package of management measures that will facilitate travel by modes of transport other than the private car.

## 1.6 Residents Travel Pack

1.6.1 The principal measure will consist of a Residents Travel Pack containing relevant material to promote non-car modes of travel and the provision of certain physical measures. This will be discussed further in **Section 3**.

# 2 TRAVEL PLANNING POLICY AND GUIDANCE

## 2.1 Travel Planning Policy

2.1.1 The need to manage transport in new developments is included within national and local policy. The need to reduce car dependency, increase travel choices and encourage sustainable distribution is supported by the National Planning Policy Framework (NPPF) which states that all developments which generate significant amounts of movement should be required to provide a Travel Plan.

## 2.2 Travel Planning Guidance

2.2.1 The preparation and adoption of a Travel Plan is an important element of managing the demand for travel to all modern developments.

2.2.2 The DfT's 'Making Residential Travel Plans Work' which although has been superseded by the National Planning Practice Guidance still provides relevant guidance on the preparation of Travel Plan. This document introduces the concept of a 'Travel Plan Pyramid'. This helps demonstrate how successful plans are built on the firm foundations of a good location and site design. The pyramid is presented in **Figure 2.1** below.

2.2.3 The hierarchy of 5-tiers of measures and criteria are well illustrated in pyramid form since the concept presented within that "good practice" is that each higher layer builds upon the more important foundations of the criteria and initiatives below it.

2.2.4 The most important layer of the pyramid is considered to be the base; this shows the key to making Travel Plans work is the actual location of the development and its proximity to local facilities and services essential to everyday life.




**Figure 2.1 – The Travel Plan Pyramid**

2.2.5 The second layer of the pyramid refers to how the layout of the site can assist in reducing the need to travel, which in this instance is again linked to the existing level of provision to facilitate sustainable travel.

2.2.6 As indicated in level 3 of the pyramid, the Travel Plan co-ordinator will be free to develop further measures to maximise the sustainability of the site.

2.2.7 The fourth layer of the pyramid looks at how parking management and public transport can influence travel choice, while the top layer of the pyramid relates to how the Travel Plan will be marketed and how the measures within are to be promoted.

# 3 PLAN ADMINISTRATION

3.1.1 The administration of the Travel Plan (once implemented) will be the responsibility of the developer.

3.1.2 The developer will be required to designate a Travel Plan Co-ordinator for the residential development and initially it is likely that this will be an employee of Eddisons. Essentially this co-ordinator will provide liaison in implementing the plan with the residents and the local authority.

3.1.3 Details of the appointed Travel Plan Co-ordinator will be submitted to the Planning and Highway Authority 1-month prior to the first occupation on the site. Similarly, the Co-ordinator will be advised of appropriate contact personnel at the development.

3.1.4 The Travel Plan Co-ordinator will be the first point of contact for residents, the Local Authority and other outside organisations in all matters regarding travel.

3.1.5 Prospective buyers will be made aware of the Travel Plan and its aims when viewing properties. For example, a Residents Travel Pack will form part of a Prospective Buyers Information Pack.

3.1.6 The role of the Travel Plan Co-ordinator will also be to develop and manage the Travel Plan for the site. The duties will include monitoring, reviewing targets and forming action plans to remedy areas where the Residential Travel Plan is not performing.

# 4 ACCESSIBILITY BY NON CAR MODES

## 4.1 Introduction

4.1.1 In order to accord with the aspirations of the NPPF, any new proposals should extend the choice in transport and secure mobility in a way that supports sustainable development.

4.1.2 New proposals should attempt to influence the mode of travel to the development in terms of gaining a shift in modal split towards non-car modes, thus assisting in meeting the aspirations of current national and local planning policy.

4.1.3 The accessibility of the proposed site has been considered by the following modes of transport:

- Accessibility by walking / wheeling;
- Accessibility by cycle;
- Accessibility by bus; and
- Accessibility by rail.

## 4.2 Accessibility by Walking / Wheeling

4.2.1 It is important to create a choice of direct, safe and attractive routes between where people live and where they need to travel in their day-to-day life. This philosophy clearly encourages the opportunity to walk / wheel whatever the journey purpose and also helps to create more active streets and a more vibrant neighbourhood.

4.2.2 The existing pedestrian and cycle provision is of good quality and well maintained to cater for pedestrians and mobility impaired users.

4.2.3 Adjacent to the proposed site to the west is the A56 Walmersley Road which has footways on both sides of the road heading north on one side and south on the other. These footways connect to the centre of Bury providing access to the extensive pedestrian infrastructure and local amenities in the area.

4.2.4 There are a number of controlled and uncontrolled pedestrian crossing points located on the A56 Walmersley Road and these will be enhanced as part of the development in the form of new uncontrolled crossings complete with pedestrian refuges and tactile paving to create additional safe crossing points on the A56.

4.2.5 In addition to the pedestrian infrastructure, various Public Rights of Way (PRoW) are located in close proximity to the site. These can be seen below.

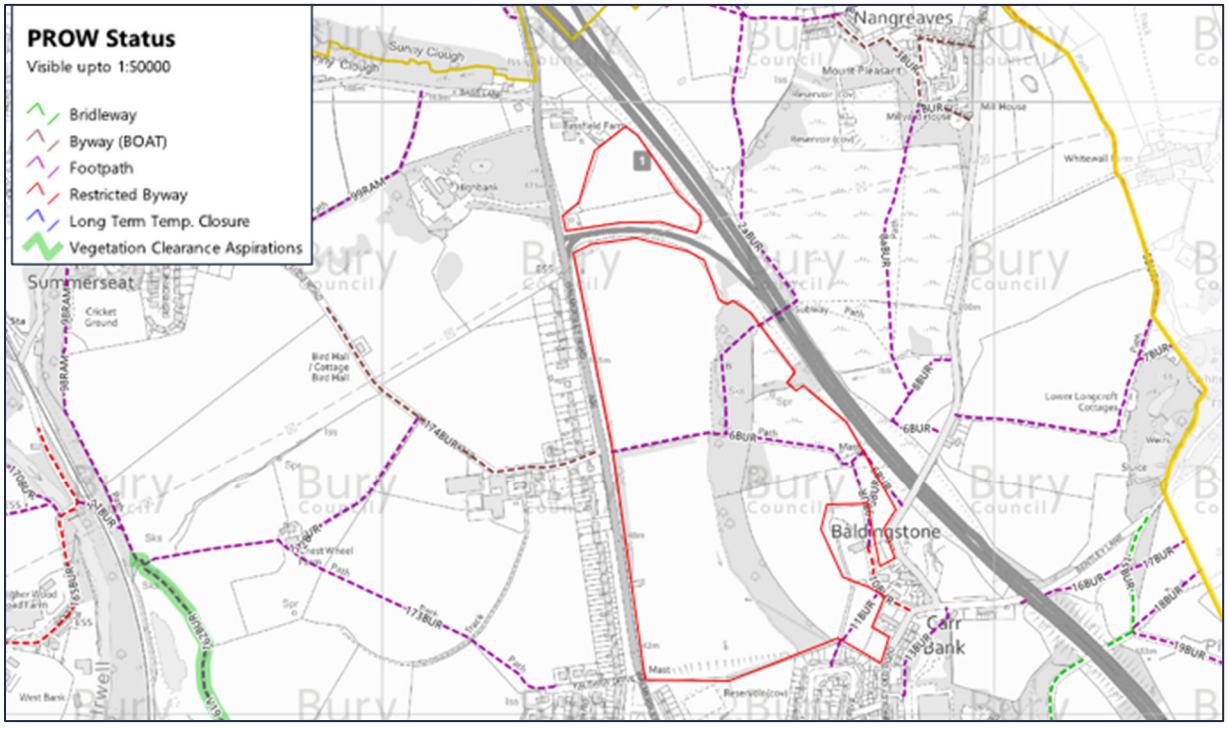



**Figure 4.1 - Public Rights of Way Map (Bury Council)**

4.2.6 As can be seen from **Figure 4.1** above, footpath 6BUR travels directly within the proposed site, connecting the A56 Walmersley Road to the east with Walmersley Old Road. In the midpoint of the proposed site footpath 6BUR connects with footpath 2aBUR which travels north towards Nangreaves. These PRoW which are located within the proposed development have all been retained within the Masterplan and will be enhanced as a result of the development proposals.

4.2.7 There are additional PRoWs to the west of the site, with public byway 174BUR connecting the A56 Walmersley Road along Rowlands Road to the west towards Rowlands and Summerseat.

4.2.8 The Department for Transport (DfT) National Travel Survey of 2023 confirms that 81% of all trips less than a mile (1.6km) are carried out on foot.

4.2.9 The Institute of Highways and Transportation (IHT) document 'Guidelines for Providing for Journeys on Foot', provides information on acceptable walking distances. Table 3.2 of the document suggests distances for desirable, acceptable and preferred maximum walks to 'town centres', 'commuting/schools' and 'elsewhere'. The 'preferred maximum' distances are shown below in Table 4.1.

| Suggested Preferred Maximum Walk | | |
|---|---|---|
| **Town Centre** | **Commuting/School** | **Elsewhere** |
| 800m | 2,000m | 1,200m |

**Table 4.1 IHT 'Providing for Journeys on Foot' Walk Distances**

4.2.10 Manual for Streets (MfS) continues the theme of the acceptability of the 2,000-metre distance in paragraph 4.4.1. This states that '*walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPS13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km*'.

4.2.11 Table 4.2 below summarises this guidance in tabular form.

| 'Comfortable' Walk | 'Preferred Maximum' Walk |
|---|---|
| 800m | 2,000m |

**Table 4.2 Manual for Streets Walk Distances**

4.2.12 Further evidence that people will walk further than the suggested 'preferred maximum' distances in the IHT 'Providing for Journeys on Foot' is contained in a WYG Report entitled 'Accessibility – How Far Do People Walk and Cycle'. This report refers to National Travel Survey (NTS) data for the UK as a whole, excluding London, and confirms the following 85th percentile walk distances:

- All journey purposes – 1,950 metres;
- Commuting – 2,100 metres;
- Shopping – 1,600 metres;
- Personal business – 1,600 metres.

4.2.13 Overall, in Table 5.1, the document states that 1,950 square metres is the 85th percentile distance for walking as the main mode of travel. Table 4.3 below summarises the various 85th percentile walk distances suggested as guidelines in the WYG Study.

| 85th Percentile Walk Distances | | | | Overall Recommended Preferred Max |
|---|---|---|---|---|
| All Journeys | Commuting | Shopping | Personal | |
| 1,950m | 2,100m | 1,600m | 1,600m | 1,950m |

**Table 4.3 WYG Report/NTS Data Walk Distances**

4.2.14 In summary, the distance of 1,950 metres, or around 2 kilometres, represents an acceptable maximum walking distance for the majority of land uses.

4.2.15 The CIHT guidance 'Planning for Walking' document from 2015 provides a useful reminder of the health benefits of walking. This states that:

*'A brisk 20 minute walk each day could be enough to reduce an individual's risk of an early death.'*

4.2.16 A 20-minute walk equates to a walking distance of around 1,600 metres.

4.2.17 In light of the above review, a pedestrian catchment of 800 metres and 2 kilometres from the centre of the site, using all available pedestrian routes, has been provided in **Plan 4** of the accompanying Transport Assessment.

4.2.18 The 800-metre catchment includes the area surrounding the site, including the nearest bus stops along the A56 Walmersley Road, post boxes, medical facilities, a public house and open spaces– all located within a short walk of the development site.

4.2.19 The 2,000-metre pedestrian catchment encompasses areas further from the development such as Lower Summerseat, Brooksbottoms and Higher Woodhill. The catchment includes some neighbourhood shopping areas, education and health facilities and additional convenience stores.

4.2.20 In a recent 2023 YouGov poll, respondents were asked to identify the local amenities they valued the most within a 15-minute walk of their home. The poll results highlight amenities that people consider essential for their day to day lives, such as, grocery stores, healthcare facilities and public transportation. The results of the YouGov Poll are displayed in **Figure 4.2** below:

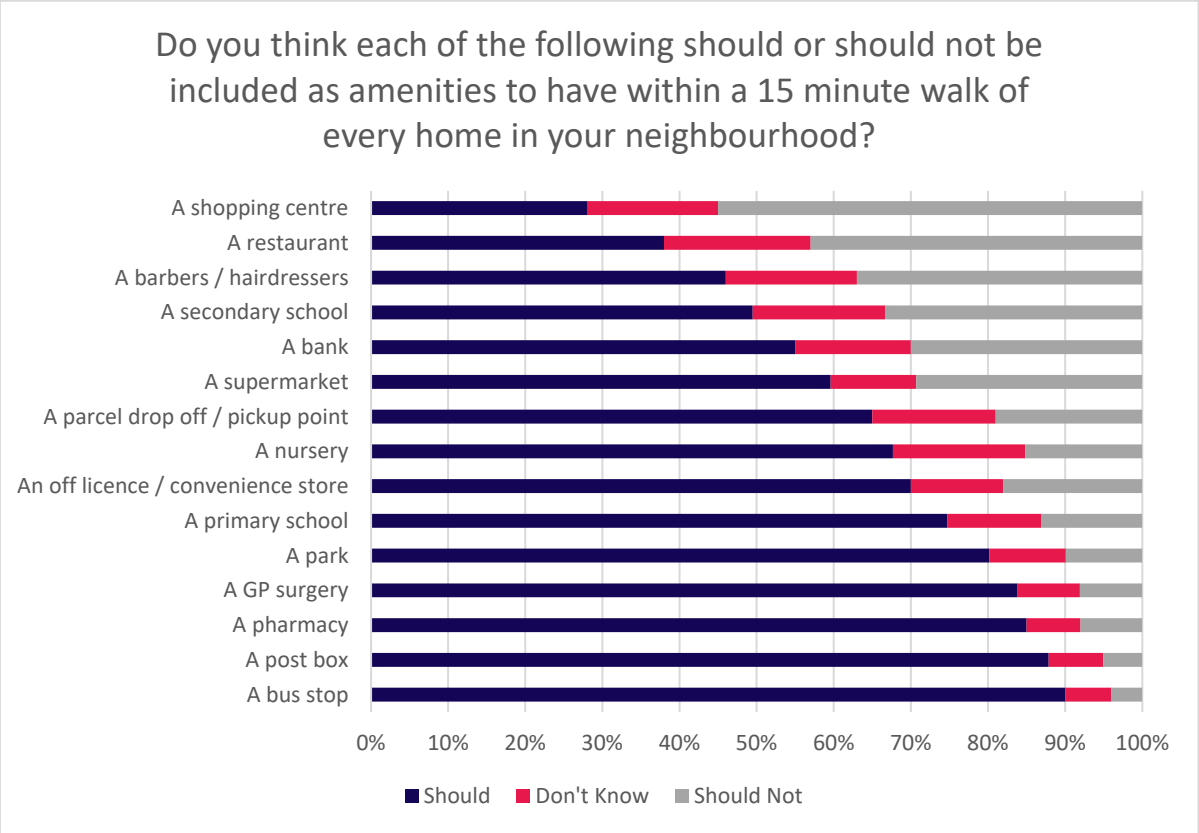



**Figure 4.2 YouGov Poll Results (Source: YouGov)**

4.2.21 **Figure 4.2** shows that the majority of respondents, approximately nine in ten, believe that having a bus stop (90%) and a post box (87%) within a short walk of their home is most important. Similarly, a significant proportion of Britons think that medical facilities like a pharmacy (85%) and a GP surgery (83%) should be easily accessible. Less than half of the respondents see the need for a shopping centre (28%), restaurant (38%), or hairdressers (46%) to be located nearby.

4.2.22 **Plan 4** provides an illustrative indication of the areas that can be reached based on a leisurely walk from the site. The plan also displays nearby local amenities, as per those identified within the findings of the YouGov poll.

4.2.23 As can be seen from the plan, the site is located in close proximity to a number of a local amenities, including a bus stop, school, health facility and a local convenience store.

4.2.24 Table 4.4 below, shows the walking distance from the centre point of site to several of the local key amenities in the immediate vicinity of the site. The table also confirms whether or not the particular amenity is within the 'preferred maximum' walk distances using the above guideline criteria.

| Local Amenity | Distance | Guidance Criteria | Meets with Guidance? |
|---|---|---|---|
| Nearest Bus Stop | 290m | 1,600m | YES |
| Post Box | 590m | 1,600m | YES |
| The Priory Highbank Mental Health Centre | 755m | 1,600m | YES |
| Hartley Gardens | 910m | 1,600m | YES |
| Walmersley Food and Booze | 940m | 1,600m | YES |
| Summerseat Methodist Primary School | 1,270m | 3,200m | YES |
| The Hark to Dandler Public House | 1,280m | 1,600m | YES |
| Springside Primary School | 1,330m | 3,200m | YES |
| Brooksbottom Cricket Club | 1,410m | 1,600m | YES |
| East Lancashire Railway | 1,510m | 1,600m | YES |

**Table 4.4 Distance from Site to Local Facilities**

4.2.25 Based on the review, it is considered that the existing pedestrian infrastructure will facilitate safe and direct walking / wheeling linkages between the site and numerous local services and amenities.

## 4.3 Accessibility by Cycle

4.3.1 An alternative mode of travel to the site could be achieved by bicycle.

4.3.2 The importance of cycling as an alternative mode of travel both now and in the future, is demonstrated by the new rules relating to cyclists contained within the revised Highway Code, which came into force in January 2022.

4.3.3 These new rules, which include the 'Hierarchy of Users' or 'Hierarchy of Responsibility', recognise that drivers of vehicles that can cause the greatest harm in the event of a collision bear the greatest responsibility to take care and reduce the danger to others. This together with the simplification of the rules, to make junctions safer and new rules to tackle dangerous overtaking will provide a road environment where cyclists and pedestrians are given priority, feel safer using the road network and further encourage travel by cycle.

4.3.4 The Cycling England document 'Integrating Cycling into Development Proposals' advises that '*For short trips, [cycle links] can give cyclists significant advantages over car users in terms of convenience and journey time… Most cycle journeys for non-work purposes and those to rail stations are between 0.5 and 2 miles, but many cyclists are willing to cycle much further. For work, a distance of 5 miles should be assumed.'*

4.3.5 This 8 kilometre (5 mile) distance equates to a journey of around 40 minutes based on a leisurely cycle speed of 12 kilometres per hour and would encompass Bury, Radcliffe, Heywood, Ramsbottom and some parts of Rochdale.

4.3.6 The site is located circa 3.6 kilometre cycling distance (approx-12 minutes journey time at a leisurely cycle speed of 12km per hour) from Bury town centre.

4.3.7 The most direct cycling route to Bury town centre takes cyclists along the A56 Walmersley Road, travelling south all the way to the town centre. The majority if this route is a 30mph zone as the surrounding area is built-up and the route is reasonably flat and suitable for cycling.

4.3.8 The A56 Walmersley Road also includes some dedicated and advisory cycle lanes in some parts, creating a safe route to Bury town centre. These cycle lanes are seen on both sides of the A56 adjacent to the southwest part of the proposed development and carry on southwards until the road meets Springside Road. This route is displayed in **Figure 4.3** below.

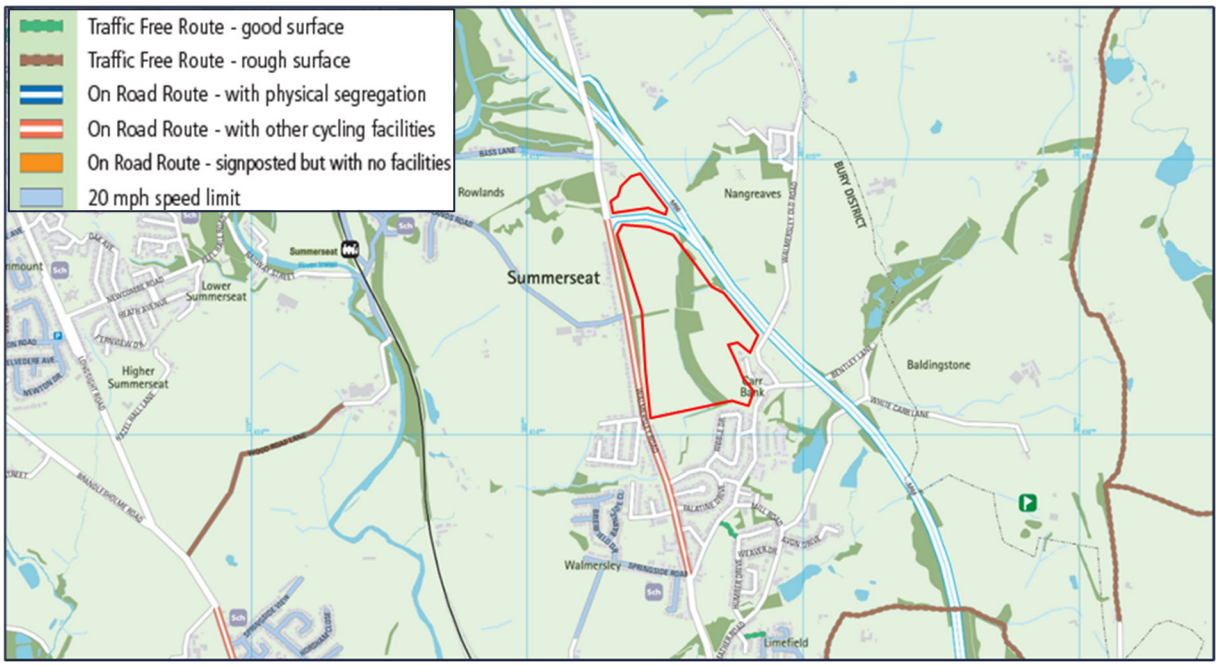



**Figure 4.3 – TFGM GM cycling and walking route map (Source: Transport for Greater Manchester)**

4.3.9 National Cycle Route 6 is located approximately 3.1 km north of the site and around 2.7 km west of the site. The entirety of the route travels from London to the Lake district but enters Manchester via the traffic free Fallowfield Loop Line and up towards the city centre. Towards Bury the route follows much of the Irwell Sculpture Trail, and from Bury north to Accrington the routes are via on-road and traffic free sections of the old East Lancashire Railway Path.

4.3.10 The National Cycle Route Network is shown in **Figure 4.4** below:

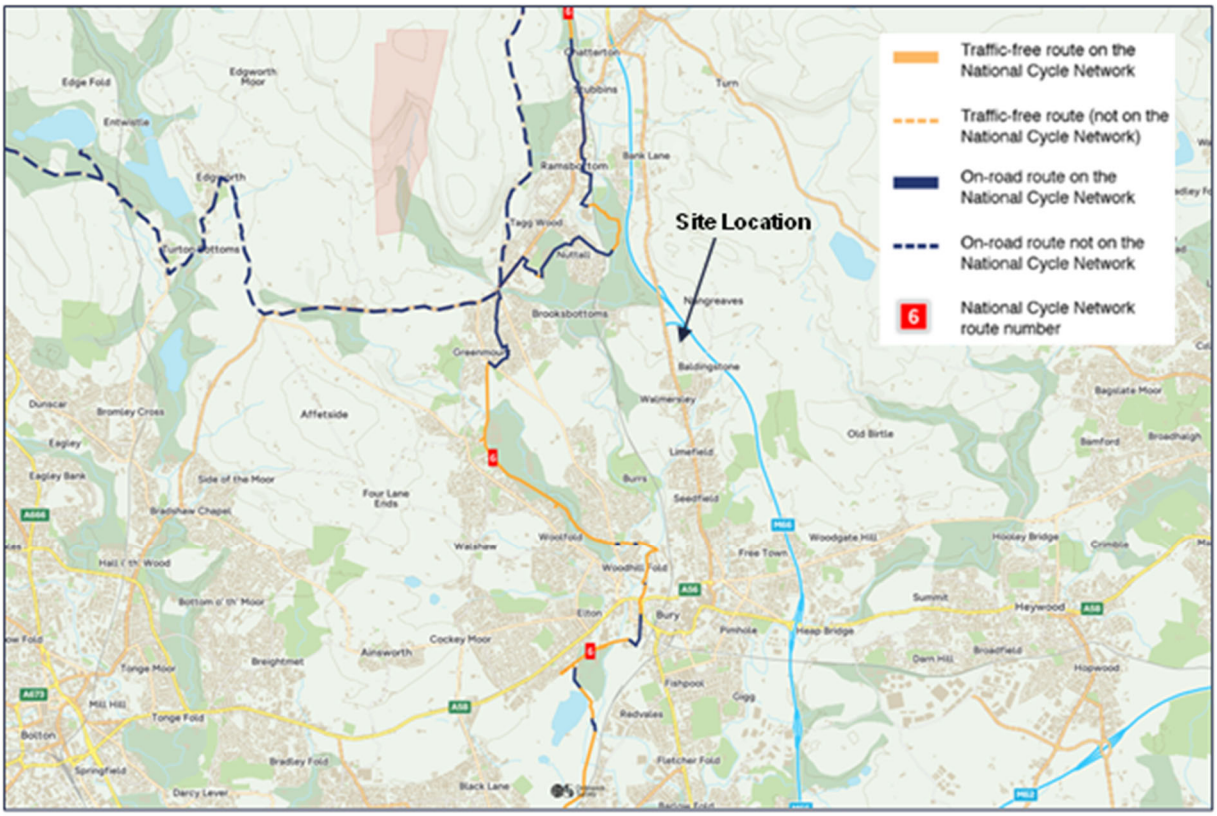



**Figure 4.4 – National Cycle Route Map (Source: Sustrans)**

4.3.11 Based on the review, it is considered that the existing and proposed cycle infrastructure in the vicinity of the site will facilitate safe and direct linkages between the site and numerous key destinations, including Bury town centre. The proposed new public bridleway will also significantly enhance active travel connections and opportunities in the vicinity of the site.

## 4.4 Accessibility by Bus

4.4.1 An effective public transport system is essential for providing good accessibility to large parts of the population. This provides opportunities for work, education, shopping, leisure and healthcare trips in the town and beyond.

4.4.2 The nearest bus stops to the site are located on the A56 Walmersley Road, approximately located around 290m, or around a 2-minute walk, from the approx. centre of the site. Additional bus stops are located further along the A56 Walmersley Road to the north and south.

4.4.3 A summary of the bus services operating from the nearest bus stops are provided in Table 4.5 below.

| Servic No | Route | Monday - Friday | | | Saturday | | | Sun |
|---|---|---|---|---|---|---|---|---|
| | | Pre 08:00 | 08:00-17:00 | Post 17:00 | Pre 08:00 | 08:00-17:00 | Post 17:00 | |
| **472** | Bury — Walmersley — Ramsbottom — Holcombe Brook | 7 services | Every 20 mins | 12 services | 3 services | Every 20 mins | 11 services | 30 services |
| **474** | Bury - Holcombe Brook - Ramsbottom - Walmersley | 6 services | Every 20 mins | 13 services | 6 services | Every 20 mins | 12 services | 29 services |
| **481** | Bury – Rawtenstall – Blackburn | 1 service | Every 60 mins | 2 services | - | Every 60 mins | 2 services | 9 services |
| **483** | Bury - Edenfield - Rawtenstall - Whitewell Bottom - Burnley | 2 services | Every 60 mins | 5 services | 1 service | Every 60 mins | 4 services | 8 services |
| **882** | Tottington High School - Burnley Road | 2 services | 2 services | - | - | - | - | - |
| **898** | Elton High School - Walmersley Road | 1 service | 1 service | - | - | - | - | - |

**Table 4.5 Existing Bus Services Operating in the Vicinity of the Site**

4.4.4 As can be seen from Table 4.5, the nearest bus stops to the site are served by multiple services throughout the day, facilitating access to destinations including Bury town centre, Blackburn, Burnley, Ramsbottom and two different high schools.

4.4.5 These services operate from around 5.10am to around 00:30am, making travel by public transport a real alternative to travelling by car for commuting trips.

4.4.6 In order to demonstrate the level of accessibility some example journey times by bus are presented below Table 4.6 below.

| Destination | Duration |
|---|---|
| Ramsbottom | 10 minutes |
| Bury | 15 minutes |
| Burnley | 57 minutes |
| Blackburn | 1 hour 8 minutes |

**Table 4.6 Example Bus Journey Times from the Site**

4.4.7 The above table demonstrates that Ramsbottom is just a 10-minute bus journey from the site, Bury town centre is just a 15-minute bus journey, Burnley is a 57-minute bus journey, and Blackburn is a 1 hour 8-minute bus journey.

4.4.8 It is therefore concluded that the proposed development site is highly accessible by bus.

## 4.5 Travel by Metrolink

4.5.1 There are no nearby conventional railway stations to the site, however, Bury Tram stop is located within Bury town centre. It is located outside the 2km pedestrian catchment; however, it can be accessed by a 15-minute bus journey on the no. 474, 483 or 481 bus service or by a 12-minute cycle journey.

4.5.2 This tram stop is managed by Transport for Greater Manchester and is a part of the wider bee network. The stop has two platforms operating services towards Manchester Picadilly and Altrincham, with services operating every 12 minutes from 7am to 8pm on weekdays and 9am to 6:30pm on weekends. The stop also has 8 cycle stands.

4.5.3 This provides substantial opportunities to travel to and from the site by tram for all types of journey purposes including, for example, commuting to Manchester sustainably.

4.5.4 Additionally, the East Lancashire Heritage Railway is located within the 2km pedestrian catchment, with stations in Summerseat and Burrs Country Park. This railway line is a heritage railway line running for 20km between Heywood, Greater Manchester, and Rawtenstall, Lancashire. The route has more services in summer months and weekends, with much less in winter months, for instance in August 2025 from the Summerseat station 5 services go daily from Wednesday to Friday with more services on the weekend.

4.5.5 Although a heritage railway is not a primary form of transport it's nonetheless represents a viable and accessible option for accessible travel to and from the nearest stations to the proposed site and into Bury town centre.

## 4.6 Sustainable Access Summary

4.6.1 The proposals have been considered in terms of accessibility by non-car modes for the proposed development.

4.6.2 The following conclusions can be drawn from this section of the report:

- The site is highly accessible by walking / wheeling and these provisions will be improved as part of the works at the development site as well as preserving and enhancing the existing PRoW network.
- The site is well located to cater for trips on foot and provides potential for a high degree of pedestrian trips between the development and the surrounding area, including Bury town centre;
- It has been demonstrated that the site is accessible by cycle, with national and local cycle routes and infrastructure being located within close proximity of the site plus the addition of new on-site facilities including a proposed new public bridleway.

- The services available from the bus stops on the A56 Walmersley Road connects with retail, employment and leisure facilities within Bury, Ramsbottom, Blackburn and Burnley. It can therefore be concluded that the proposed development is highly accessible by bus.

- The Bury Metrolink stop is accessible and provides prospective residents with wider opportunities to travel to and from the site sustainably.

4.6.3 In light of the above, it is considered that the site highly accessible by non-car modes and will cater for needs of the development's residents and assist in promoting a choice of travel modes other than the private car.

# 5 MANAGEMENT MEASURES

## 5.1 Introduction

5.1.1 The following Travel Plan measures will be implemented:

i. Appointment of Travel Plan Co-ordinator

ii. Resident's Travel Pack

iii. Travel Awareness and Information

iv. Promotion of Lift Share Scheme

v. Encouraging Walking/Cycling

vi. Encourage Sustainable Trips to Local Schools – Walking Bus / Park & Stride

vii. Encourage Home Working and Delivery Services

viii. Encouraging Travel by Public Transport

ix. Marketing and Promotion

## 5.2 Appointment of Travel Co-ordinator

5.2.1 A Travel Plan Co-ordinator (TPC) is to be appointed prior to the properties being occupied. Initially this will be a person appointed by Developer, as this will show a commitment to the Travel Plan from an early stage.

5.2.2 The TPC will be responsible for all aspects of the Travel Plan.

5.2.3 Their primary functions will be as follows;

- Liaison with the local planning and highways authority.
- Provision of a Resident's Travel Pack containing information for residents.

- Promotion of the sustainable transport options available to residents, including public transport, cycle, walking and car sharing schemes.
- Maintenance of all necessary systems, data, and paperwork.

5.2.4 The role of the TPC will also be to develop and manage the Travel Plan for the site.

5.2.5 The duties will include monitoring, reviewing targets and forming action plans to remedy areas where the Travel Plan in not performing. Annual progress reports will be prepared and submitted to Bury Council.

5.2.6 Details of the nominated TPC will be submitted to Bury Council and Transport for Greater Manchester (TfGM) at least one month prior to first occupation at the site. Similarly, the TPC will be advised of appropriate contact personnel at the Council.

## 5.3 Resident's Travel Pack

5.3.1 It is an important principle in residential developments that where appropriate, the implementation of travel plan type measures can establish a pattern of travel behaviour favouring sustainable modes from the inception of the development.

5.3.2 The proposed development is very well placed for encouraging access on foot or by cycle to a wide range of facilities. Similarly, the existence of nearby public transport services will encourage choice of public transport as a primary means of travel for the development.

5.3.3 However, in order to build on these locational advantages, it is recommended that a Resident's Travel Pack is provided for the occupants of each new dwelling.

5.3.4 The contents of such a travel pack would include information relating to walking and cycling routes in the area and the provision of up-to-date bus and rail timetable information as well as identification of the location of nearby amenity facilities as part of the information supplied to prospective purchasers.

5.3.5 The contents of the packs will vary depending upon the information available on sources such as the internet or local bus stops.

5.3.6 However, the Travel Packs will include:

- Information about the local area, e.g. location, distance and directions to local shops, schools, Post Offices, Doctor Surgeries, Hospitals, Banks, Libraries, Parks, attractions, and other local amenities.
- Information on the most recently published public transport information.
- Details of web sites, mobile apps and other sources of information which can be accessed, such as:
- Public Transport - Links to timetable information e.g. www.traveline.org.uk and www.nationalrail.co.uk, https://tfgm.com/
- Car Sharing - Links to websites that co-ordinate car sharing such as www.carshare.com, https://liftshare.com/uk/how-it-works and www.nationalcarshare.co.uk to encourage car sharing.
- Cycling - Links to the UK's National Cyclists Organisation website http://www.cyclinguk.org, Sustrans www.sustrans.org.uk and TfGM's cycle information website https://beeactive.tfgm.com/cycling/
- Local Amenities - local supermarkets offering internet shopping would reduce the need for car travel.

5.3.7 The adoption of such travel packs is recognised as being an important element in ensuring that access by non-car modes is promoted from the earliest occupation of a residential development. Within the Resident's Travel Pack, residents will be encouraged to consider ways in which to reduce their need to travel such as home delivery for shopping and working from home.

## 5.4 Travel Awareness and Information

5.4.1 Residents will be made aware of the existence of the Travel Plan and its aims. As mentioned previously, Resident's Travel Packs will be issued for new residents moving into the development and prospective buyers will be made aware of the Travel Plan when viewing properties.

## 5.5 Promotion of Lift Share Scheme

5.5.1 The Travel Plan Co-ordinator will promote the use of car sharing via registering on the Liftshare website. It allows users to register their details, where they are travelling to, if they are offering a lift or need a lift to their destination.

5.5.2 The website can be found at the following location www.liftshare.com.

## 5.6 Encouraging Walking/Cycling

5.6.1 Residents will be provided with information and advice concerning safe pedestrian and cycle routes to the site through the provision of the Resident's Travel Pack.

5.6.2 Local and National campaigns for walking and cycling will also be promoted by the Travel Plan Co-ordinator.

## 5.7 Encouraging Sustainable Trips to Local Schools – Walking Bus / Park & Stride

5.7.1 The Travel Plan Co-ordinator will consider the implementation of a walking bus scheme to assist in reducing overall car travel as well as making young children aware of the benefits, including health benefits of walking to school rather than travelling by car.

5.7.2 A walking school bus is a group of children walking to school with one or more adults. According to the website 'walktoschool.org.uk':

*'It can be as informal as two families taking turns walking their children to school to as structured as a route with meeting points, a timetable and a regularly rotated schedule of trained volunteers.'*

5.7.3 The use of the walking bus can have a positive influence on young school children by providing the necessary conditions to teach children the safety aspects of walking to school and the importance of using the Green Cross Code.

5.7.4 Walking to school is one of the easiest ways to improve children's health. According to the 'Walking School Bus.org. website 'studies show that fewer children are walking and biking to school, and more children are at risk of becoming overweight. Changing behaviours of children and parents require creative solutions that are safe and fun. Implementing a walking school bus can be both.'

5.7.5 By providing a walking bus as part of the Travel Plan, there will be an opportunity to reduce potential car related journeys to nearby schools, particularly to Summerseat and Springside Primary Schools which are within a short walk of the Site.

5.7.6 A walking bus can provide a reduction in traffic movements to and from a particular school which in turn will reduce on-street car parking at the schools. The walking bus can also be expanded to families outside the new development site in the form of a Park & Stride scheme. This is where parents travelling from further afield are encouraged to park in a designated area away from the school to allow their child to join the walking bus for the remainder of their journey to school.

5.7.7 The walking bus route can also be considered as part of the Sites wayfinding strategy.

5.7.8 In order for the provision of a walking bus to become a reality, the Travel Plan Co-ordinator will undertake the following duties;

- Liaise with relevant contacts at the nearby primary schools;
- Liaise with the Travel Plan officers at Bury Council; and

- Arrange for all parties to sign a 'Commitment Statement' to ensure the walking bus is implemented as set out above.

## 5.8 Encourage Home Working and Delivery Services

5.8.1 All new properties will have the ability to have broadband internet connection points, enabling the residents to obtain the internet. Therefore, encouraging home working and shopping, reducing the need to travel especially during peak times.

5.8.2 A number of telecommunication providers serve the area enabling residents to search for potential Liftshare opportunities, as well as complete online shopping. Broadband will also enable residents to work from home thus, complying with goals highlighted within national and local policy.

## 5.9 Encouraging Travel by Public Transport

5.9.1 The TPC will liaise with the local bus operators to promote the use of public transport services and ensure that up to date timetable information is readily available to residents.

5.9.2 Travel by public transport will be promoted and residents will be encouraged to access the public transport information provided on relevant websites, as well as utilising the Journey Planning tools available.

## 5.10 Marketing and Promotion

5.10.1 To ensure that potential residents of the site are informed about the Travel Plan and its goals from the earliest stage, the Travel Plan will have a significant presence within the sales suite of the development which will include a display outlining the sustainable travel measures being implemented and details of access by sustainable travel modes.

5.10.2 The sales staff will be given training to promote the Travel Plan as an asset and selling point of the development and key concepts relating to accessibility included in marketing/sales particulars.

# 6 TRAVEL PLAN MONITORING

6.1.1 It is important that monitoring data gathered through the travel plans is collected in such a way as to provide a clear indication of how successful the respective travel plans have been in minimising single occupancy car journeys and encouraging sustainable travel patterns. Therefore, the following monitoring will be provided as part of the Travel Plan for the site which is in line with DfT best practice.

6.1.2 A full Residents' travel survey: A travel survey will be distributed to all residents. This will ask questions about how they currently travel to and from the site, how they would prefer to travel to and from the site, any travel or transport issues they are encountering, and their attitudes towards sustainable travel.

6.1.3 Snap-Shot Residents travel survey: The snap-shot survey will solely provide modal split data for the development site and will enable the TPC to gauge whether the objectives of the Travel Plan are being achieved.

## 6.2 Frequency of Monitoring

6.2.1 The full travel surveys would be conducted once every two years for at least 5-years and the snap-shot survey will be undertaken annually, with the results reported to Bury Council in the form of a monitoring statement. The initial survey would be undertaken within 3-months of the residential development reaching 50% occupancy.

6.2.2 The TPC's would endeavour to undertake the surveys at the same time every year to allow for comparison without seasonal influences on travel patterns.

## 6.3 Monitoring Reporting and Review

6.3.1 Information gathered as part of the continuous monitoring process will be made available to the local authority to assist the assessment of on-going modal split.

6.3.2 Future strategies for further delivering plan objectives can be considered in partnership with Bury Council.

6.3.3 The monitoring and assessment of the plans will include the submission of annual progress reports detailing the results of the travel surveys with regards to targets, budgets, general effectiveness and current initiatives.

6.3.4 This will allow effective measures to be promoted and increased while ineffective measures can be revised and rectified. New initiatives for the coming year will also be contained within the report and submitted to officers at Bury Council.

6.3.5 The monitoring measures outlined below incorporate both the collection of 'hard' analytical data and 'soft' data in the form of general feedback and correspondence following the opening of the development.

## 6.4 Actions could include:

6.4.1 Seek regular feedback from bus operators to establish the perceived level of demand for local bus services:

- Monitor the take-up of the lift share scheme, and
- Record comments received from residents and visitors relating to the operation and implications of the travel plan.

6.4.2 Information gathered through the monitoring process will be recorded for the input to the Annual Reviews, outlined below. The information will be sent to the planning authority at regular intervals.

### 6.4.3 Action Plan

6.4.4 **Table 6.1** below provides a Draft Action Plan to timescales for the Travel Plan.

| Action | Target Date | Indicator/Measured by | Responsibility |
|---|---|---|---|
| Appointment of TPC | TPC appointed one month prior to first occupation of site | Appointment of TPC by target date | Developer |
| Production of Residents Travel Pack | Upon Occupation | Distribution of Residents Travel Pack | Developer |
| Undertake initial travel surveys | Within 3 month of reaching 50% occupation of development | Receipt of survey results | TPC |
| Annual Report | No later than 1 month following the anniversary of the first occupation | Submission of the annual Report | TPC |

**Table 6.1 – Travel Plan Action Plan and Timescales**

6.4.5 The table above sets out the key tasks that will be undertaken by the TPC as part of the Travel Plan including guidance as to timescales for the tasks to be undertaken.

# 7 TRAVEL PLAN TARGETS

## 7.1.1 Introduction

7.1.2 This section of the Travel Plan Framework will provide details of the targets against which the success of the Travel Plan in achieving their objectives will be measured.

7.1.3 The targets are designed to be quantifiable, be relevant to both measures and objectives identified in the Plan and to include timescale.

7.1.4 Suitable targets for reducing the need to travel by private car will be set and agreed with Bury Council and included in the final Travel Plan.

## 7.1.5 Potential Targets

7.1.6 Targets which according to the DfT may potentially be included in the Travel Plan include the following:

7.1.7 Car trips per household - targets set on the basis of predicted trip rates for the development.

7.1.8 Uptake of alternatives - Targets for bus patronage, membership and use of car clubs, registration and participation in car share scheme, cycle counts and pedestrian counts.

7.1.9 Car ownership and mode of travel - trip based targets may be supplemented by targets related to car ownership, travel to work by mode and travel to school by mode.

7.1.10 Travel Plan awareness targets - for example, a target can be established to ensure a significant percentage of residents are aware of the travel plan and its purpose.

# APPENDIX 3

**Dataset Version:** 80
**Dataset Scenario:** Core
**Result Type:** Trip ends by time period
**Base Year:** 2023
**Future Year:** 2028
**Trip Purpose Group:** All purposes
**Time Period:** Weekday AM peak period (0700 - 0959)
**Trip End Type:** Origin/Destination
**Alternative Assumptions Applied:** No

**Growth Factor (2028 Data/2023 Data)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1.0319 | 1.0375 |

**Future Year (2028) - Base Year (2023)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 58 | 42 |

**Base Year (2023)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1,812 | 1,115 |

**Future Year (2028)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1,870 | 1,157 |

**Dataset Version:** 80
**Dataset Scenario:** Core
**Result Type:** Trip ends by time period
**Base Year:** 2023
**Future Year:** 2028
**Trip Purpose Group:** All purposes
**Time Period:** Weekday PM peak period (1600 - 1859)
**Trip End Type:** Origin/Destination
**Alternative Assumptions Applied:** No

**Growth Factor (2028 Data/2023 Data)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1.0368 | 1.0340 |

**Future Year (2028) - Base Year (2023)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 53 | 69 |

**Base Year (2023)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1,425 | 2,015 |

**Future Year (2028)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1,478 | 2,084 |

**All Road - AM Peak 2023-2028**

| | Level | Area | Local Growth Figure |
|---|---|---|---|
| **2023-2028** | E02001022 | Bury 004 | 1.045 |
| **2022-2028** | E02001022 | Bury 004 | 1.05 |
| **2018-2028** | E02001022 | Bury 004 | 1.079 |

**Mortorway - AM Peak 2023-2028**

| | Level | Area | Local Growth Figure |
|---|---|---|---|
| **2023-2028** | E02001022 | Bury 004 | 1.061 |
| **2022-2028** | E02001022 | Bury 004 | 1.069 |
| **2018-2028** | E02001022 | Bury 004 | 1.108 |

**All Road - PM Peak 2023-2028**

| Level | Area | Local Growth Figure |
|---|---|---|
| E02001022 | Bury 004 | 1.045 |
| E02001022 | Bury 004 | 1.051 |
| E02001022 | Bury 004 | 1.079 |

**Mortorway - PM Peak 2023-2028**

| Level | Area | Local Growth Figure |
|---|---|---|
| E02001022 | Bury 004 | 1.061 |
| E02001022 | Bury 004 | 1.07 |
| E02001022 | Bury 004 | 1.108 |

**Dataset Version:** 80
**Dataset Scenario:** Core
**Result Type:** Trip ends by time period
**Base Year:** 2023
**Future Year:** 2033
**Trip Purpose Group:** All purposes
**Time Period:** Weekday AM peak period (0700 - 0959)
**Trip End Type:** Origin/Destination
**Alternative Assumptions Applied:** No

**Growth Factor (2033 Data/2023 Data)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1.0531 | 1.0631 |

**Future Year (2033) - Base Year (2023)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 96 | 70 |

**Base Year (2023)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1,812 | 1,115 |

**Future Year (2033)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1,909 | 1,186 |

**Dataset Version:** 80
**Dataset Scenario:** Core
**Result Type:** Trip ends by time period
**Base Year:** 2023
**Future Year:** 2033
**Trip Purpose Group:** All purposes
**Time Period:** Weekday PM peak period (1600 - 1859)
**Trip End Type:** Origin/Destination
**Alternative Assumptions Applied:** No

**Growth Factor (2033 Data/2023 Data)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1.0618 | 1.0564 |

**Future Year (2033) - Base Year (2023)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 88 | 114 |

**Base Year (2023)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1,425 | 2,015 |

**Future Year (2033)**

| Area Description | | All purposes | |
|---|---|---|---|
| Level | Name | Origin | Destination |
| E02001022 | Bury 004 | 1,513 | 2,129 |

**All Road - AM Peak 2023-2033**

| | Level | Area | Local Growth Figure |
|---|---|---|---|
| **2023-2033** | E02001022 | Bury 004 | 1.096 |
| **2022-2033** | E02001022 | Bury 004 | 1.102 |
| **2018-2033** | E02001022 | Bury 004 | 1.132 |

**Mortorway - AM Peak 2023-2033**

| | Level | Area | Local Growth Figure |
|---|---|---|---|
| **2023-2033** | E02001022 | Bury 004 | 1.131 |
| **2022-2033** | E02001022 | Bury 004 | 1.139 |
| **2018-2033** | E02001022 | Bury 004 | 1.182 |

**All Road - PM Peak 2023-2033**

| Level | Area | Local Growth Figure |
|---|---|---|
| E02001022 | Bury 004 | 1.097 |
| E02001022 | Bury 004 | 1.103 |
| E02001022 | Bury 004 | 1.132 |

**Mortorway - PM Peak 2023-2033**

| Level | Area | Local Growth Figure |
|---|---|---|
| E02001022 | Bury 004 | 1.132 |
| E02001022 | Bury 004 | 1.141 |
| E02001022 | Bury 004 | 1.182 |

# APPENDIX 4

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

Land Use: 03 - RESIDENTIAL

Category: A - HOUSES PRIVATELY OWNED

**Selected Vehicle Type: Total Vehicles**

Selected regions and areas:

| | | | |
|---|---|---|---|
| **02** | **SOUTH EAST** | | |
| | HC | HAMPSHIRE | 1 day |
| | KC | KENT | 3 days |
| | SC | SURREY | 1 day |
| | SP | SOUTHAMPTON | 1 day |
| | WS | WEST SUSSEX | 2 days |
| **04** | **EAST ANGLIA** | | |
| | NF | NORFOLK | 5 days |
| **05** | **EAST MIDLANDS** | | |
| | DY | DERBY | 1 day |

*This section displays the number of survey days per TRICS® sub-region in the selected set.*



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**Primary Filtering Selection:**

*This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.*

| | |
|---|---|
| Parameter: | DWELLS |
| Actual Range: | 4 to 1817 (units:DWELLS) |
| Range Selected by User: | 250 to 550 (units:DWELLS) |
| Parking Spaces Range: | 6 - 2604 |

**Public Transport Provision:**

| | |
|---|---|
| Selection by: | All Surveys Included |
| Date Range: | 01/01/16 to 17/09/24 |

*This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.*

**Selected survey days:**

| | |
|---|---|
| Monday | 2 days |
| Thursday | 3 days |
| Tuesday | 5 days |
| Wednesday | 4 days |

*This data displays the number of selected surveys by day of the week.*

**Selected survey types:**

| | |
|---|---|
| Manual count | 14 |
| Direction ATC Count | 0 |

*This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines*

**Selected Locations:**

| | |
|---|---|
| Edge of Town | 12 days |
| Neighbourhood Centre (PPS6 Local Centre) | 1 days |
| Suburban Area (PPS6 Out of Centre) | 1 days |

*This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.*

**Selected Location Sub Categories:**

| | |
|---|---|
| No Sub Category | 1 days |
| Out of Town | 2 days |
| Residential Zone | 9 days |
| Village | 2 days |

*This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.*

**Inclusion of Servicing Vehicle Counts:**

| | |
|---|---|
| Servicing vehicles Excluded | 10 days |
| Servicing vehicles Included | 4 days |



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**Secondary Filtering Selection:**

**Use Class:**

| | |
|---|---|
| C3 | 14 surveys |

*This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.*

**Population within 500m Range:**

**0 - 0**

**Population within 1 mile:**

| | |
|---|---|
| 10,001 to 15,000 | 3 surveys |
| 15,001 to 20,000 | 3 surveys |
| 20,001 to 25,000 | 2 surveys |
| 25,001 to 50,000 | 1 surveys |
| 5,001 to 10,000 | 5 surveys |

*This data displays the number of selected surveys within stated 1-mile radii of population.*

**Population within 5 miles:**

| | |
|---|---|
| 100,001 to 125,000 | 1 surveys |
| 125,001 to 250,000 | 2 surveys |
| 25,001 to 50,000 | 2 surveys |
| 250,001 to 500,000 | 2 surveys |
| 5,001 to 25,000 | 2 surveys |
| 50,001 to 75,000 | 2 surveys |
| 75,001 to 100,000 | 3 surveys |

*This data displays the number of selected surveys within stated 5-mile radii of population.*

**Car ownership within 5 miles:**

| | |
|---|---|
| 0.6 to 1.0 | 5 surveys |
| 1.1 to 1.5 | 9 surveys |

*This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.*



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**Petrol filling station:**

*This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.*

**Travel Plan:**

| | |
|---|---|
| No | 3 surveys |
| Yes | 11 surveys |

*This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.*

**PTAL Rating:**

| | |
|---|---|
| No PTAL Present | 14 surveys |

*This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.*

**COVID-19 Restrictions:**

**No**



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| | | | |
|---|---|---|---|
| **1** | **DY-03-A-01** | **MIXED HOUSES** | **DERBY** |

RADBOURNE LANE
DERBY
Edge of Town
Residential Zone
Site area: 16.45 hect
Survey date: Tuesday 10/07/2018 Survey Type: Manual

| | | | |
|---|---|---|---|
| **2** | **HC-03-A-35** | **MIXED HOUSES & FLATS** | **HAMPSHIRE** |

EAGLE AVENUE
WATERLOOVILLE
LOVEDEAN
Edge of Town
Residential Zone
Site area: 9.1 hect
Survey date: Tuesday 31/10/2023 Survey Type: Manual

| | | | |
|---|---|---|---|
| **3** | **KC-03-A-06** | **MIXED HOUSES & FLATS** | **KENT** |

MARGATE ROAD
HERNE BAY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Site area: 8 hect
Survey date: Wednesday 27/09/2017 Survey Type: Manual

| | | | |
|---|---|---|---|
| **4** | **KC-03-A-07** | **MIXED HOUSES** | **KENT** |

RECULVER ROAD
HERNE BAY
Edge of Town
Residential Zone
Site area: 9.46 hect
Survey date: Wednesday 27/09/2017 Survey Type: Manual

| | | | |
|---|---|---|---|
| **5** | **KC-03-A-11** | **MIXED HOUSES & FLATS** | **KENT** |

COLDHARBOUR ROAD
GRAVESEND
Edge of Town
No Sub Category
Site area: 7.2 hect
Survey date: Monday 20/03/2023 Survey Type: Manual

| | | | |
|---|---|---|---|
| **6** | **NF-03-A-06** | **MIXED HOUSES** | **NORFOLK** |

BEAUFORT WAY
GREAT YARMOUTH
BRADWELL
Edge of Town
Residential Zone
Site area: 9.27 hect
Survey date: Monday 23/09/2019 Survey Type: Manual

| | | | |
|---|---|---|---|
| **7** | **NF-03-A-23** | **MIXED HOUSES & FLATS** | **NORFOLK** |

SILFIELD ROAD
WYMONDHAM
Edge of Town
Out of Town
Site area: 26.43 hect
Survey date: Wednesday 22/09/2021 Survey Type: Manual

| | | | |
|---|---|---|---|
| **8** | **NF-03-A-30** | **MIXED HOUSES** | **NORFOLK** |

BRANDON ROAD
SWAFFHAM
Edge of Town
Residential Zone


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Site area: 11.77 hect
Survey date: Thursday 23/09/2021 Survey Type: Manual

**9** **NF-03-A-38** **MIXED HOUSES** **NORFOLK**
BEAUFORT WAY
GREAT YARMOUTH
BRADWELL
Edge of Town
Residential Zone
Site area: 18.06 hect
Survey date: Tuesday 20/09/2022 Survey Type: Manual

**10** **NF-03-A-46** **MIXED HOUSES & FLATS** **NORFOLK**
BURGH ROAD
AYLSHAM
Edge of Town
Residential Zone
Site area: 13.05 hect
Survey date: Tuesday 14/09/2021 Survey Type: Manual

**11** **SC-03-A-12** **MIXED HOUSES & FLATS** **SURREY**
AARONS HILL
GODALMING
Edge of Town
Residential Zone
Site area: 9.38 hect
Survey date: Wednesday 12/06/2024 Survey Type: Manual

**12** **SP-03-A-02** **MIXED HOUSES & FLATS** **SOUTHAMPTON**
BARNFIELD WAY
NEAR SOUTHAMPTON
HEDGE END
Edge of Town
Out of Town
Site area: 20.9 hect
Survey date: Tuesday 12/10/2021 Survey Type: Manual

**13** **WS-03-A-21** **MIXED HOUSES** **WEST SUSSEX**
HILLAND ROAD
BILLINGSHURST
Neighbourhood Centre (PPS6 Local Centre)
Village
Site area: 32.93 hect
Survey date: Thursday 09/11/2023 Survey Type: Manual

**14** **WS-03-A-24** **MIXED HOUSES** **WEST SUSSEX**
MADGWICK LANE
CHICHESTER
WESTHAMPNETT
Edge of Town
Village
Site area: 13.49 hect
Survey date: Thursday 23/05/2024 Survey Type: Manual

***DESELECTED SURVEYS***

| Site Ref | Survey Date | Reason for Deselection |
|---|---|---|
| HC-03-A-26 | 24-06-2021 | covid |


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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Total Vehicles

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.071** | **0.292** | **0.363** |
| **08:00-09:00** | **14** | **347** | **0.146** | **0.364** | **0.510** |
| **09:00-10:00** | **14** | **347** | **0.130** | **0.155** | **0.285** |
| **10:00-11:00** | **14** | **347** | **0.108** | **0.130** | **0.238** |
| **11:00-12:00** | **14** | **347** | **0.118** | **0.139** | **0.257** |
| **12:00-13:00** | **14** | **347** | **0.139** | **0.128** | **0.267** |
| **13:00-14:00** | **14** | **347** | **0.146** | **0.132** | **0.278** |
| **14:00-15:00** | **14** | **347** | **0.140** | **0.159** | **0.299** |
| **15:00-16:00** | **14** | **347** | **0.252** | **0.160** | **0.412** |
| **16:00-17:00** | **14** | **347** | **0.283** | **0.160** | **0.443** |
| **17:00-18:00** | **14** | **347** | **0.335** | **0.159** | **0.494** |
| **18:00-19:00** | **14** | **347** | **0.272** | **0.142** | **0.414** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **2.140** | **2.120** | **4.260** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 14 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*



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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Total People

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.104** | **0.494** | **0.598** |
| **08:00-09:00** | **14** | **347** | **0.220** | **0.752** | **0.972** |
| **09:00-10:00** | **14** | **347** | **0.197** | **0.261** | **0.458** |
| **10:00-11:00** | **14** | **347** | **0.162** | **0.211** | **0.373** |
| **11:00-12:00** | **14** | **347** | **0.180** | **0.228** | **0.408** |
| **12:00-13:00** | **14** | **347** | **0.221** | **0.212** | **0.433** |
| **13:00-14:00** | **14** | **347** | **0.235** | **0.207** | **0.442** |
| **14:00-15:00** | **14** | **347** | **0.231** | **0.266** | **0.497** |
| **15:00-16:00** | **14** | **347** | **0.549** | **0.286** | **0.835** |
| **16:00-17:00** | **14** | **347** | **0.536** | **0.271** | **0.807** |
| **17:00-18:00** | **14** | **347** | **0.587** | **0.274** | **0.861** |
| **18:00-19:00** | **14** | **347** | **0.458** | **0.266** | **0.724** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **3.680** | **3.728** | **7.408** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 14 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*



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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Cyclists

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.003** | **0.009** | **0.012** |
| **08:00-09:00** | **14** | **347** | **0.004** | **0.010** | **0.014** |
| **09:00-10:00** | **14** | **347** | **0.001** | **0.002** | **0.003** |
| **10:00-11:00** | **14** | **347** | **0.002** | **0.003** | **0.005** |
| **11:00-12:00** | **14** | **347** | **0.001** | **0.003** | **0.004** |
| **12:00-13:00** | **14** | **347** | **0.002** | **0.002** | **0.004** |
| **13:00-14:00** | **14** | **347** | **0.003** | **0.001** | **0.004** |
| **14:00-15:00** | **14** | **347** | **0.003** | **0.003** | **0.006** |
| **15:00-16:00** | **14** | **347** | **0.007** | **0.005** | **0.012** |
| **16:00-17:00** | **14** | **347** | **0.012** | **0.007** | **0.019** |
| **17:00-18:00** | **14** | **347** | **0.009** | **0.006** | **0.015** |
| **18:00-19:00** | **14** | **347** | **0.003** | **0.004** | **0.007** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **0.050** | **0.055** | **0.105** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 14 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*



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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

PSVs

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **08:00-09:00** | **14** | **347** | **0.000** | **0.001** | **0.001** |
| **09:00-10:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **10:00-11:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **11:00-12:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **12:00-13:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **13:00-14:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **14:00-15:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **15:00-16:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **16:00-17:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **17:00-18:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **18:00-19:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **0.000** | **0.001** | **0.001** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 09/11/2023 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 3 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*



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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

OGVs

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **08:00-09:00** | **14** | **347** | **0.002** | **0.002** | **0.004** |
| **09:00-10:00** | **14** | **347** | **0.002** | **0.002** | **0.004** |
| **10:00-11:00** | **14** | **347** | **0.002** | **0.002** | **0.004** |
| **11:00-12:00** | **14** | **347** | **0.002** | **0.003** | **0.005** |
| **12:00-13:00** | **14** | **347** | **0.002** | **0.002** | **0.004** |
| **13:00-14:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **14:00-15:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **15:00-16:00** | **14** | **347** | **0.001** | **0.002** | **0.003** |
| **16:00-17:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **17:00-18:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **18:00-19:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **0.017** | **0.019** | **0.036** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 13 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*



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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Taxis

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.002** | **0.002** | **0.004** |
| **08:00-09:00** | **14** | **347** | **0.006** | **0.006** | **0.012** |
| **09:00-10:00** | **14** | **347** | **0.002** | **0.002** | **0.004** |
| **10:00-11:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **11:00-12:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **12:00-13:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **13:00-14:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **14:00-15:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **15:00-16:00** | **14** | **347** | **0.004** | **0.003** | **0.007** |
| **16:00-17:00** | **14** | **347** | **0.002** | **0.002** | **0.004** |
| **17:00-18:00** | **14** | **347** | **0.002** | **0.002** | **0.004** |
| **18:00-19:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **0.024** | **0.023** | **0.047** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 14 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*



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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Cars

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.057** | **0.258** | **0.315** |
| **08:00-09:00** | **14** | **347** | **0.124** | **0.329** | **0.453** |
| **09:00-10:00** | **14** | **347** | **0.109** | **0.132** | **0.241** |
| **10:00-11:00** | **14** | **347** | **0.089** | **0.112** | **0.201** |
| **11:00-12:00** | **14** | **347** | **0.099** | **0.117** | **0.216** |
| **12:00-13:00** | **14** | **347** | **0.119** | **0.109** | **0.228** |
| **13:00-14:00** | **14** | **347** | **0.126** | **0.110** | **0.236** |
| **14:00-15:00** | **14** | **347** | **0.124** | **0.144** | **0.268** |
| **15:00-16:00** | **14** | **347** | **0.231** | **0.142** | **0.373** |
| **16:00-17:00** | **14** | **347** | **0.255** | **0.142** | **0.397** |
| **17:00-18:00** | **14** | **347** | **0.303** | **0.143** | **0.446** |
| **18:00-19:00** | **14** | **347** | **0.254** | **0.130** | **0.384** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **1.890** | **1.868** | **3.758** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 14 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*



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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

LGVs

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.010** | **0.029** | **0.039** |
| **08:00-09:00** | **14** | **347** | **0.013** | **0.023** | **0.036** |
| **09:00-10:00** | **14** | **347** | **0.016** | **0.019** | **0.035** |
| **10:00-11:00** | **14** | **347** | **0.015** | **0.014** | **0.029** |
| **11:00-12:00** | **14** | **347** | **0.015** | **0.016** | **0.031** |
| **12:00-13:00** | **14** | **347** | **0.016** | **0.014** | **0.030** |
| **13:00-14:00** | **14** | **347** | **0.016** | **0.019** | **0.035** |
| **14:00-15:00** | **14** | **347** | **0.012** | **0.011** | **0.023** |
| **15:00-16:00** | **14** | **347** | **0.014** | **0.013** | **0.027** |
| **16:00-17:00** | **14** | **347** | **0.022** | **0.014** | **0.036** |
| **17:00-18:00** | **14** | **347** | **0.027** | **0.012** | **0.039** |
| **18:00-19:00** | **14** | **347** | **0.014** | **0.008** | **0.022** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **0.190** | **0.192** | **0.382** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 14 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*


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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Motorcycles

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.000** | **0.002** | **0.002** |
| **08:00-09:00** | **14** | **347** | **0.000** | **0.003** | **0.003** |
| **09:00-10:00** | **14** | **347** | **0.001** | **0.000** | **0.001** |
| **10:00-11:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **11:00-12:00** | **14** | **347** | **0.001** | **0.002** | **0.003** |
| **12:00-13:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **13:00-14:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **14:00-15:00** | **14** | **347** | **0.002** | **0.001** | **0.003** |
| **15:00-16:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **16:00-17:00** | **14** | **347** | **0.002** | **0.001** | **0.003** |
| **17:00-18:00** | **14** | **347** | **0.003** | **0.001** | **0.004** |
| **18:00-19:00** | **14** | **347** | **0.002** | **0.002** | **0.004** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **0.015** | **0.016** | **0.031** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 14 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*



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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Vehicle Occupants

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.084** | **0.419** | **0.503** |
| **08:00-09:00** | **14** | **347** | **0.180** | **0.635** | **0.815** |
| **09:00-10:00** | **14** | **347** | **0.167** | **0.226** | **0.393** |
| **10:00-11:00** | **14** | **347** | **0.138** | **0.183** | **0.321** |
| **11:00-12:00** | **14** | **347** | **0.153** | **0.197** | **0.350** |
| **12:00-13:00** | **14** | **347** | **0.188** | **0.181** | **0.369** |
| **13:00-14:00** | **14** | **347** | **0.203** | **0.183** | **0.386** |
| **14:00-15:00** | **14** | **347** | **0.194** | **0.221** | **0.415** |
| **15:00-16:00** | **14** | **347** | **0.446** | **0.238** | **0.684** |
| **16:00-17:00** | **14** | **347** | **0.462** | **0.228** | **0.690** |
| **17:00-18:00** | **14** | **347** | **0.518** | **0.230** | **0.748** |
| **18:00-19:00** | **14** | **347** | **0.407** | **0.220** | **0.627** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **3.140** | **3.161** | **6.301** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 14 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*


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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Pedestrians

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.016** | **0.043** | **0.059** |
| **08:00-09:00** | **14** | **347** | **0.031** | **0.074** | **0.105** |
| **09:00-10:00** | **14** | **347** | **0.027** | **0.024** | **0.051** |
| **10:00-11:00** | **14** | **347** | **0.018** | **0.019** | **0.037** |
| **11:00-12:00** | **14** | **347** | **0.021** | **0.022** | **0.043** |
| **12:00-13:00** | **14** | **347** | **0.028** | **0.026** | **0.054** |
| **13:00-14:00** | **14** | **347** | **0.023** | **0.021** | **0.044** |
| **14:00-15:00** | **14** | **347** | **0.031** | **0.038** | **0.069** |
| **15:00-16:00** | **14** | **347** | **0.074** | **0.038** | **0.112** |
| **16:00-17:00** | **14** | **347** | **0.045** | **0.033** | **0.078** |
| **17:00-18:00** | **14** | **347** | **0.043** | **0.037** | **0.080** |
| **18:00-19:00** | **14** | **347** | **0.035** | **0.038** | **0.073** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **0.392** | **0.413** | **0.805** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 14 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*



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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Public Transport Users

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.000** | **0.022** | **0.022** |
| **08:00-09:00** | **14** | **347** | **0.004** | **0.029** | **0.033** |
| **09:00-10:00** | **14** | **347** | **0.001** | **0.009** | **0.010** |
| **10:00-11:00** | **14** | **347** | **0.002** | **0.007** | **0.009** |
| **11:00-12:00** | **14** | **347** | **0.004** | **0.006** | **0.010** |
| **12:00-13:00** | **14** | **347** | **0.003** | **0.002** | **0.005** |
| **13:00-14:00** | **14** | **347** | **0.005** | **0.003** | **0.008** |
| **14:00-15:00** | **14** | **347** | **0.003** | **0.003** | **0.006** |
| **15:00-16:00** | **14** | **347** | **0.020** | **0.005** | **0.025** |
| **16:00-17:00** | **14** | **347** | **0.015** | **0.003** | **0.018** |
| **17:00-18:00** | **14** | **347** | **0.016** | **0.002** | **0.018** |
| **18:00-19:00** | **14** | **347** | **0.012** | **0.003** | **0.015** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **0.085** | **0.094** | **0.179** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 13 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*



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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Bus/Tram Passengers

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | 14 | 347 | 0.000 | 0.012 | 0.012 |
| **08:00-09:00** | 14 | 347 | 0.004 | 0.018 | 0.022 |
| **09:00-10:00** | 14 | 347 | 0.001 | 0.007 | 0.008 |
| **10:00-11:00** | 14 | 347 | 0.002 | 0.005 | 0.007 |
| **11:00-12:00** | 14 | 347 | 0.003 | 0.005 | 0.008 |
| **12:00-13:00** | 14 | 347 | 0.002 | 0.002 | 0.004 |
| **13:00-14:00** | 14 | 347 | 0.004 | 0.002 | 0.006 |
| **14:00-15:00** | 14 | 347 | 0.002 | 0.002 | 0.004 |
| **15:00-16:00** | 14 | 347 | 0.016 | 0.004 | 0.020 |
| **16:00-17:00** | 14 | 347 | 0.012 | 0.002 | 0.014 |
| **17:00-18:00** | 14 | 347 | 0.007 | 0.002 | 0.009 |
| **18:00-19:00** | 14 | 347 | 0.007 | 0.003 | 0.010 |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | 0.060 | 0.064 | 0.124 |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 13 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*


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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Coach Passengers

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **08:00-09:00** | **14** | **347** | **0.000** | **0.002** | **0.002** |
| **09:00-10:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **10:00-11:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **11:00-12:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **12:00-13:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **13:00-14:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **14:00-15:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **15:00-16:00** | **14** | **347** | **0.002** | **0.000** | **0.002** |
| **16:00-17:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **17:00-18:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **18:00-19:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **0.002** | **0.002** | **0.004** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 23/05/2024 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 2 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*



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**TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED**

Total Rail Passengers

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. DWELLS | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **14** | **347** | **0.000** | **0.010** | **0.010** |
| **08:00-09:00** | **14** | **347** | **0.000** | **0.009** | **0.009** |
| **09:00-10:00** | **14** | **347** | **0.000** | **0.002** | **0.002** |
| **10:00-11:00** | **14** | **347** | **0.000** | **0.001** | **0.001** |
| **11:00-12:00** | **14** | **347** | **0.001** | **0.001** | **0.002** |
| **12:00-13:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **13:00-14:00** | **14** | **347** | **0.001** | **0.000** | **0.001** |
| **14:00-15:00** | **14** | **347** | **0.000** | **0.000** | **0.000** |
| **15:00-16:00** | **14** | **347** | **0.002** | **0.001** | **0.003** |
| **16:00-17:00** | **14** | **347** | **0.004** | **0.000** | **0.004** |
| **17:00-18:00** | **14** | **347** | **0.009** | **0.000** | **0.009** |
| **18:00-19:00** | **14** | **347** | **0.005** | **0.000** | **0.005** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **0.022** | **0.024** | **0.046** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 250 - 550 (units: DWELLS) |
| Survey date date range: | 27/09/2017 - 12/06/2024 |
| Number of weekdays (Monday-Friday): | 8 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 2 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*


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# APPENDIX 5

TRICS 8.25.6
Trip Rate Parame No of Dwellings

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
Calculation Fact 1 DWELLS
Count Type: Total People

| Time Range | No. Days | Ave. DWELLS | ARRIVALS Trip Rate | DEPARTUR Trip Rate | TOTALS Trip Rate |
|---|---|---|---|---|---|
| 00:00-01:00 | | | | | |
| 01:00-02:00 | | | | | |
| 02:00-03:00 | | | | | |
| 03:00-04:00 | | | | | |
| 04:00-05:00 | | | | | |
| 05:00-06:00 | | | | | |
| 06:00-07:00 | | | | | |
| 07:00-08:00 | 14 | 347 | 0.104 | 0.494 | 0.598 |
| 08:00-09:00 | 14 | 347 | 0.22 | 0.752 | 0.972 |
| 09:00-10:00 | 14 | 347 | 0.197 | 0.261 | 0.458 |
| 10:00-11:00 | 14 | 347 | 0.162 | 0.211 | 0.373 |
| 11:00-12:00 | 14 | 347 | 0.18 | 0.228 | 0.408 |
| 12:00-13:00 | 14 | 347 | 0.221 | 0.212 | 0.433 |
| 13:00-14:00 | 14 | 347 | 0.235 | 0.207 | 0.442 |
| 14:00-15:00 | 14 | 347 | 0.231 | 0.266 | 0.497 |
| 15:00-16:00 | 14 | 347 | 0.549 | 0.286 | 0.835 |
| 16:00-17:00 | 14 | 347 | 0.536 | 0.271 | 0.807 |
| 17:00-18:00 | 14 | 347 | 0.587 | 0.274 | 0.861 |
| 18:00-19:00 | 14 | 347 | 0.458 | 0.266 | 0.724 |
| 19:00-20:00 | | | | | |
| 20:00-21:00 | | | | | |
| 21:00-22:00 | | | | | |
| 22:00-23:00 | | | | | |
| 23:00-24:00 | | | | | |
| Daily Trip Rates: | | | 3.68 | 3.728 | 7.408 |

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED 350
Calculation Fa 1 DWELLS
Count Type: Total Vehicles

| Time Range | No. Days | Ave. DWELLS | ARRIVALS Trip Rate | DEPARTUR Trip Rate | TOTALS Trip Rate | | Arr | Dep | 2-way |
|---|---|---|---|---|---|---|---|---|---|
| 00:00-01:00 | | | | | | | | | |
| 01:00-02:00 | | | | | | | | | |
| 02:00-03:00 | | | | | | | | | |
| 03:00-04:00 | | | | | | | | | |
| 04:00-05:00 | | | | | | | | | |
| 05:00-06:00 | | | | | | | | | |
| 06:00-07:00 | | | | | | | | | |
| 07:00-08:00 | 14 | 347 | 0.071 | 0.292 | 0.363 | | | | |
| 08:00-09:00 | 14 | 347 | 0.146 | 0.364 | 0.51 | 179 | 51 | 127 | 179 |
| 09:00-10:00 | 14 | 347 | 0.13 | 0.155 | 0.285 | | | | |
| 10:00-11:00 | 14 | 347 | 0.108 | 0.13 | 0.238 | | | | |
| 11:00-12:00 | 14 | 347 | 0.118 | 0.139 | 0.257 | | | | |
| 12:00-13:00 | 14 | 347 | 0.139 | 0.128 | 0.267 | | | | |
| 13:00-14:00 | 14 | 347 | 0.146 | 0.132 | 0.278 | | | | |
| 14:00-15:00 | 14 | 347 | 0.14 | 0.159 | 0.299 | | | | |
| 15:00-16:00 | 14 | 347 | 0.252 | 0.16 | 0.412 | | | | |
| 16:00-17:00 | 14 | 347 | 0.283 | 0.16 | 0.443 | | | | |
| 17:00-18:00 | 14 | 347 | 0.335 | 0.159 | 0.494 | 173 | 117 | 56 | 173 |
| 18:00-19:00 | 14 | 347 | 0.272 | 0.142 | 0.414 | | | | |
| 19:00-20:00 | | | | | | | | | |
| 20:00-21:00 | | | | | | | | | |
| 21:00-22:00 | | | | | | | | | |
| 22:00-23:00 | | | | | | | | | |
| 23:00-24:00 | | | | | | | | | |
| Daily Trip Rates: | | | 2.14 | 2.12 | 4.26 | | | | |

## NTS0502a: Trip start time by trip purpose (Monday to Friday only): England, 2002 onwards [note 1]

This worksheet contains one table. Some cells refer to notes which can be found on the notes worksheet.
The table in this worksheet contains percentages and the unweighted sample sizes show the number. These represent the proportion of each trip purpose by trip start time (Monday to Friday only).
Some shorthand is used in these tables, [low] denotes rounds to 0.
Filters are active in row 6 and may hide some data. To turn off all filters select the 'Data' ribbon then 'Filters' button or use [Ctrl, Shift, L].

| Year [note 2] | Start time | Commuting (%) | Business (%) | Education (%) | Escort education (%) | Shopping (%) | Other work, other escort and personal business (%) | Visiting friends, entertainment and sport (%) | Holiday, day trip and other (%) | All purposes (%) | Unweighted sample size: trips (thousands) (number) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2023 to 2024 | 0000 to 0059 | 47 | 2 | 0 | 0 | 3 | 16 | 28 | 5 | 100 | [low] |
| 2023 to 2024 | 0100 to 0159 | 60 | 1 | 0 | 0 | 1 | 11 | 23 | 4 | 100 | [low] |
| 2023 to 2024 | 0200 to 0259 | 53 | 6 | 0 | 2 | 0 | 12 | 18 | 10 | 100 | [low] |
| 2023 to 2024 | 0300 to 0359 | 60 | 4 | 5 | 2 | 0 | 2 | 11 | 16 | 100 | [low] |
| 2023 to 2024 | 0400 to 0459 | 69 | 4 | [low] | [low] | [low] | 9 | 5 | 13 | 100 | 1 |
| 2023 to 2024 | 0500 to 0559 | 66 | 5 | [low] | [low] | 1 | 7 | 7 | 13 | 100 | 2 |
| 2023 to 2024 | 0600 to 0659 | 60 | 7 | 1 | 1 | 3 | 8 | 7 | 14 | 100 | 7 |
| 2023 to 2024 | 0700 to 0759 | 40 | 4 | 16 | 7 | 4 | 13 | 5 | 11 | 100 | 22 |
| 2023 to 2024 | 0800 to 0859 | 16 | 3 | 28 | 26 | 4 | 13 | 4 | 7 | 100 | 46 |
| | 0730-0830 | 28 | 4 | 22 | 17 | 4 | 13 | 5 | 9 | 100 | |
| 2023 to 2024 | 0900 to 0959 | 10 | 4 | 3 | 5 | 21 | 23 | 16 | 18 | 100 | 23 |
| 2023 to 2024 | 1000 to 1059 | 5 | 3 | 1 | 1 | 32 | 22 | 17 | 19 | 100 | 25 |
| 2023 to 2024 | 1100 to 1159 | 4 | 4 | 2 | 2 | 32 | 21 | 18 | 17 | 100 | 26 |
| 2023 to 2024 | 1200 to 1259 | 5 | 3 | 2 | 1 | 29 | 23 | 20 | 15 | 100 | 24 |
| 2023 to 2024 | 1300 to 1359 | 8 | 4 | 1 | 1 | 27 | 22 | 20 | 16 | 100 | 22 |
| 2023 to 2024 | 1400 to 1459 | 8 | 3 | 4 | 12 | 22 | 19 | 17 | 14 | 100 | 25 |
| 2023 to 2024 | 1500 to 1559 | 7 | 2 | 26 | 22 | 11 | 13 | 11 | 9 | 100 | 44 |
| 2023 to 2024 | 1600 to 1659 | 20 | 3 | 6 | 5 | 15 | 20 | 18 | 12 | 100 | 30 |
| 2023 to 2024 | 1700 to 1759 | 25 | 3 | 3 | 3 | 13 | 19 | 22 | 12 | 100 | 29 |
| 2023 to 2024 | 1800 to 1859 | 16 | 2 | 1 | 1 | 16 | 18 | 33 | 14 | 100 | 22 |
| 2023 to 2024 | 1900 to 1959 | 9 | 1 | 1 | 1 | 16 | 17 | 38 | 17 | 100 | 15 |
| 2023 to 2024 | 2000 to 2059 | 11 | 2 | 1 | [low] | 14 | 17 | 41 | 14 | 100 | 9 |
| 2023 to 2024 | 2100 to 2159 | 11 | 2 | 1 | [low] | 8 | 13 | 53 | 11 | 100 | 6 |
| 2023 to 2024 | 2200 to 2259 | 20 | 2 | [low] | [low] | 3 | 13 | 51 | 11 | 100 | 4 |
| 2023 to 2024 | 2300 to 2359 | 22 | 2 | [low] | [low] | 3 | 12 | 54 | 7 | 100 | 2 |
| 2023 to 2024 | All day | 15 | 3 | 9 | 8 | 16 | 18 | 18 | 13 | 100 | 385 |

**NTS0409a: Average number of trips by purpose and main mode (trips per person per year): England, 2002 onwards [note 1]**

This worksheet contains one table. Some cells refer to notes which can be found on the notes worksheet.
The table in this worksheet contains numbers. These represent average trips by purpose and main mode.
Some shorthand is used in these tables, [low] denotes rounds to 0.
Filters are active in row 6 and may hide some data. To turn off all filters select the 'Data' ribbon then 'Filters' button or use [Ctrl, Shift, L].

| Year | Main mode | Commuting | Business | Education or escort education | Column2 | Shopping | Column3 | Other escort | Personal business | Leisure [note 2] | Other including just walk | Column1 | Column12 | All purposes | Unweighted sample size: trips (thousands) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | Walk [notes 3, 4] | 14 | 2 | 48 | 41.3% | 47 | 28.8% | 9 | 21 | 41 | 85 | 156.00 | 31.7% | 267 | 82 |
| 2024 | Pedal cycle [note 5] | 5 | [low] | 1 | 0.9% | 1 | 0.6% | 0.16 | 1 | 6 | 0 | 7.16 | 1.5% | 15 | 4 |
| 2024 | Car or van driver | 60 | 17 | 28 | 24.1% | 76 | 46.5% | 43 | 35 | 97 | 1 | 176.00 | 35.7% | 357 | 114 |
| 2024 | Car or van passenger | 8 | 1 | 28 | 24.1% | 30 | 18.4% | 22 | 19 | 82 | 0 | 123.00 | 25.0% | 189 | 57 |
| 2024 | Motorcycle | 1 | [low] | 0.02 | 0.0% | 0.2 | 0.1% | 0.015 | 0.066 | 1 | 0 | 1.08 | 0.2% | 2 | 1 |
| 2024 | Other private transport [note 6] | 1 | [low] | 3 | 2.6% | 1 | 0.6% | 1 | 1 | 2 | 0 | 4.00 | 0.8% | 8 | 2 |
| 2024 | Bus in London | 3 | [low] | | | | | | | | 0 | | | | |
| 2024 | Other local bus | 6 | 1 | 6 | 5.2% | 6 | 3.7% | 1 | 3 | 6 | 0 | 10.00 | 2.0% | 28 | 8 |
| 2024 | Non-local bus | [low] | 0 | 0 | 0.0% | 0.004 | 0.0% | 0 | 0.016 | 0.34 | 0 | 0.36 | 0.1% | 0.4 | 0.12 |
| 2024 | London Underground | 4 | 1 | | | | | | | | 0 | | | | |
| 2024 | Surface Rail | 8 | 2 | 1 | 0.9% | 1 | 0.6% | 0.24 | 1 | 7 | 0 | 8.24 | 1.7% | 21 | 6 |
| 2024 | Taxi or minicab | 1 | [low] | 1 | 0.9% | 1 | 0.6% | 0.34 | 1 | 4 | 0 | 5.34 | 1.1% | 9 | 2 |
| 2024 | Other public transport [note 7] | 1 | [low] | 0.25 | 0.2% | 0.27 | 0.2% | 0.069 | 0.149 | 1 | 0 | 1.22 | 0.2% | 2 | 1 |
| 2024 | All modes | 111 | 24 | 116.27 | 100.0% | 163.474 | 100.0% | 76.824 | 82.231 | 247.34 | 86 | 492.40 | 100.0% | 898.4 | 277.12 |

**WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)**

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| | |
|---|---|
| population | All usual residents aged 16 and over in employment the week before the census |
| units | Persons |
| date | 2011 |
| usual residence | E02001022 : Bury 004 (2011 super output area - middle layer) |

| place of work | All categories: Method of travel to work (2001 specification) | Work mainly at or from home | Underground, metro, light rail or tram | Train | Bus, minibus or coach | Taxi | Motorcycle, scooter or moped | Driving a car or van | Passenger in a car or van | Bicycle | On foot | Other method of travel to work | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | 3,051 | 0 | 107 | 13 | 253 | 37 | 13 | 2,109 | 202 | 51 | 264 | 2 | | |
| | | 0.0% | 3.5% | 0.4% | 8.3% | 1.2% | 0.4% | 69.1% | 6.6% | 1.7% | 8.7% | 0.1% | 24.4% | |
| E02001022 : Bury 004 | 188 | 0 | 3 | 0 | 11 | 3 | 1 | 84 | 8 | 0 | 78 | 0 | | |
| | 6.2% | 0.0% | 1.6% | 0.0% | 5.9% | 1.6% | 0.5% | 44.7% | 4.3% | 0.0% | 41.5% | 0.0% | 25.0% | 6.1% |
| E02001019 : Bury 001 | 76 | 0 | 0 | 0 | 17 | 0 | 0 | 48 | 8 | 0 | 3 | 0 | | |
| E02001020 : Bury 002 | 18 | 0 | 0 | 0 | 2 | 0 | 0 | 14 | 2 | 0 | 0 | 0 | | |
| E02001021 : Bury 003 | 39 | 0 | 0 | 0 | 4 | 0 | 0 | 28 | 2 | 3 | 2 | 0 | | |
| E02001022 : Bury 004 | 188 | 0 | 3 | 0 | 11 | 3 | 1 | 84 | 8 | 0 | 78 | 0 | | |
| E02001023 : Bury 005 | 16 | 0 | 1 | 0 | 1 | 0 | 0 | 12 | 0 | 1 | 1 | 0 | | |
| E02001024 : Bury 006 | 19 | 0 | 1 | 0 | 0 | 1 | 0 | 13 | 2 | 0 | 2 | 0 | | |
| E02001025 : Bury 007 | 224 | 0 | 2 | 0 | 16 | 9 | 1 | 163 | 17 | 2 | 14 | 0 | | |
| E02001026 : Bury 008 | 429 | 0 | 3 | 2 | 55 | 8 | 2 | 209 | 33 | 7 | 109 | 1 | | |
| E02001027 : Bury 009 | 74 | 0 | 0 | 0 | 8 | 0 | 2 | 47 | 11 | 4 | 2 | 0 | | |
| E02001028 : Bury 010 | 13 | 0 | 0 | 0 | 1 | 1 | 0 | 10 | 1 | 0 | 0 | 0 | | |
| E02001029 : Bury 011 | 217 | 0 | 0 | 0 | 25 | 6 | 0 | 134 | 27 | 4 | 20 | 1 | | |
| E02001030 : Bury 012 | 20 | 0 | 0 | 0 | 3 | 0 | 0 | 15 | 2 | 0 | 0 | 0 | | |
| E02001031 : Bury 013 | 104 | 0 | 0 | 0 | 8 | 5 | 0 | 74 | 12 | 1 | 4 | 0 | | |
| E02001032 : Bury 014 | 9 | 0 | 0 | 0 | 1 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | | |
| E02001033 : Bury 015 | 41 | 0 | 2 | 0 | 5 | 0 | 0 | 31 | 1 | 1 | 1 | 0 | | |
| E02001034 : Bury 016 | 47 | 0 | 4 | 0 | 5 | 0 | 0 | 33 | 4 | 0 | 1 | 0 | | |
| E02001035 : Bury 017 | 15 | 0 | 0 | 0 | 1 | 0 | 0 | 13 | 0 | 0 | 1 | 0 | | |
| E02001036 : Bury 018 | 7 | 0 | 0 | 0 | 1 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | | |
| E02001037 : Bury 019 | 14 | 0 | 2 | 0 | 4 | 1 | 0 | 6 | 1 | 0 | 0 | 0 | | |
| E02001038 : Bury 020 | 19 | 0 | 3 | 0 | 1 | 0 | 0 | 7 | 2 | 2 | 4 | 0 | | |
| E02001039 : Bury 021 | 9 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | 1 | 1 | 0 | 0 | | |
| E02001040 : Bury 022 | 24 | 0 | 1 | 0 | 1 | 0 | 0 | 21 | 1 | 0 | 0 | 0 | | |
| E02001041 : Bury 023 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 2 | 0 | 0 | | |
| E02001042 : Bury 024 | 17 | 0 | 0 | 0 | 0 | 1 | 0 | 12 | 3 | 0 | 1 | 0 | | |
| E02001043 : Bury 025 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | | |
| E02001044 : Bury 026 | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| E02005278 : Rossendale 001 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | | |
| E02005279 : Rossendale 002 | 20 | 0 | 0 | 0 | 1 | 0 | 1 | 17 | 1 | 0 | 0 | 0 | | |
| E02005280 : Rossendale 003 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 0 | 0 | | |
| E02005281 : Rossendale 004 | 13 | 0 | 0 | 0 | 2 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | | |
| E02005284 : Rossendale 007 | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | | |
| E02005285 : Rossendale 008 | 27 | 0 | 0 | 0 | 2 | 0 | 0 | 19 | 4 | 2 | 0 | 0 | | |
| E02005286 : Rossendale 009 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| E02006884 : Rossendale 010 | 14 | 0 | 0 | 0 | 1 | 0 | 1 | 12 | 0 | 0 | 0 | 0 | | |
| Hartlepool | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Middlesbrough | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| Redcar and Cleveland | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Stockton-on-Tees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Darlington | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| County Durham | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| Northumberland | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | | |
| Gateshead | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Newcastle upon Tyne | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| North Tyneside | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| South Tyneside | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Sunderland | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Halton | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| Warrington | 22 | 0 | 0 | 2 | 0 | 0 | 0 | 19 | 0 | 1 | 0 | 0 | | |
| Blackburn with Darwen | 32 | 0 | 1 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | | |
| Blackpool | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Cheshire East | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | | |
| Cheshire West and Chester | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| Allerdale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Barrow-in-Furness | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Carlisle | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | | |
| Copeland | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Eden | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| South Lakeland | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| Burnley | 20 | 0 | 0 | 0 | 2 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | | |
| Chorley | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | | |
| Fylde | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | | |
| Hyndburn | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 1 | 0 | 0 | 0 | | |
| Lancaster | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | | |
| Pendle | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | | |
| Preston | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | | |
| Ribble Valley | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | | |
| South Ribble | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | | |
| West Lancashire | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Wyre | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Bolton | 150 | 0 | 0 | 0 | 16 | 0 | 1 | 127 | 3 | 1 | 2 | 0 | | |
| Manchester | 308 | 0 | 61 | 1 | 21 | 0 | 1 | 206 | 14 | 3 | 1 | 0 | | |
| Oldham | 81 | 0 | 1 | 0 | 3 | 0 | 0 | 73 | 2 | 2 | 0 | 0 | | |
| Rochdale | 217 | 0 | 1 | 0 | 12 | 1 | 1 | 177 | 17 | 3 | 5 | 0 | | |
| Salford | 118 | 0 | 10 | 0 | 6 | 0 | 1 | 92 | 6 | 1 | 2 | 0 | | |
| Stockport | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 2 | 1 | 0 | 0 | | |
| Tameside | 46 | 0 | 1 | 1 | 0 | 0 | 0 | 41 | 1 | 1 | 1 | 0 | | |
| Trafford | 77 | 0 | 6 | 1 | 3 | 0 | 1 | 62 | 2 | 2 | 0 | 0 | | |
| Wigan | 18 | 0 | 0 | 0 | 1 | 0 | 0 | 16 | 0 | 1 | 0 | 0 | | |
| Knowsley | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| Liverpool | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | | |
| St. Helens | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | | |
| Sefton | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Wirral | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | | |
| Kingston upon Hull, City of | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| East Riding of Yorkshire | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | | |
| North East Lincolnshire | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| North Lincolnshire | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| York | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Craven | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Hambleton | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| Harrogate | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Richmondshire | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ryedale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Scarborough | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Selby | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Barnsley | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Doncaster | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| Rotherham | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Sheffield | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Bradford | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | | |
| Calderdale | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | | |
| Kirklees | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | | |
| Leeds | 15 | 0 | 0 | 2 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | | |
| Wakefield | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| Derby | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Leicester | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Rutland | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Nottingham | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | | |
| Amber Valley | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

## TS007 - Age by single year

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| | |
|---|---|
| population | All usual residents |
| units | Persons |
| area type | 2021 super output areas - middle layer |
| area name | E02001022 : Bury 004 |

| **Age** | **2021** | |
|---|---|---|
| Total: All usual residents | 8,065 | |
| | | |
| Aged 4 years | 57 | |
| Aged 5 years | 106 | |
| Aged 6 years | 95 | |
| Aged 7 years | 99 | |
| Aged 8 years | 103 | |
| Aged 9 years | 92 | |
| Aged 10 years | 82 | |
| Primary | 634 | 36.2% |
| Aged 11 years | 108 | |
| Aged 12 years | 109 | |
| Aged 13 years | 95 | |
| Aged 14 years | 81 | |
| Aged 15 years | 90 | |
| Secondary | 1,117 | 63.8% |
| Aged 16 years | 88 | |

In order to protect against disclosure of personal information, records have been swapped between dif

TRICS — Person trip rate

| | | ARR | DEP | | |
|---|---|---|---|---|---|
| AM Peak | 0.972 | 0.22 | 0.752 | 23% | 77% |
| PM Peak | 0.861 | 0.587 | 0.274 | 68% | 32% |

No of dwellings: 350

Person trip

| | |
|---|---|
| AM Peak | 340 |
| PM Peak | 301 |

NTS0502

Trip Purpose Percentage

| | Commuting/ Business | Education/ Education Escort | Shopping | Other | |
|---|---|---|---|---|---|
| AM Peak | 31.50 | 38.50 | 4.00 | 26.50 | 100.50 |
| PM Peak | 28.00 | 6.00 | 13.00 | 53.00 | 100.00 |

Trips

| | Commuting/ Business | Education/ Education Escort | Shopping | Other | |
|---|---|---|---|---|---|
| AM Peak | 107 | 131 | 14 | 90 | *342* |
| PM Peak | 84 | 18 | 39 | 160 | *301* |

| | Census Work | Education | NTS Shopping | other |
|---|---|---|---|---|
| Walk | 8.7% | 41.3% | 28.8% | 31.7% |
| Cycle | 1.7% | 0.9% | 0.6% | 1.5% |
| Car Driver | 69.1% | 24.1% | 46.5% | 35.7% |
| Passenger | 6.6% | 24.1% | 18.4% | 25.0% |
| Rail | 0.4% | 0.9% | 0.6% | 1.7% |
| Local Bus | 8.3% | 5.2% | 3.7% | 2.0% |
| Other | 5.2% | 3.7% | 1.5% | 2.4% |
| Total | 100.0% | 100.0% | 100.0% | 99.9% |

| | Work | | Education | | Shopping | | other | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| Walk | 9 | 7 | 54 | 7 | 4 | 11 | 29 | 51 | *96* | *77* |
| Cycle | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 2 | *4* | *4* |
| Car Driver | 74 | 58 | 32 | 4 | 6 | 18 | 32 | 57 | *144* | *138* |
| Passenger | 7 | 6 | 32 | 4 | 2 | 7 | 23 | 40 | *64* | *57* |
| Rail | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 3 | *3* | *3* |
| Local Bus | 9 | 7 | 7 | 1 | 0 | 1 | 2 | 3 | *18* | *13* |
| Other | 6 | 4 | 5 | 1 | 0 | 1 | 2 | 4 | *13* | *9* |
| Total | *107* | *84* | *131* | *18* | *14* | *39* | *90* | *160* | *342* | *301* |

| Peak | Arrivals | Departures | 2-way |
|---|---|---|---|
| AM | 0.22 | 0.752 | 0.972 |
| | 23% | 77% | |
| PM | 0.587 | 0.274 | 0.861 |
| | 68% | 32% | |

Bury 004

| | Proportion | Car | | education car trips |
|---|---|---|---|---|
| Primary school age | 36.2% | 43% | 16% | 45% |
| Secondary school age | 63.8% | 30% | 19% | 55% |
| | | | 35% | |

AM Peak

| | Work | | Education | | Shopping | | other | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | |
| Walk | 2 | 7 | 12 | 42 | 1 | 3 | 6 | 22 | *22* | *74* | |
| Cycle | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | *1* | *3* | |
| Car Driver | 17 | 57 | 7 | 24 | 1 | 5 | 7 | 25 | *33* | *112* | *144* | 0.412 |
| Passenger | 2 | 5 | 7 | 24 | 1 | 2 | 5 | 17 | *14* | *49* | |
| Rail | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | *1* | *2* | |
| Local Bus | 2 | 7 | 2 | 5 | 0 | 0 | 0 | 1 | *4* | *14* | |
| Other | 1 | 4 | 1 | 4 | 0 | 0 | 0 | 2 | *3* | *10* | |
| Total | *24* | *83* | *30* | *101* | *3* | *11* | *20* | *70* | *77* | *264* | *342* |

PM Peak

| | Work | | Education | | Shopping | | other | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | |
| Walk | 5 | 2 | 5 | 2 | 8 | 4 | 34 | 16 | *52* | *24* | |
| Cycle | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | *3* | *1* | |
| Car Driver | 40 | 19 | 3 | 1 | 12 | 6 | 39 | 18 | *94* | *44* | *138* | 0.394 |
| Passenger | 4 | 2 | 3 | 1 | 5 | 2 | 27 | 13 | *39* | *18* | |
| Rail | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | *2* | *1* | |
| Local Bus | 5 | 2 | 1 | 0 | 1 | 0 | 2 | 1 | *9* | *4* | |
| Other | 3 | 1 | 0 | 0 | 0 | 0 | 3 | 1 | *6* | *3* | |
| Total | *58* | *27* | *12* | *6* | *27* | *12* | *109* | *51* | *205* | *96* | *301* |

AM Peak Reduction

| | Work | | Education | | Shopping | | other | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | |
| Walk | -1 | -3 | -3 | -11 | | | | | | | |
| Cycle | -1 | -3 | | | | | | | | | |
| Car Driver | 2 | 6 | 3 | 11 | 0 | 1 | | | *5* | *18* | |
| Passenger | | | | | | | | | | | |
| Rail | | | | | | | | | | | |
| Local Bus | | | | | | | | | | | |
| Other | | | | | | | | | | | |
| Total | | | | | | | | | | | |

| | work | shopping |
|---|---|---|
| percentage reduction | 10.0% | 25.0% |

PM Peak Reduction

| | Work | | Education | | Shopping | | other | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep |
| Walk | -2 | -1 | -1 | -1 | | | | | | |
| Cycle | -2 | -1 | | | | | | | | |
| Car Driver | 4 | 2 | 1 | 1 | 3 | 1 | | | *8* | *4* |
| Passenger | | | | | | | | | | |
| Rail | | | | | | | | | | |
| Local Bus | | | | | | | | | | |
| Other | | | | | | | | | | |
| Total | | | | | | | | | | |

AM Peak

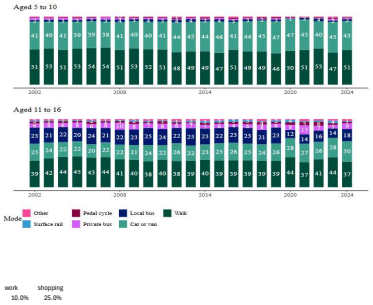
| | Work | | Education | | Shopping | | other | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | |
| Walk | 3 | 10 | 15 | 53 | 1 | 3 | 6 | 22 | *26* | *88* | |
| Cycle | 1 | 4 | 0 | 1 | 0 | 0 | 0 | 1 | *2* | *6* | |
| Car Driver | 15 | 52 | 4 | 13 | 1 | 4 | 7 | 25 | *27* | *94* | *121* | 0.403 |
| Passenger | 2 | 5 | 7 | 24 | 1 | 2 | 5 | 17 | *14* | *49* | |
| Rail | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | *1* | *2* | |
| Local Bus | 2 | 7 | 2 | 5 | 0 | 0 | 0 | 1 | *4* | *14* | |
| Other | 1 | 4 | 1 | 4 | 0 | 0 | 0 | 2 | *3* | *10* | |
| Total | *24* | *83* | *30* | *101* | *3* | *9* | *20* | *70* | *77* | *263* | *340* |

PM Peak

| | Work | | Education | | Shopping | | other | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | Arr | Dep | |
| Walk | 7 | 3 | 6 | 3 | 8 | 4 | 34 | 16 | *56* | *26* | |
| Cycle | 3 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | *5* | *2* | |
| Car Driver | 36 | 17 | 2 | 1 | 9 | 4 | 39 | 18 | *86* | *40* | *126* | 0.419 |
| Passenger | 4 | 2 | 3 | 1 | 5 | 2 | 27 | 13 | *39* | *18* | |
| Rail | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | *2* | *1* | |
| Local Bus | 5 | 2 | 1 | 0 | 1 | 0 | 2 | 1 | *9* | *4* | |
| Other | 3 | 1 | 0 | 0 | 0 | 0 | 3 | 1 | *6* | *3* | |
| Total | *58* | *27* | *12* | *6* | *24* | *11* | *109* | *51* | *202* | *94* | *297* |

## Trips to and from school by main mode

**Chart 37: Percentage of trips to and from school by main mode and age: England, 2002 to 2024 (NTS0613)**



# APPENDIX 6

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

Land Use: 02 - EMPLOYMENT

Category: B - BUSINESS PARK

**Selected Vehicle Type: Total Vehicles**

Selected regions and areas:

| | | | |
|---|---|---|---|
| **02** | **SOUTH EAST** | | |
| | EX | ESSEX | 2 days |
| **03** | **SOUTH WEST** | | |
| | DV | DEVON | 1 day |
| **04** | **EAST ANGLIA** | | |
| | CA | CAMBRIDGESHIRE | 1 day |
| | NF | NORFOLK | 1 day |
| **06** | **WEST MIDLANDS** | | |
| | WO | WORCESTERSHIRE | 1 day |
| **10** | **WALES** | | |
| | CF | CARDIFF | 2 days |

*This section displays the number of survey days per TRICS® sub-region in the selected set.*



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**Primary Filtering Selection:**

*This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.*

| | |
|---|---|
| Parameter: | GFA |
| Actual Range: | 975 to 185000 (units:sqm) |
| Range Selected by User: | 975 to 6000 (units:sqm) |
| Parking Spaces Range: | 7 - 4167 |

**Public Transport Provision:**

| | |
|---|---|
| Selection by: | All Surveys Included |
| Date Range: | 01/01/16 to 19/06/24 |

*This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.*

**Selected survey days:**

| | |
|---|---|
| Friday | 3 days |
| Monday | 1 days |
| Thursday | 2 days |
| Tuesday | 1 days |
| Wednesday | 1 days |

*This data displays the number of selected surveys by day of the week.*

**Selected survey types:**

| | |
|---|---|
| Manual count | 8 |
| Direction ATC Count | 0 |

*This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines*

**Selected Locations:**

| | |
|---|---|
| Edge of Town | 6 days |
| Neighbourhood Centre (PPS6 Local Centre) | 1 days |
| Suburban Area (PPS6 Out of Centre) | 1 days |

*This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.*

**Selected Location Sub Categories:**

| | |
|---|---|
| Commercial Zone | 1 days |
| Development Zone | 1 days |
| Industrial Zone | 3 days |
| No Sub Category | 1 days |
| Residential Zone | 1 days |
| Village | 1 days |

*This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.*

**Inclusion of Servicing Vehicle Counts:**

| | |
|---|---|
| Servicing vehicles Excluded | 2 days |
| Servicing vehicles Included | 6 days |



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**Secondary Filtering Selection:**

**Use Class:**

| | |
|---|---|
| Not Known | 8 surveys |

*This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.*

**Population within 500m Range:**

**0 - 0**

**Population within 1 mile:**

| | |
|---|---|
| 10,001 to 15,000 | 5 surveys |
| 15,001 to 20,000 | 1 surveys |
| 25,001 to 50,000 | 1 surveys |
| 5,001 to 10,000 | 1 surveys |

*This data displays the number of selected surveys within stated 1-mile radii of population.*

**Population within 5 miles:**

| | |
|---|---|
| 125,001 to 250,000 | 5 surveys |
| 250,001 to 500,000 | 2 surveys |
| 50,001 to 75,000 | 1 surveys |

*This data displays the number of selected surveys within stated 5-mile radii of population.*

**Car ownership within 5 miles:**

| | |
|---|---|
| 0.6 to 1.0 | 3 surveys |
| 1.1 to 1.5 | 5 surveys |

*This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.*



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**Petrol filling station:**

*This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.*

**Travel Plan:**

| | |
|---|---|
| No | 8 surveys |

*This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.*

**PTAL Rating:**

| | |
|---|---|
| No PTAL Present | 8 surveys |

*This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.*

**COVID-19 Restrictions:**

**No**



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| | | | |
|---|---|---|---|
| **1** | **CA-02-B-04** | **BUSINESS PARK** | **CAMBRIDGESHIRE** |

SWANNS ROAD
CAMBRIDGE
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Gross floor area: 5070 sqm
Survey date: Thursday 22/06/2023 Survey Type: Manual

| | | | |
|---|---|---|---|
| **2** | **CF-02-B-04** | **BUSINESS PARK** | **CARDIFF** |

RHYMNEY RIVER BRIDGE RD
CARDIFF
Edge of Town
Development Zone
Gross floor area: 5300 sqm
Survey date: Friday 05/05/2017 Survey Type: Manual

| | | | |
|---|---|---|---|
| **3** | **CF-02-B-06** | **BUSINESS PARK** | **CARDIFF** |

MALTHOUSE AVENUE
CARDIFF
PONTPRENNAU
Edge of Town
No Sub Category
Gross floor area: 1642 sqm
Survey date: Monday 12/03/2018 Survey Type: Manual

| | | | |
|---|---|---|---|
| **4** | **DV-02-B-01** | **BUSINESS PARK** | **DEVON** |

MANATON CLOSE
EXETER
MATFORD BUSINESS PARK
Edge of Town
Commercial Zone
Gross floor area: 1500 sqm
Survey date: Wednesday 05/07/2017 Survey Type: Manual

| | | | |
|---|---|---|---|
| **5** | **EX-02-B-01** | **BUSINESS PARK** | **ESSEX** |

BRUNEL COURT
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Gross floor area: 2900 sqm
Survey date: Friday 18/05/2018 Survey Type: Manual

| | | | |
|---|---|---|---|
| **6** | **EX-02-B-02** | **BUSINESS PARK** | **ESSEX** |

WYNCOLLS ROAD
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Gross floor area: 4083 sqm
Survey date: Friday 18/05/2018 Survey Type: Manual

| | | | |
|---|---|---|---|
| **7** | **NF-02-B-03** | **BUSINESS PARK** | **NORFOLK** |

BARTON WAY
NORWICH
Edge of Town
Residential Zone
Gross floor area: 2634 sqm
Survey date: Thursday 15/09/2022 Survey Type: Manual

| | | | |
|---|---|---|---|
| **8** | **WO-02-B-02** | **BUSINESS PARK** | **WORCESTERSHIRE** |

BIRMINGHAM ROAD
NEAR BROMSGROVE


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LICKEY END
Neighbourhood Centre (PPS6 Local Centre)
Village
Gross floor area: 4187 sqm
Survey date: Tuesday 26/06/2018

Survey Type: Manual

***DESELECTED SURVEYS***

| Site Ref | Survey Date | Reason for Deselection |
|---|---|---|
| AN-02-B-03 | 19-10-2017 | eire |
| AN-02-B-04 | 19-10-2017 | eire |
| IS-02-B-01 | 13-09-2022 | london |



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**TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK**

Total Vehicles

Calculation factor: 100 sqm

**BOLD print indicates peak (busiest) period*

| Time Range | No. Days | Ave. GFA | Arrivals | Departures | Totals |
|---|---|---|---|---|---|
| **00:00-01:00** | | | | | |
| **01:00-02:00** | | | | | |
| **02:00-03:00** | | | | | |
| **03:00-04:00** | | | | | |
| **04:00-05:00** | | | | | |
| **05:00-06:00** | | | | | |
| **06:00-07:00** | | | | | |
| **07:00-08:00** | **8** | **3414** | **0.480** | **0.077** | **0.557** |
| **08:00-09:00** | **8** | **3414** | **1.424** | **0.220** | **1.644** |
| **09:00-10:00** | **8** | **3414** | **0.813** | **0.381** | **1.194** |
| **10:00-11:00** | **8** | **3414** | **0.487** | **0.421** | **0.908** |
| **11:00-12:00** | **8** | **3414** | **0.487** | **0.388** | **0.875** |
| **12:00-13:00** | **8** | **3414** | **0.458** | **0.582** | **1.040** |
| **13:00-14:00** | **8** | **3414** | **0.560** | **0.469** | **1.029** |
| **14:00-15:00** | **8** | **3414** | **0.359** | **0.531** | **0.890** |
| **15:00-16:00** | **8** | **3414** | **0.304** | **0.439** | **0.743** |
| **16:00-17:00** | **8** | **3414** | **0.359** | **1.029** | **1.388** |
| **17:00-18:00** | **8** | **3414** | **0.289** | **1.270** | **1.559** |
| **18:00-19:00** | **8** | **3414** | **0.249** | **0.553** | **0.802** |
| **19:00-20:00** | | | | | |
| **20:00-21:00** | | | | | |
| **21:00-22:00** | | | | | |
| **22:00-23:00** | | | | | |
| **23:00-00:00** | | | | | |
| **Total Rates:** | | | **6.269** | **6.360** | **12.629** |

*This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.*

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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**Parameter Summary:**

| | |
|---|---|
| Trip rate parameter range selected: | 975 - 6000 (units: sqm) |
| Survey date date range: | 05/05/2017 - 22/06/2023 |
| Number of weekdays (Monday-Friday): | 8 |
| Number of Saturdays: | 0 |
| Number of Sundays: | 0 |
| Surveys automatically removed from selection: | 3 |
| Surveys manually removed from selection: | 0 |

*This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.*


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# APPENDIX 7

# APPENDIX 8

# APPENDIX 9

# Junctions 11

## PICADY 11 - Priority Intersection Module

Version: 11.0.0.2177
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+44 (0)1344 379777 software@trl.co.uk trlsoftware.com

**The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution**

**Filename:** Walmersley Road - Employment Site Access.j11
**Path:** Z:\projects\4839 Walmersley Brook, Bury\Picady
**Report generation date:** 03/02/2026 13:14:57

---

»2028 | With Development | AM
»2028 | With Development | PM
»2033 | With Development | AM
»2033 | With Development | PM

## Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Set ID | Queue (PCU) | Delay (s) | RFC | LOS |
| | 2028 - With Development | | | | | | | | | |
| Stream B-C | D1 | 0.0 | 7.57 | 0.01 | A | D2 | 0.0 | 7.90 | 0.01 | A |
| Stream B-A | | 0.0 | 14.82 | 0.01 | B | | 0.0 | 17.21 | 0.04 | C |
| Stream C-AB | | 0.0 | 7.56 | 0.04 | A | | 0.0 | 7.50 | 0.01 | A |
| | 2033 - With Development | | | | | | | | | |
| Stream B-C | D3 | 0.0 | 7.70 | 0.01 | A | D4 | 0.0 | 8.05 | 0.01 | A |
| Stream B-A | | 0.0 | 15.59 | 0.01 | C | | 0.0 | 18.36 | 0.04 | C |
| Stream C-AB | | 0.0 | 7.70 | 0.04 | A | | 0.0 | 7.64 | 0.01 | A |

*There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.*

*Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.*

## File summary

### File Description

| | |
|---|---|
| **Title** | Walmersley Road - Northern Site Access |
| **Location** | |
| **Site number** | |
| **Date** | 21/11/2025 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | EDD |
| **Description** | Based on Eddisons drawing 4839-Mastercopy Rev B. |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perHour | s | -Min | perMin |

## Analysis Options

| Vehicle length (m) | Calculate Queue Percentiles | Calculate detailed queueing delay | Show lane queues in feet / metres | Show all PICADY stream intercepts | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) | Use simulation for HCM roundabouts | Use iterations for HCM roundabouts |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.75 | ✓ | | | | | 0.85 | 36.00 | 20.00 | | |

## Demand Set Summary

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D1 | 2028 | With Development | AM | ONE HOUR | 08:00 | 09:30 | 15 | ✓ |
| D2 | 2028 | With Development | PM | ONE HOUR | 16:30 | 18:00 | 15 | ✓ |
| D3 | 2033 | With Development | AM | ONE HOUR | 08:00 | 09:30 | 15 | ✓ |
| D4 | 2033 | With Development | PM | ONE HOUR | 16:30 | 18:00 | 15 | ✓ |

## Analysis Set Details

| ID | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |
|---|---|---|---|
| A1 | ✓ | 100.000 | 100.000 |

# 2028 | With Development | AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Minor arm visibility to right | Arm B - Minor arm geometry | Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section. |
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 0.15 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.15 | A |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | Warmsley Road (N) | | Major |
| B | Northern Site Access | | Minor |
| C | Warmsley Road (S) | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right-turn storage | Width for right-turn storage (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 6.00 | | ✓ | 3.00 | 100.0 | ✓ | 6.00 |

*Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.*

### Minor Arm Geometry

| Arm | Minor arm type | Lane Width (Left) (m) | Lane Width (Right) (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|---|
| B | Two lanes | 3.25 | 3.25 | 35 | 35 |

### Slope / Intercept / Capacity

#### Priority Intersection Slopes and Intercepts

| Stream | Intercept (PCU/hr) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|
| B-A | 519 | 0.094 | 0.239 | 0.150 | 0.341 |
| B-C | 662 | 0.101 | 0.257 | - | - |
| C-B | 687 | 0.266 | 0.266 | - | - |

*The slopes and intercepts shown above include custom intercept adjustments only.*

*Streams may be combined, in which case capacity will be adjusted.*

*Values are shown for the first time segment only; they may differ for subsequent time segments.*

# Traffic Demand

## Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D1 | 2028 | With Development | AM | ONE HOUR | 08:00 | 09:30 | 15 | ✓ |

## Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 654 | 100.000 |
| B | | ONE HOUR | ✓ | 6 | 100.000 |
| C | | ONE HOUR | ✓ | 605 | 100.000 |

# Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 19 | 635 |
| | B | 3 | 0 | 3 |
| | C | 588 | 17 | 0 |

# Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 7.57 | 0.0 | 0.5 | A | 3 | 4 |
| B-A | 0.01 | 14.82 | 0.0 | 0.5 | B | 3 | 4 |
| C-AB | 0.04 | 7.56 | 0.0 | 0.5 | A | 16 | 23 |
| C-A | | | | | | 540 | 809 |
| A-B | | | | | | 17 | 26 |
| A-C | | | | | | 583 | 874 |

## Main Results for each time segment

### 08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 2 | 0.56 | 0.00 | 537 | 0.004 | 2 | 0.0 | 0.0 | 6.729 | A |
| B-A | 2 | 0.56 | 0.00 | 332 | 0.007 | 2 | 0.0 | 0.0 | 10.904 | B |
| C-AB | 13 | 3 | 0.00 | 556 | 0.023 | 13 | 0.0 | 0.0 | 6.635 | A |
| C-A | 443 | 111 | 0.00 | | | 443 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 478 | 120 | 0.00 | | | 478 | | | | |

### 08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 3 | 0.67 | 0.00 | 513 | 0.005 | 3 | 0.0 | 0.0 | 7.056 | A |
| B-A | 3 | 0.67 | 0.00 | 296 | 0.009 | 3 | 0.0 | 0.0 | 12.265 | B |
| C-AB | 15 | 4 | 0.00 | 530 | 0.029 | 15 | 0.0 | 0.0 | 6.994 | A |
| C-A | 529 | 132 | 0.00 | | | 529 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 571 | 143 | 0.00 | | | 571 | | | | |

### 08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 3 | 0.83 | 0.00 | 479 | 0.007 | 3 | 0.0 | 0.0 | 7.566 | A |
| B-A | 3 | 0.83 | 0.00 | 246 | 0.013 | 3 | 0.0 | 0.0 | 14.823 | B |
| C-AB | 19 | 5 | 0.00 | 495 | 0.038 | 19 | 0.0 | 0.0 | 7.561 | A |
| C-A | 647 | 162 | 0.00 | | | 647 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 699 | 175 | 0.00 | | | 699 | | | | |

### 08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 3 | 0.83 | 0.00 | 479 | 0.007 | 3 | 0.0 | 0.0 | 7.566 | A |
| B-A | 3 | 0.83 | 0.00 | 246 | 0.013 | 3 | 0.0 | 0.0 | 14.824 | B |
| C-AB | 19 | 5 | 0.00 | 495 | 0.038 | 19 | 0.0 | 0.0 | 7.561 | A |
| C-A | 647 | 162 | 0.00 | | | 647 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 699 | 175 | 0.00 | | | 699 | | | | |

### 09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 3 | 0.67 | 0.00 | 513 | 0.005 | 3 | 0.0 | 0.0 | 7.057 | A |
| B-A | 3 | 0.67 | 0.00 | 296 | 0.009 | 3 | 0.0 | 0.0 | 12.268 | B |
| C-AB | 15 | 4 | 0.00 | 530 | 0.029 | 15 | 0.0 | 0.0 | 6.995 | A |
| C-A | 529 | 132 | 0.00 | | | 529 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 571 | 143 | 0.00 | | | 571 | | | | |

### 09:15 - 09:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 2 | 0.56 | 0.00 | 537 | 0.004 | 2 | 0.0 | 0.0 | 6.732 | A |
| B-A | 2 | 0.56 | 0.00 | 332 | 0.007 | 2 | 0.0 | 0.0 | 10.908 | B |
| C-AB | 13 | 3 | 0.00 | 556 | 0.023 | 13 | 0.0 | 0.0 | 6.638 | A |
| C-A | 443 | 111 | 0.00 | | | 443 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 478 | 120 | 0.00 | | | 478 | | | | |

## Queue Variation Results for each time segment

### 08:00 - 08:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| B-A | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

### 08:15 - 08:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| B-A | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| C-AB | 0.03 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 08:30 - 08:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| C-AB | 0.04 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 08:45 - 09:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| C-AB | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |

### 09:00 - 09:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| C-AB | 0.03 | 0.00 | 0.00 | 0.03 | 0.03 | | | N/A | N/A |

### 09:15 - 09:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| B-A | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

# 2028 | With Development | PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Minor arm visibility to right | Arm B - Minor arm geometry | Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section. |
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 0.13 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.13 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D2 | 2028 | With Development | PM | ONE HOUR | 16:30 | 18:00 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 695 | 100.000 |
| B | | ONE HOUR | ✓ | 13 | 100.000 |
| C | | ONE HOUR | ✓ | 720 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 4 | 691 |
| | B | 7 | 0 | 6 |
| | C | 717 | 3 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 7.90 | 0.0 | 0.5 | A | 6 | 8 |
| B-A | 0.04 | 17.21 | 0.0 | 0.5 | C | 6 | 10 |
| C-AB | 0.01 | 7.50 | 0.0 | 0.5 | A | 3 | 4 |
| C-A | | | | | | 658 | 987 |
| A-B | | | | | | 4 | 6 |
| A-C | | | | | | 634 | 951 |

## Main Results for each time segment

### 16:30 - 16:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 5 | 1 | 0.00 | 526 | 0.009 | 4 | 0.0 | 0.0 | 6.900 | A |
| B-A | 5 | 1 | 0.00 | 312 | 0.017 | 5 | 0.0 | 0.0 | 11.716 | B |
| C-AB | 2 | 0.56 | 0.00 | 548 | 0.004 | 2 | 0.0 | 0.0 | 6.600 | A |
| C-A | 540 | 135 | 0.00 | | | 540 | | | | |
| A-B | 3 | 0.75 | 0.00 | | | 3 | | | | |
| A-C | 520 | 130 | 0.00 | | | 520 | | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 5 | 1 | 0.00 | 499 | 0.011 | 5 | 0.0 | 0.0 | 7.285 | A |
| B-A | 6 | 2 | 0.00 | 272 | 0.023 | 6 | 0.0 | 0.0 | 13.528 | B |
| C-AB | 3 | 0.67 | 0.00 | 521 | 0.005 | 3 | 0.0 | 0.0 | 6.950 | A |
| C-A | 645 | 161 | 0.00 | | | 645 | | | | |
| A-B | 4 | 0.90 | 0.00 | | | 4 | | | | |
| A-C | 621 | 155 | 0.00 | | | 621 | | | | |

### 17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 7 | 2 | 0.00 | 462 | 0.014 | 7 | 0.0 | 0.0 | 7.899 | A |
| B-A | 8 | 2 | 0.00 | 217 | 0.036 | 8 | 0.0 | 0.0 | 17.198 | C |
| C-AB | 3 | 0.83 | 0.00 | 483 | 0.007 | 3 | 0.0 | 0.0 | 7.500 | A |
| C-A | 789 | 197 | 0.00 | | | 789 | | | | |
| A-B | 4 | 1 | 0.00 | | | 4 | | | | |
| A-C | 761 | 190 | 0.00 | | | 761 | | | | |

### 17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 7 | 2 | 0.00 | 462 | 0.014 | 7 | 0.0 | 0.0 | 7.899 | A |
| B-A | 8 | 2 | 0.00 | 217 | 0.036 | 8 | 0.0 | 0.0 | 17.206 | C |
| C-AB | 3 | 0.83 | 0.00 | 483 | 0.007 | 3 | 0.0 | 0.0 | 7.500 | A |
| C-A | 789 | 197 | 0.00 | | | 789 | | | | |
| A-B | 4 | 1 | 0.00 | | | 4 | | | | |
| A-C | 761 | 190 | 0.00 | | | 761 | | | | |

### 17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 5 | 1 | 0.00 | 499 | 0.011 | 5 | 0.0 | 0.0 | 7.289 | A |
| B-A | 6 | 2 | 0.00 | 272 | 0.023 | 6 | 0.0 | 0.0 | 13.536 | B |
| C-AB | 3 | 0.67 | 0.00 | 521 | 0.005 | 3 | 0.0 | 0.0 | 6.953 | A |
| C-A | 645 | 161 | 0.00 | | | 645 | | | | |
| A-B | 4 | 0.90 | 0.00 | | | 4 | | | | |
| A-C | 621 | 155 | 0.00 | | | 621 | | | | |

### 17:45 - 18:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 5 | 1 | 0.00 | 526 | 0.009 | 5 | 0.0 | 0.0 | 6.904 | A |
| B-A | 5 | 1 | 0.00 | 312 | 0.017 | 5 | 0.0 | 0.0 | 11.723 | B |
| C-AB | 2 | 0.56 | 0.00 | 548 | 0.004 | 2 | 0.0 | 0.0 | 6.602 | A |
| C-A | 540 | 135 | 0.00 | | | 540 | | | | |
| A-B | 3 | 0.75 | 0.00 | | | 3 | | | | |
| A-C | 520 | 130 | 0.00 | | | 520 | | | | |

## Queue Variation Results for each time segment

### 16:30 - 16:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |
| C-AB | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |

### 16:45 - 17:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| B-A | 0.02 | 0.02 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| C-AB | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 17:00 - 17:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.04 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 17:15 - 17:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 17:30 - 17:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 17:45 - 18:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |
| C-AB | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |

# 2033 | With Development | AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Minor arm visibility to right | Arm B - Minor arm geometry | Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section. |
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 0.15 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.15 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D3 | 2033 | With Development | AM | ONE HOUR | 08:00 | 09:30 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 683 | 100.000 |
| B | | ONE HOUR | ✓ | 6 | 100.000 |
| C | | ONE HOUR | ✓ | 631 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 19 | 664 |
| | B | 3 | 0 | 3 |
| | C | 614 | 17 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 7.70 | 0.0 | 0.5 | A | 3 | 4 |
| B-A | 0.01 | 15.59 | 0.0 | 0.5 | C | 3 | 4 |
| C-AB | 0.04 | 7.70 | 0.0 | 0.5 | A | 16 | 23 |
| C-A | | | | | | 563 | 845 |
| A-B | | | | | | 17 | 26 |
| A-C | | | | | | 609 | 914 |

## Main Results for each time segment

### 08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 2 | 0.56 | 0.00 | 532 | 0.004 | 2 | 0.0 | 0.0 | 6.801 | A |
| B-A | 2 | 0.56 | 0.00 | 324 | 0.007 | 2 | 0.0 | 0.0 | 11.180 | B |
| C-AB | 13 | 3 | 0.00 | 550 | 0.023 | 13 | 0.0 | 0.0 | 6.706 | A |
| C-A | 462 | 116 | 0.00 | | | 462 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 500 | 125 | 0.00 | | | 500 | | | | |

### 08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 3 | 0.67 | 0.00 | 506 | 0.005 | 3 | 0.0 | 0.0 | 7.151 | A |
| B-A | 3 | 0.67 | 0.00 | 286 | 0.009 | 3 | 0.0 | 0.0 | 12.686 | B |
| C-AB | 15 | 4 | 0.00 | 523 | 0.029 | 15 | 0.0 | 0.0 | 7.090 | A |
| C-A | 552 | 138 | 0.00 | | | 552 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 597 | 149 | 0.00 | | | 597 | | | | |

### 08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 3 | 0.83 | 0.00 | 471 | 0.007 | 3 | 0.0 | 0.0 | 7.700 | A |
| B-A | 3 | 0.83 | 0.00 | 234 | 0.014 | 3 | 0.0 | 0.0 | 15.588 | C |
| C-AB | 19 | 5 | 0.00 | 487 | 0.038 | 19 | 0.0 | 0.0 | 7.699 | A |
| C-A | 676 | 169 | 0.00 | | | 676 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 731 | 183 | 0.00 | | | 731 | | | | |

### 08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 3 | 0.83 | 0.00 | 471 | 0.007 | 3 | 0.0 | 0.0 | 7.700 | A |
| B-A | 3 | 0.83 | 0.00 | 234 | 0.014 | 3 | 0.0 | 0.0 | 15.591 | C |
| C-AB | 19 | 5 | 0.00 | 487 | 0.038 | 19 | 0.0 | 0.0 | 7.699 | A |
| C-A | 676 | 169 | 0.00 | | | 676 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 731 | 183 | 0.00 | | | 731 | | | | |

### 09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 3 | 0.67 | 0.00 | 506 | 0.005 | 3 | 0.0 | 0.0 | 7.154 | A |
| B-A | 3 | 0.67 | 0.00 | 286 | 0.009 | 3 | 0.0 | 0.0 | 12.691 | B |
| C-AB | 15 | 4 | 0.00 | 523 | 0.029 | 15 | 0.0 | 0.0 | 7.093 | A |
| C-A | 552 | 138 | 0.00 | | | 552 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 597 | 149 | 0.00 | | | 597 | | | | |

### 09:15 - 09:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 2 | 0.56 | 0.00 | 531 | 0.004 | 2 | 0.0 | 0.0 | 6.801 | A |
| B-A | 2 | 0.56 | 0.00 | 324 | 0.007 | 2 | 0.0 | 0.0 | 11.184 | B |
| C-AB | 13 | 3 | 0.00 | 550 | 0.023 | 13 | 0.0 | 0.0 | 6.707 | A |
| C-A | 462 | 116 | 0.00 | | | 462 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 500 | 125 | 0.00 | | | 500 | | | | |

## Queue Variation Results for each time segment

### 08:00 - 08:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| B-A | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

### 08:15 - 08:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| B-A | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| C-AB | 0.03 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 08:30 - 08:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| C-AB | 0.04 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 08:45 - 09:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| C-AB | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |

### 09:00 - 09:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| C-AB | 0.03 | 0.00 | 0.00 | 0.03 | 0.03 | | | N/A | N/A |

### 09:15 - 09:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| B-A | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

# 2033 | With Development | PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Minor arm visibility to right | Arm B - Minor arm geometry | Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section. |
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 0.13 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.13 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D4 | 2033 | With Development | PM | ONE HOUR | 16:30 | 18:00 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 725 | 100.000 |
| B | | ONE HOUR | ✓ | 13 | 100.000 |
| C | | ONE HOUR | ✓ | 752 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 4 | 721 |
| | B | 7 | 0 | 6 |
| | C | 749 | 3 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 8.05 | 0.0 | 0.5 | A | 6 | 8 |
| B-A | 0.04 | 18.36 | 0.0 | 0.5 | C | 6 | 10 |
| C-AB | 0.01 | 7.64 | 0.0 | 0.5 | A | 3 | 4 |
| C-A | | | | | | 687 | 1031 |
| A-B | | | | | | 4 | 6 |
| A-C | | | | | | 662 | 992 |

## Main Results for each time segment

### 16:30 - 16:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 5 | 1 | 0.00 | 520 | 0.009 | 4 | 0.0 | 0.0 | 6.978 | A |
| B-A | 5 | 1 | 0.00 | 303 | 0.017 | 5 | 0.0 | 0.0 | 12.070 | B |
| C-AB | 2 | 0.56 | 0.00 | 542 | 0.004 | 2 | 0.0 | 0.0 | 6.673 | A |
| C-A | 564 | 141 | 0.00 | | | 564 | | | | |
| A-B | 3 | 0.75 | 0.00 | | | 3 | | | | |
| A-C | 543 | 136 | 0.00 | | | 543 | | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 5 | 1 | 0.00 | 492 | 0.011 | 5 | 0.0 | 0.0 | 7.390 | A |
| B-A | 6 | 2 | 0.00 | 262 | 0.024 | 6 | 0.0 | 0.0 | 14.099 | B |
| C-AB | 3 | 0.67 | 0.00 | 513 | 0.005 | 3 | 0.0 | 0.0 | 7.047 | A |
| C-A | 673 | 168 | 0.00 | | | 673 | | | | |
| A-B | 4 | 0.90 | 0.00 | | | 4 | | | | |
| A-C | 648 | 162 | 0.00 | | | 648 | | | | |

### 17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 7 | 2 | 0.00 | 454 | 0.015 | 7 | 0.0 | 0.0 | 8.052 | A |
| B-A | 8 | 2 | 0.00 | 204 | 0.038 | 8 | 0.0 | 0.0 | 18.352 | C |
| C-AB | 3 | 0.83 | 0.00 | 474 | 0.007 | 3 | 0.0 | 0.0 | 7.639 | A |
| C-A | 825 | 206 | 0.00 | | | 825 | | | | |
| A-B | 4 | 1 | 0.00 | | | 4 | | | | |
| A-C | 794 | 198 | 0.00 | | | 794 | | | | |

### 17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 7 | 2 | 0.00 | 454 | 0.015 | 7 | 0.0 | 0.0 | 8.053 | A |
| B-A | 8 | 2 | 0.00 | 204 | 0.038 | 8 | 0.0 | 0.0 | 18.363 | C |
| C-AB | 3 | 0.83 | 0.00 | 474 | 0.007 | 3 | 0.0 | 0.0 | 7.639 | A |
| C-A | 825 | 206 | 0.00 | | | 825 | | | | |
| A-B | 4 | 1 | 0.00 | | | 4 | | | | |
| A-C | 794 | 198 | 0.00 | | | 794 | | | | |

### 17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 5 | 1 | 0.00 | 492 | 0.011 | 5 | 0.0 | 0.0 | 7.391 | A |
| B-A | 6 | 2 | 0.00 | 262 | 0.024 | 6 | 0.0 | 0.0 | 14.108 | B |
| C-AB | 3 | 0.67 | 0.00 | 513 | 0.005 | 3 | 0.0 | 0.0 | 7.050 | A |
| C-A | 673 | 168 | 0.00 | | | 673 | | | | |
| A-B | 4 | 0.90 | 0.00 | | | 4 | | | | |
| A-C | 648 | 162 | 0.00 | | | 648 | | | | |

### 17:45 - 18:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-C | 5 | 1 | 0.00 | 520 | 0.009 | 5 | 0.0 | 0.0 | 6.979 | A |
| B-A | 5 | 1 | 0.00 | 303 | 0.017 | 5 | 0.0 | 0.0 | 12.080 | B |
| C-AB | 2 | 0.56 | 0.00 | 542 | 0.004 | 2 | 0.0 | 0.0 | 6.676 | A |
| C-A | 564 | 141 | 0.00 | | | 564 | | | | |
| A-B | 3 | 0.75 | 0.00 | | | 3 | | | | |
| A-C | 543 | 136 | 0.00 | | | 543 | | | | |

## Queue Variation Results for each time segment

### 16:30 - 16:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |
| C-AB | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |

### 16:45 - 17:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| B-A | 0.02 | 0.02 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| C-AB | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 17:00 - 17:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.04 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 17:15 - 17:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 17:30 - 17:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.03 | 0.00 | 0.00 | 0.03 | 0.03 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 17:45 - 18:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-C | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |
| B-A | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |
| C-AB | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |

# APPENDIX 10

# Junctions 11

## PICADY 11 - Priority Intersection Module

Version: 11.0.0.2177
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**The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution**

**Filename:** Walmersley Road - Resi Site Access.j11
**Path:** Z:\projects\4839 Walmersley Brook, Bury\Picady
**Report generation date:** 03/02/2026 13:05:33

---

»2028 | With Development | AM
»2028 | With Development | PM
»2033 | With Development | AM
»2033 | With Development | PM

### Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Set ID | Queue (PCU) | Delay (s) | RFC | LOS |
| | 2028 - With Development | | | | | | | | | |
| Stream B-AC | D1 | 0.6 | 19.60 | 0.36 | C | D2 | 0.2 | 17.57 | 0.18 | C |
| Stream C-AB | | 0.0 | 7.34 | 0.02 | A | | 0.1 | 7.94 | 0.06 | A |
| | 2033 - With Development | | | | | | | | | |
| Stream B-AC | D3 | 0.6 | 20.89 | 0.38 | C | D4 | 0.2 | 18.81 | 0.19 | C |
| Stream C-AB | | 0.0 | 7.47 | 0.02 | A | | 0.1 | 8.10 | 0.06 | A |

*There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.*

*Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.*

### File summary

#### File Description

| | |
|---|---|
| **Title** | Walmersley Road - Southern Site Access |
| **Location** | |
| **Site number** | |
| **Date** | 21/11/2025 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | EDD |
| **Description** | Based on Eddisons drawing 4839-Mastercopy Rev B. |

### Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perHour | s | -Min | perMin |

## Analysis Options

| Vehicle length (m) | Calculate Queue Percentiles | Calculate detailed queueing delay | Show lane queues in feet / metres | Show all PICADY stream intercepts | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) | Use simulation for HCM roundabouts | Use iterations for HCM roundabouts |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.75 | ✓ | | | | | 0.85 | 36.00 | 20.00 | | |

## Demand Set Summary

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D1 | 2028 | With Development | AM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |
| D2 | 2028 | With Development | PM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |
| D3 | 2033 | With Development | AM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |
| D4 | 2033 | With Development | PM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |

## Analysis Set Details

| ID | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |
|---|---|---|---|
| A1 | ✓ | 100.000 | 100.000 |

# 2028 | With Development | AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 1.48 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 1.48 | A |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | Warmsley Road (N) | | Major |
| B | Southern Site Access | | Minor |
| C | Warmsley Road (S) | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right-turn storage | Width for right-turn storage (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 6.00 | | ✓ | 3.00 | 100.0 | ✓ | 6.00 |

*Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.*

### Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|
| B | One lane | 2.75 | 50 | 22 |

### Slope / Intercept / Capacity

#### Priority Intersection Slopes and Intercepts

| Stream | Intercept (PCU/hr) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|
| B-A | 492 | 0.090 | 0.226 | 0.142 | 0.324 |
| B-C | 622 | 0.095 | 0.241 | - | - |
| C-B | 687 | 0.266 | 0.266 | - | - |

*The slopes and intercepts shown above include custom intercept adjustments only.*

*Streams may be combined, in which case capacity will be adjusted.*

*Values are shown for the first time segment only; they may differ for subsequent time segments.*

# Traffic Demand

## Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D1 | 2028 | With Development | AM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |

## Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 638 | 100.000 |
| B | | ONE HOUR | ✓ | 94 | 100.000 |
| C | | ONE HOUR | ✓ | 548 | 100.000 |

# Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 19 | 619 |
| | B | 66 | 0 | 28 |
| | C | 540 | 8 | 0 |

# Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.36 | 19.60 | 0.6 | 2.6 | C | 86 | 129 |
| C-AB | 0.02 | 7.34 | 0.0 | 0.5 | A | 7 | 11 |
| C-A | | | | | | 496 | 743 |
| A-B | | | | | | 17 | 26 |
| A-C | | | | | | 568 | 852 |

## Main Results for each time segment

### 00:00 - 00:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 71 | 18 | 0.00 | 364 | 0.194 | 70 | 0.0 | 0.2 | 12.186 | B |
| C-AB | 6 | 2 | 0.00 | 559 | 0.011 | 6 | 0.0 | 0.0 | 6.515 | A |
| C-A | 407 | 102 | 0.00 | | | 407 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 466 | 117 | 0.00 | | | 466 | | | | |

### 00:15 - 00:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 85 | 21 | 0.00 | 332 | 0.254 | 84 | 0.2 | 0.3 | 14.486 | B |
| C-AB | 7 | 2 | 0.00 | 534 | 0.013 | 7 | 0.0 | 0.0 | 6.836 | A |
| C-A | 485 | 121 | 0.00 | | | 485 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 556 | 139 | 0.00 | | | 556 | | | | |

### 00:30 - 00:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 103 | 26 | 0.00 | 287 | 0.361 | 103 | 0.3 | 0.5 | 19.427 | C |
| C-AB | 9 | 2 | 0.00 | 500 | 0.018 | 9 | 0.0 | 0.0 | 7.336 | A |
| C-A | 595 | 149 | 0.00 | | | 595 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 682 | 170 | 0.00 | | | 682 | | | | |

### 00:45 - 01:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 103 | 26 | 0.00 | 287 | 0.361 | 103 | 0.5 | 0.6 | 19.596 | C |
| C-AB | 9 | 2 | 0.00 | 500 | 0.018 | 9 | 0.0 | 0.0 | 7.336 | A |
| C-A | 595 | 149 | 0.00 | | | 595 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 682 | 170 | 0.00 | | | 682 | | | | |

### 01:00 - 01:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 85 | 21 | 0.00 | 332 | 0.254 | 85 | 0.6 | 0.3 | 14.629 | B |
| C-AB | 7 | 2 | 0.00 | 534 | 0.013 | 7 | 0.0 | 0.0 | 6.836 | A |
| C-A | 485 | 121 | 0.00 | | | 485 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 556 | 139 | 0.00 | | | 556 | | | | |

### 01:15 - 01:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 71 | 18 | 0.00 | 364 | 0.194 | 71 | 0.3 | 0.2 | 12.298 | B |
| C-AB | 6 | 2 | 0.00 | 559 | 0.011 | 6 | 0.0 | 0.0 | 6.518 | A |
| C-A | 407 | 102 | 0.00 | | | 407 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 466 | 117 | 0.00 | | | 466 | | | | |

## Queue Variation Results for each time segment

### 00:00 - 00:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.24 | 0.00 | 0.00 | 0.24 | 0.24 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 00:15 - 00:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.33 | 0.00 | 0.00 | 0.33 | 0.33 | | | N/A | N/A |
| C-AB | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 00:30 - 00:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.55 | 0.03 | 0.26 | 0.55 | 0.55 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

### 00:45 - 01:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.55 | 0.03 | 0.31 | 1.47 | 2.58 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

### 01:00 - 01:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.35 | 0.03 | 0.26 | 0.47 | 0.49 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 01:15 - 01:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.25 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

# 2028 | With Development | PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 0.62 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.62 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D2 | 2028 | With Development | PM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 697 | 100.000 |
| B | | ONE HOUR | ✓ | 40 | 100.000 |
| C | | ONE HOUR | ✓ | 718 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 60 | 637 |
| | B | 28 | 0 | 12 |
| | C | 692 | 26 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.18 | 17.57 | 0.2 | 0.9 | C | 37 | 55 |
| C-AB | 0.06 | 7.94 | 0.1 | 0.5 | A | 24 | 36 |
| C-A | | | | | | 635 | 952 |
| A-B | | | | | | 55 | 83 |
| A-C | | | | | | 585 | 877 |

## Main Results for each time segment

### 00:00 - 00:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 30 | 8 | 0.00 | 340 | 0.089 | 30 | 0.0 | 0.1 | 11.588 | B |
| C-AB | 20 | 5 | 0.00 | 547 | 0.036 | 19 | 0.0 | 0.0 | 6.825 | A |
| C-A | 521 | 130 | 0.00 | | | 521 | | | | |
| A-B | 45 | 11 | 0.00 | | | 45 | | | | |
| A-C | 480 | 120 | 0.00 | | | 480 | | | | |

### 00:15 - 00:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 36 | 9 | 0.00 | 302 | 0.119 | 36 | 0.1 | 0.1 | 13.497 | B |
| C-AB | 23 | 6 | 0.00 | 520 | 0.045 | 23 | 0.0 | 0.0 | 7.253 | A |
| C-A | 622 | 156 | 0.00 | | | 622 | | | | |
| A-B | 54 | 13 | 0.00 | | | 54 | | | | |
| A-C | 573 | 143 | 0.00 | | | 573 | | | | |

### 00:30 - 00:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 44 | 11 | 0.00 | 249 | 0.177 | 44 | 0.1 | 0.2 | 17.511 | C |
| C-AB | 29 | 7 | 0.00 | 483 | 0.059 | 29 | 0.0 | 0.1 | 7.935 | A |
| C-A | 762 | 190 | 0.00 | | | 762 | | | | |
| A-B | 66 | 17 | 0.00 | | | 66 | | | | |
| A-C | 701 | 175 | 0.00 | | | 701 | | | | |

### 00:45 - 01:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 44 | 11 | 0.00 | 249 | 0.177 | 44 | 0.2 | 0.2 | 17.566 | C |
| C-AB | 29 | 7 | 0.00 | 483 | 0.059 | 29 | 0.1 | 0.1 | 7.936 | A |
| C-A | 762 | 190 | 0.00 | | | 762 | | | | |
| A-B | 66 | 17 | 0.00 | | | 66 | | | | |
| A-C | 701 | 175 | 0.00 | | | 701 | | | | |

### 01:00 - 01:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 36 | 9 | 0.00 | 302 | 0.119 | 36 | 0.2 | 0.1 | 13.543 | B |
| C-AB | 23 | 6 | 0.00 | 520 | 0.045 | 23 | 0.1 | 0.0 | 7.255 | A |
| C-A | 622 | 156 | 0.00 | | | 622 | | | | |
| A-B | 54 | 13 | 0.00 | | | 54 | | | | |
| A-C | 573 | 143 | 0.00 | | | 573 | | | | |

### 01:15 - 01:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 30 | 8 | 0.00 | 340 | 0.089 | 30 | 0.1 | 0.1 | 11.629 | B |
| C-AB | 20 | 5 | 0.00 | 547 | 0.036 | 20 | 0.0 | 0.0 | 6.829 | A |
| C-A | 521 | 130 | 0.00 | | | 521 | | | | |
| A-B | 45 | 11 | 0.00 | | | 45 | | | | |
| A-C | 480 | 120 | 0.00 | | | 480 | | | | |

## Queue Variation Results for each time segment

### 00:00 - 00:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.10 | 0.00 | 0.00 | 0.10 | 0.10 | | | N/A | N/A |
| C-AB | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |

### 00:15 - 00:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.13 | 0.00 | 0.00 | 0.13 | 0.13 | | | N/A | N/A |
| C-AB | 0.05 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 00:30 - 00:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.21 | 0.03 | 0.26 | 0.47 | 0.50 | | | N/A | N/A |
| C-AB | 0.06 | 0.03 | 0.26 | 0.47 | 0.49 | | | N/A | N/A |

### 00:45 - 01:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.21 | 0.03 | 0.27 | 0.49 | 0.94 | | | N/A | N/A |
| C-AB | 0.06 | 0.00 | 0.00 | 0.06 | 0.06 | | | N/A | N/A |

### 01:00 - 01:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.14 | 0.00 | 0.00 | 0.14 | 0.14 | | | N/A | N/A |
| C-AB | 0.05 | 0.00 | 0.00 | 0.05 | 0.05 | | | N/A | N/A |

### 01:15 - 01:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.10 | 0.00 | 0.00 | 0.10 | 0.10 | | | N/A | N/A |
| C-AB | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |

# 2033 | With Development | AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 1.52 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 1.52 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D3 | 2033 | With Development | AM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 667 | 100.000 |
| B | | ONE HOUR | ✓ | 94 | 100.000 |
| C | | ONE HOUR | ✓ | 573 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 19 | 648 |
| | B | 66 | 0 | 28 |
| | C | 565 | 8 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.38 | 20.89 | 0.6 | 2.8 | C | 86 | 129 |
| C-AB | 0.02 | 7.47 | 0.0 | 0.5 | A | 7 | 11 |
| C-A | | | | | | 518 | 778 |
| A-B | | | | | | 17 | 26 |
| A-C | | | | | | 595 | 892 |

## Main Results for each time segment

### 00:00 - 00:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 71 | 18 | 0.00 | 357 | 0.198 | 70 | 0.0 | 0.2 | 12.501 | B |
| C-AB | 6 | 2 | 0.00 | 553 | 0.011 | 6 | 0.0 | 0.0 | 6.584 | A |
| C-A | 425 | 106 | 0.00 | | | 425 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 488 | 122 | 0.00 | | | 488 | | | | |

### 00:15 - 00:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 85 | 21 | 0.00 | 323 | 0.262 | 84 | 0.2 | 0.3 | 15.034 | C |
| C-AB | 7 | 2 | 0.00 | 527 | 0.014 | 7 | 0.0 | 0.0 | 6.927 | A |
| C-A | 508 | 127 | 0.00 | | | 508 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 583 | 146 | 0.00 | | | 583 | | | | |

### 00:30 - 00:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 103 | 26 | 0.00 | 276 | 0.375 | 103 | 0.3 | 0.6 | 20.684 | C |
| C-AB | 9 | 2 | 0.00 | 491 | 0.018 | 9 | 0.0 | 0.0 | 7.465 | A |
| C-A | 622 | 156 | 0.00 | | | 622 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 713 | 178 | 0.00 | | | 713 | | | | |

### 00:45 - 01:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 103 | 26 | 0.00 | 276 | 0.375 | 103 | 0.6 | 0.6 | 20.893 | C |
| C-AB | 9 | 2 | 0.00 | 491 | 0.018 | 9 | 0.0 | 0.0 | 7.465 | A |
| C-A | 622 | 156 | 0.00 | | | 622 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 713 | 178 | 0.00 | | | 713 | | | | |

### 01:00 - 01:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 85 | 21 | 0.00 | 323 | 0.262 | 85 | 0.6 | 0.4 | 15.203 | C |
| C-AB | 7 | 2 | 0.00 | 527 | 0.014 | 7 | 0.0 | 0.0 | 6.928 | A |
| C-A | 508 | 127 | 0.00 | | | 508 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 583 | 146 | 0.00 | | | 583 | | | | |

### 01:15 - 01:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 71 | 18 | 0.00 | 357 | 0.198 | 71 | 0.4 | 0.3 | 12.626 | B |
| C-AB | 6 | 2 | 0.00 | 553 | 0.011 | 6 | 0.0 | 0.0 | 6.587 | A |
| C-A | 425 | 106 | 0.00 | | | 425 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 488 | 122 | 0.00 | | | 488 | | | | |

## Queue Variation Results for each time segment

### 00:00 - 00:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.24 | 0.00 | 0.00 | 0.24 | 0.24 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 00:15 - 00:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.35 | 0.00 | 0.00 | 0.35 | 0.35 | | | N/A | N/A |
| C-AB | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 00:30 - 00:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.58 | 0.03 | 0.26 | 0.58 | 0.58 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

### 00:45 - 01:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.59 | 0.03 | 0.31 | 1.02 | 2.76 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

### 01:00 - 01:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.36 | 0.03 | 0.27 | 0.49 | 0.89 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 01:15 - 01:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.25 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

# 2033 | With Development | PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 0.63 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.63 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D4 | 2033 | With Development | PM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 728 | 100.000 |
| B | | ONE HOUR | ✓ | 40 | 100.000 |
| C | | ONE HOUR | ✓ | 751 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 60 | 668 |
| | B | 28 | 0 | 12 |
| | C | 725 | 26 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.19 | 18.81 | 0.2 | 1.1 | C | 37 | 55 |
| C-AB | 0.06 | 8.10 | 0.1 | 0.5 | A | 24 | 36 |
| C-A | | | | | | 665 | 998 |
| A-B | | | | | | 55 | 83 |
| A-C | | | | | | 613 | 919 |

## Main Results for each time segment

### 00:00 - 00:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 30 | 8 | 0.00 | 331 | 0.091 | 30 | 0.0 | 0.1 | 11.924 | B |
| C-AB | 20 | 5 | 0.00 | 541 | 0.036 | 19 | 0.0 | 0.0 | 6.907 | A |
| C-A | 546 | 136 | 0.00 | | | 546 | | | | |
| A-B | 45 | 11 | 0.00 | | | 45 | | | | |
| A-C | 503 | 126 | 0.00 | | | 503 | | | | |

### 00:15 - 00:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 36 | 9 | 0.00 | 292 | 0.123 | 36 | 0.1 | 0.1 | 14.061 | B |
| C-AB | 23 | 6 | 0.00 | 513 | 0.046 | 23 | 0.0 | 0.0 | 7.363 | A |
| C-A | 652 | 163 | 0.00 | | | 652 | | | | |
| A-B | 54 | 13 | 0.00 | | | 54 | | | | |
| A-C | 601 | 150 | 0.00 | | | 601 | | | | |

### 00:30 - 00:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 44 | 11 | 0.00 | 235 | 0.187 | 44 | 0.1 | 0.2 | 18.747 | C |
| C-AB | 29 | 7 | 0.00 | 474 | 0.060 | 29 | 0.0 | 0.1 | 8.097 | A |
| C-A | 798 | 200 | 0.00 | | | 798 | | | | |
| A-B | 66 | 17 | 0.00 | | | 66 | | | | |
| A-C | 735 | 184 | 0.00 | | | 735 | | | | |

### 00:45 - 01:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 44 | 11 | 0.00 | 235 | 0.187 | 44 | 0.2 | 0.2 | 18.813 | C |
| C-AB | 29 | 7 | 0.00 | 474 | 0.060 | 29 | 0.1 | 0.1 | 8.098 | A |
| C-A | 798 | 200 | 0.00 | | | 798 | | | | |
| A-B | 66 | 17 | 0.00 | | | 66 | | | | |
| A-C | 735 | 184 | 0.00 | | | 735 | | | | |

### 01:00 - 01:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 36 | 9 | 0.00 | 292 | 0.123 | 36 | 0.2 | 0.1 | 14.116 | B |
| C-AB | 23 | 6 | 0.00 | 513 | 0.046 | 23 | 0.1 | 0.0 | 7.368 | A |
| C-A | 652 | 163 | 0.00 | | | 652 | | | | |
| A-B | 54 | 13 | 0.00 | | | 54 | | | | |
| A-C | 601 | 150 | 0.00 | | | 601 | | | | |

### 01:15 - 01:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 30 | 8 | 0.00 | 331 | 0.091 | 30 | 0.1 | 0.1 | 11.972 | B |
| C-AB | 20 | 5 | 0.00 | 541 | 0.036 | 20 | 0.0 | 0.0 | 6.910 | A |
| C-A | 546 | 136 | 0.00 | | | 546 | | | | |
| A-B | 45 | 11 | 0.00 | | | 45 | | | | |
| A-C | 503 | 126 | 0.00 | | | 503 | | | | |

## Queue Variation Results for each time segment

### 00:00 - 00:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.10 | 0.00 | 0.00 | 0.10 | 0.10 | | | N/A | N/A |
| C-AB | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |

### 00:15 - 00:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.14 | 0.00 | 0.00 | 0.14 | 0.14 | | | N/A | N/A |
| C-AB | 0.05 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 00:30 - 00:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.22 | 0.03 | 0.26 | 0.47 | 0.50 | | | N/A | N/A |
| C-AB | 0.06 | 0.03 | 0.26 | 0.47 | 0.49 | | | N/A | N/A |

### 00:45 - 01:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.23 | 0.03 | 0.28 | 0.62 | 1.07 | | | N/A | N/A |
| C-AB | 0.06 | 0.00 | 0.00 | 0.06 | 0.06 | | | N/A | N/A |

### 01:00 - 01:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.14 | 0.00 | 0.00 | 0.14 | 0.14 | | | N/A | N/A |
| C-AB | 0.05 | 0.00 | 0.00 | 0.05 | 0.05 | | | N/A | N/A |

### 01:15 - 01:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.10 | 0.00 | 0.00 | 0.10 | 0.10 | | | N/A | N/A |
| C-AB | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |

# APPENDIX 11

# Junctions 11

## PICADY 11 - Priority Intersection Module

Version: 11.0.0.2177
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**The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution**

**Filename:** Walmersley Road - Resi Site Access.j11
**Path:** Z:\projects\4839 Walmersley Brook, Bury\Picady
**Report generation date:** 03/02/2026 13:05:33

---

»2028 | With Development | AM
»2028 | With Development | PM
»2033 | With Development | AM
»2033 | With Development | PM

### Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Set ID | Queue (PCU) | Delay (s) | RFC | LOS |
| | 2028 - With Development | | | | | | | | | |
| Stream B-AC | D1 | 0.6 | 19.60 | 0.36 | C | D2 | 0.2 | 17.57 | 0.18 | C |
| Stream C-AB | | 0.0 | 7.34 | 0.02 | A | | 0.1 | 7.94 | 0.06 | A |
| | 2033 - With Development | | | | | | | | | |
| Stream B-AC | D3 | 0.6 | 20.89 | 0.38 | C | D4 | 0.2 | 18.81 | 0.19 | C |
| Stream C-AB | | 0.0 | 7.47 | 0.02 | A | | 0.1 | 8.10 | 0.06 | A |

*There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.*

*Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.*

### File summary

#### File Description

| | |
|---|---|
| **Title** | Walmersley Road - Southern Site Access |
| **Location** | |
| **Site number** | |
| **Date** | 21/11/2025 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | EDD |
| **Description** | Based on Eddisons drawing 4839-Mastercopy Rev B. |

### Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perHour | s | -Min | perMin |

## Analysis Options

| Vehicle length (m) | Calculate Queue Percentiles | Calculate detailed queueing delay | Show lane queues in feet / metres | Show all PICADY stream intercepts | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) | Use simulation for HCM roundabouts | Use iterations for HCM roundabouts |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.75 | ✓ | | | | | 0.85 | 36.00 | 20.00 | | |

## Demand Set Summary

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D1 | 2028 | With Development | AM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |
| D2 | 2028 | With Development | PM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |
| D3 | 2033 | With Development | AM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |
| D4 | 2033 | With Development | PM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |

## Analysis Set Details

| ID | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |
|---|---|---|---|
| A1 | ✓ | 100.000 | 100.000 |

# 2028 | With Development | AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 1.48 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 1.48 | A |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | Warmsley Road (N) | | Major |
| B | Southern Site Access | | Minor |
| C | Warmsley Road (S) | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right-turn storage | Width for right-turn storage (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 6.00 | | ✓ | 3.00 | 100.0 | ✓ | 6.00 |

*Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.*

### Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|
| B | One lane | 2.75 | 50 | 22 |

### Slope / Intercept / Capacity

#### Priority Intersection Slopes and Intercepts

| Stream | Intercept (PCU/hr) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|
| B-A | 492 | 0.090 | 0.226 | 0.142 | 0.324 |
| B-C | 622 | 0.095 | 0.241 | - | - |
| C-B | 687 | 0.266 | 0.266 | - | - |

*The slopes and intercepts shown above include custom intercept adjustments only.*

*Streams may be combined, in which case capacity will be adjusted.*

*Values are shown for the first time segment only; they may differ for subsequent time segments.*

# Traffic Demand

## Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D1 | 2028 | With Development | AM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |

## Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 638 | 100.000 |
| B | | ONE HOUR | ✓ | 94 | 100.000 |
| C | | ONE HOUR | ✓ | 548 | 100.000 |

# Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 19 | 619 |
| | B | 66 | 0 | 28 |
| | C | 540 | 8 | 0 |

# Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.36 | 19.60 | 0.6 | 2.6 | C | 86 | 129 |
| C-AB | 0.02 | 7.34 | 0.0 | 0.5 | A | 7 | 11 |
| C-A | | | | | | 496 | 743 |
| A-B | | | | | | 17 | 26 |
| A-C | | | | | | 568 | 852 |

## Main Results for each time segment

### 00:00 - 00:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 71 | 18 | 0.00 | 364 | 0.194 | 70 | 0.0 | 0.2 | 12.186 | B |
| C-AB | 6 | 2 | 0.00 | 559 | 0.011 | 6 | 0.0 | 0.0 | 6.515 | A |
| C-A | 407 | 102 | 0.00 | | | 407 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 466 | 117 | 0.00 | | | 466 | | | | |

### 00:15 - 00:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 85 | 21 | 0.00 | 332 | 0.254 | 84 | 0.2 | 0.3 | 14.486 | B |
| C-AB | 7 | 2 | 0.00 | 534 | 0.013 | 7 | 0.0 | 0.0 | 6.836 | A |
| C-A | 485 | 121 | 0.00 | | | 485 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 556 | 139 | 0.00 | | | 556 | | | | |

### 00:30 - 00:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 103 | 26 | 0.00 | 287 | 0.361 | 103 | 0.3 | 0.5 | 19.427 | C |
| C-AB | 9 | 2 | 0.00 | 500 | 0.018 | 9 | 0.0 | 0.0 | 7.336 | A |
| C-A | 595 | 149 | 0.00 | | | 595 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 682 | 170 | 0.00 | | | 682 | | | | |

### 00:45 - 01:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 103 | 26 | 0.00 | 287 | 0.361 | 103 | 0.5 | 0.6 | 19.596 | C |
| C-AB | 9 | 2 | 0.00 | 500 | 0.018 | 9 | 0.0 | 0.0 | 7.336 | A |
| C-A | 595 | 149 | 0.00 | | | 595 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 682 | 170 | 0.00 | | | 682 | | | | |

### 01:00 - 01:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 85 | 21 | 0.00 | 332 | 0.254 | 85 | 0.6 | 0.3 | 14.629 | B |
| C-AB | 7 | 2 | 0.00 | 534 | 0.013 | 7 | 0.0 | 0.0 | 6.836 | A |
| C-A | 485 | 121 | 0.00 | | | 485 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 556 | 139 | 0.00 | | | 556 | | | | |

### 01:15 - 01:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 71 | 18 | 0.00 | 364 | 0.194 | 71 | 0.3 | 0.2 | 12.298 | B |
| C-AB | 6 | 2 | 0.00 | 559 | 0.011 | 6 | 0.0 | 0.0 | 6.518 | A |
| C-A | 407 | 102 | 0.00 | | | 407 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 466 | 117 | 0.00 | | | 466 | | | | |

## Queue Variation Results for each time segment

### 00:00 - 00:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.24 | 0.00 | 0.00 | 0.24 | 0.24 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 00:15 - 00:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.33 | 0.00 | 0.00 | 0.33 | 0.33 | | | N/A | N/A |
| C-AB | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 00:30 - 00:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.55 | 0.03 | 0.26 | 0.55 | 0.55 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

### 00:45 - 01:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.55 | 0.03 | 0.31 | 1.47 | 2.58 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

### 01:00 - 01:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.35 | 0.03 | 0.26 | 0.47 | 0.49 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 01:15 - 01:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.25 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

# 2028 | With Development | PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 0.62 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.62 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D2 | 2028 | With Development | PM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 697 | 100.000 |
| B | | ONE HOUR | ✓ | 40 | 100.000 |
| C | | ONE HOUR | ✓ | 718 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 60 | 637 |
| | B | 28 | 0 | 12 |
| | C | 692 | 26 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.18 | 17.57 | 0.2 | 0.9 | C | 37 | 55 |
| C-AB | 0.06 | 7.94 | 0.1 | 0.5 | A | 24 | 36 |
| C-A | | | | | | 635 | 952 |
| A-B | | | | | | 55 | 83 |
| A-C | | | | | | 585 | 877 |

## Main Results for each time segment

### 00:00 - 00:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 30 | 8 | 0.00 | 340 | 0.089 | 30 | 0.0 | 0.1 | 11.588 | B |
| C-AB | 20 | 5 | 0.00 | 547 | 0.036 | 19 | 0.0 | 0.0 | 6.825 | A |
| C-A | 521 | 130 | 0.00 | | | 521 | | | | |
| A-B | 45 | 11 | 0.00 | | | 45 | | | | |
| A-C | 480 | 120 | 0.00 | | | 480 | | | | |

### 00:15 - 00:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 36 | 9 | 0.00 | 302 | 0.119 | 36 | 0.1 | 0.1 | 13.497 | B |
| C-AB | 23 | 6 | 0.00 | 520 | 0.045 | 23 | 0.0 | 0.0 | 7.253 | A |
| C-A | 622 | 156 | 0.00 | | | 622 | | | | |
| A-B | 54 | 13 | 0.00 | | | 54 | | | | |
| A-C | 573 | 143 | 0.00 | | | 573 | | | | |

### 00:30 - 00:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 44 | 11 | 0.00 | 249 | 0.177 | 44 | 0.1 | 0.2 | 17.511 | C |
| C-AB | 29 | 7 | 0.00 | 483 | 0.059 | 29 | 0.0 | 0.1 | 7.935 | A |
| C-A | 762 | 190 | 0.00 | | | 762 | | | | |
| A-B | 66 | 17 | 0.00 | | | 66 | | | | |
| A-C | 701 | 175 | 0.00 | | | 701 | | | | |

### 00:45 - 01:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 44 | 11 | 0.00 | 249 | 0.177 | 44 | 0.2 | 0.2 | 17.566 | C |
| C-AB | 29 | 7 | 0.00 | 483 | 0.059 | 29 | 0.1 | 0.1 | 7.936 | A |
| C-A | 762 | 190 | 0.00 | | | 762 | | | | |
| A-B | 66 | 17 | 0.00 | | | 66 | | | | |
| A-C | 701 | 175 | 0.00 | | | 701 | | | | |

### 01:00 - 01:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 36 | 9 | 0.00 | 302 | 0.119 | 36 | 0.2 | 0.1 | 13.543 | B |
| C-AB | 23 | 6 | 0.00 | 520 | 0.045 | 23 | 0.1 | 0.0 | 7.255 | A |
| C-A | 622 | 156 | 0.00 | | | 622 | | | | |
| A-B | 54 | 13 | 0.00 | | | 54 | | | | |
| A-C | 573 | 143 | 0.00 | | | 573 | | | | |

### 01:15 - 01:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 30 | 8 | 0.00 | 340 | 0.089 | 30 | 0.1 | 0.1 | 11.629 | B |
| C-AB | 20 | 5 | 0.00 | 547 | 0.036 | 20 | 0.0 | 0.0 | 6.829 | A |
| C-A | 521 | 130 | 0.00 | | | 521 | | | | |
| A-B | 45 | 11 | 0.00 | | | 45 | | | | |
| A-C | 480 | 120 | 0.00 | | | 480 | | | | |

## Queue Variation Results for each time segment

### 00:00 - 00:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.10 | 0.00 | 0.00 | 0.10 | 0.10 | | | N/A | N/A |
| C-AB | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |

### 00:15 - 00:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.13 | 0.00 | 0.00 | 0.13 | 0.13 | | | N/A | N/A |
| C-AB | 0.05 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 00:30 - 00:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.21 | 0.03 | 0.26 | 0.47 | 0.50 | | | N/A | N/A |
| C-AB | 0.06 | 0.03 | 0.26 | 0.47 | 0.49 | | | N/A | N/A |

### 00:45 - 01:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.21 | 0.03 | 0.27 | 0.49 | 0.94 | | | N/A | N/A |
| C-AB | 0.06 | 0.00 | 0.00 | 0.06 | 0.06 | | | N/A | N/A |

### 01:00 - 01:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.14 | 0.00 | 0.00 | 0.14 | 0.14 | | | N/A | N/A |
| C-AB | 0.05 | 0.00 | 0.00 | 0.05 | 0.05 | | | N/A | N/A |

### 01:15 - 01:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.10 | 0.00 | 0.00 | 0.10 | 0.10 | | | N/A | N/A |
| C-AB | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |

# 2033 | With Development | AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 1.52 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 1.52 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D3 | 2033 | With Development | AM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 667 | 100.000 |
| B | | ONE HOUR | ✓ | 94 | 100.000 |
| C | | ONE HOUR | ✓ | 573 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 19 | 648 |
| | B | 66 | 0 | 28 |
| | C | 565 | 8 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.38 | 20.89 | 0.6 | 2.8 | C | 86 | 129 |
| C-AB | 0.02 | 7.47 | 0.0 | 0.5 | A | 7 | 11 |
| C-A | | | | | | 518 | 778 |
| A-B | | | | | | 17 | 26 |
| A-C | | | | | | 595 | 892 |

## Main Results for each time segment

### 00:00 - 00:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 71 | 18 | 0.00 | 357 | 0.198 | 70 | 0.0 | 0.2 | 12.501 | B |
| C-AB | 6 | 2 | 0.00 | 553 | 0.011 | 6 | 0.0 | 0.0 | 6.584 | A |
| C-A | 425 | 106 | 0.00 | | | 425 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 488 | 122 | 0.00 | | | 488 | | | | |

### 00:15 - 00:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 85 | 21 | 0.00 | 323 | 0.262 | 84 | 0.2 | 0.3 | 15.034 | C |
| C-AB | 7 | 2 | 0.00 | 527 | 0.014 | 7 | 0.0 | 0.0 | 6.927 | A |
| C-A | 508 | 127 | 0.00 | | | 508 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 583 | 146 | 0.00 | | | 583 | | | | |

### 00:30 - 00:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 103 | 26 | 0.00 | 276 | 0.375 | 103 | 0.3 | 0.6 | 20.684 | C |
| C-AB | 9 | 2 | 0.00 | 491 | 0.018 | 9 | 0.0 | 0.0 | 7.465 | A |
| C-A | 622 | 156 | 0.00 | | | 622 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 713 | 178 | 0.00 | | | 713 | | | | |

### 00:45 - 01:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 103 | 26 | 0.00 | 276 | 0.375 | 103 | 0.6 | 0.6 | 20.893 | C |
| C-AB | 9 | 2 | 0.00 | 491 | 0.018 | 9 | 0.0 | 0.0 | 7.465 | A |
| C-A | 622 | 156 | 0.00 | | | 622 | | | | |
| A-B | 21 | 5 | 0.00 | | | 21 | | | | |
| A-C | 713 | 178 | 0.00 | | | 713 | | | | |

### 01:00 - 01:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 85 | 21 | 0.00 | 323 | 0.262 | 85 | 0.6 | 0.4 | 15.203 | C |
| C-AB | 7 | 2 | 0.00 | 527 | 0.014 | 7 | 0.0 | 0.0 | 6.928 | A |
| C-A | 508 | 127 | 0.00 | | | 508 | | | | |
| A-B | 17 | 4 | 0.00 | | | 17 | | | | |
| A-C | 583 | 146 | 0.00 | | | 583 | | | | |

### 01:15 - 01:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 71 | 18 | 0.00 | 357 | 0.198 | 71 | 0.4 | 0.3 | 12.626 | B |
| C-AB | 6 | 2 | 0.00 | 553 | 0.011 | 6 | 0.0 | 0.0 | 6.587 | A |
| C-A | 425 | 106 | 0.00 | | | 425 | | | | |
| A-B | 14 | 4 | 0.00 | | | 14 | | | | |
| A-C | 488 | 122 | 0.00 | | | 488 | | | | |

## Queue Variation Results for each time segment

### 00:00 - 00:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.24 | 0.00 | 0.00 | 0.24 | 0.24 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 00:15 - 00:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.35 | 0.00 | 0.00 | 0.35 | 0.35 | | | N/A | N/A |
| C-AB | 0.01 | 0.01 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 00:30 - 00:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.58 | 0.03 | 0.26 | 0.58 | 0.58 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

### 00:45 - 01:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.59 | 0.03 | 0.31 | 1.02 | 2.76 | | | N/A | N/A |
| C-AB | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | | | N/A | N/A |

### 01:00 - 01:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.36 | 0.03 | 0.27 | 0.49 | 0.89 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

### 01:15 - 01:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.25 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |
| C-AB | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | | | N/A | N/A |

# 2033 | With Development | PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 0.63 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.63 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D4 | 2033 | With Development | PM | ONE HOUR | 00:00 | 01:30 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 728 | 100.000 |
| B | | ONE HOUR | ✓ | 40 | 100.000 |
| C | | ONE HOUR | ✓ | 751 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 60 | 668 |
| | B | 28 | 0 | 12 |
| | C | 725 | 26 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.19 | 18.81 | 0.2 | 1.1 | C | 37 | 55 |
| C-AB | 0.06 | 8.10 | 0.1 | 0.5 | A | 24 | 36 |
| C-A | | | | | | 665 | 998 |
| A-B | | | | | | 55 | 83 |
| A-C | | | | | | 613 | 919 |

## Main Results for each time segment

### 00:00 - 00:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 30 | 8 | 0.00 | 331 | 0.091 | 30 | 0.0 | 0.1 | 11.924 | B |
| C-AB | 20 | 5 | 0.00 | 541 | 0.036 | 19 | 0.0 | 0.0 | 6.907 | A |
| C-A | 546 | 136 | 0.00 | | | 546 | | | | |
| A-B | 45 | 11 | 0.00 | | | 45 | | | | |
| A-C | 503 | 126 | 0.00 | | | 503 | | | | |

### 00:15 - 00:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 36 | 9 | 0.00 | 292 | 0.123 | 36 | 0.1 | 0.1 | 14.061 | B |
| C-AB | 23 | 6 | 0.00 | 513 | 0.046 | 23 | 0.0 | 0.0 | 7.363 | A |
| C-A | 652 | 163 | 0.00 | | | 652 | | | | |
| A-B | 54 | 13 | 0.00 | | | 54 | | | | |
| A-C | 601 | 150 | 0.00 | | | 601 | | | | |

### 00:30 - 00:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 44 | 11 | 0.00 | 235 | 0.187 | 44 | 0.1 | 0.2 | 18.747 | C |
| C-AB | 29 | 7 | 0.00 | 474 | 0.060 | 29 | 0.0 | 0.1 | 8.097 | A |
| C-A | 798 | 200 | 0.00 | | | 798 | | | | |
| A-B | 66 | 17 | 0.00 | | | 66 | | | | |
| A-C | 735 | 184 | 0.00 | | | 735 | | | | |

### 00:45 - 01:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 44 | 11 | 0.00 | 235 | 0.187 | 44 | 0.2 | 0.2 | 18.813 | C |
| C-AB | 29 | 7 | 0.00 | 474 | 0.060 | 29 | 0.1 | 0.1 | 8.098 | A |
| C-A | 798 | 200 | 0.00 | | | 798 | | | | |
| A-B | 66 | 17 | 0.00 | | | 66 | | | | |
| A-C | 735 | 184 | 0.00 | | | 735 | | | | |

### 01:00 - 01:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 36 | 9 | 0.00 | 292 | 0.123 | 36 | 0.2 | 0.1 | 14.116 | B |
| C-AB | 23 | 6 | 0.00 | 513 | 0.046 | 23 | 0.1 | 0.0 | 7.368 | A |
| C-A | 652 | 163 | 0.00 | | | 652 | | | | |
| A-B | 54 | 13 | 0.00 | | | 54 | | | | |
| A-C | 601 | 150 | 0.00 | | | 601 | | | | |

### 01:15 - 01:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 30 | 8 | 0.00 | 331 | 0.091 | 30 | 0.1 | 0.1 | 11.972 | B |
| C-AB | 20 | 5 | 0.00 | 541 | 0.036 | 20 | 0.0 | 0.0 | 6.910 | A |
| C-A | 546 | 136 | 0.00 | | | 546 | | | | |
| A-B | 45 | 11 | 0.00 | | | 45 | | | | |
| A-C | 503 | 126 | 0.00 | | | 503 | | | | |

## Queue Variation Results for each time segment

### 00:00 - 00:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.10 | 0.00 | 0.00 | 0.10 | 0.10 | | | N/A | N/A |
| C-AB | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |

### 00:15 - 00:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.14 | 0.00 | 0.00 | 0.14 | 0.14 | | | N/A | N/A |
| C-AB | 0.05 | 0.03 | 0.25 | 0.45 | 0.48 | | | N/A | N/A |

### 00:30 - 00:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.22 | 0.03 | 0.26 | 0.47 | 0.50 | | | N/A | N/A |
| C-AB | 0.06 | 0.03 | 0.26 | 0.47 | 0.49 | | | N/A | N/A |

### 00:45 - 01:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.23 | 0.03 | 0.28 | 0.62 | 1.07 | | | N/A | N/A |
| C-AB | 0.06 | 0.00 | 0.00 | 0.06 | 0.06 | | | N/A | N/A |

### 01:00 - 01:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.14 | 0.00 | 0.00 | 0.14 | 0.14 | | | N/A | N/A |
| C-AB | 0.05 | 0.00 | 0.00 | 0.05 | 0.05 | | | N/A | N/A |

### 01:15 - 01:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.10 | 0.00 | 0.00 | 0.10 | 0.10 | | | N/A | N/A |
| C-AB | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | | | N/A | N/A |

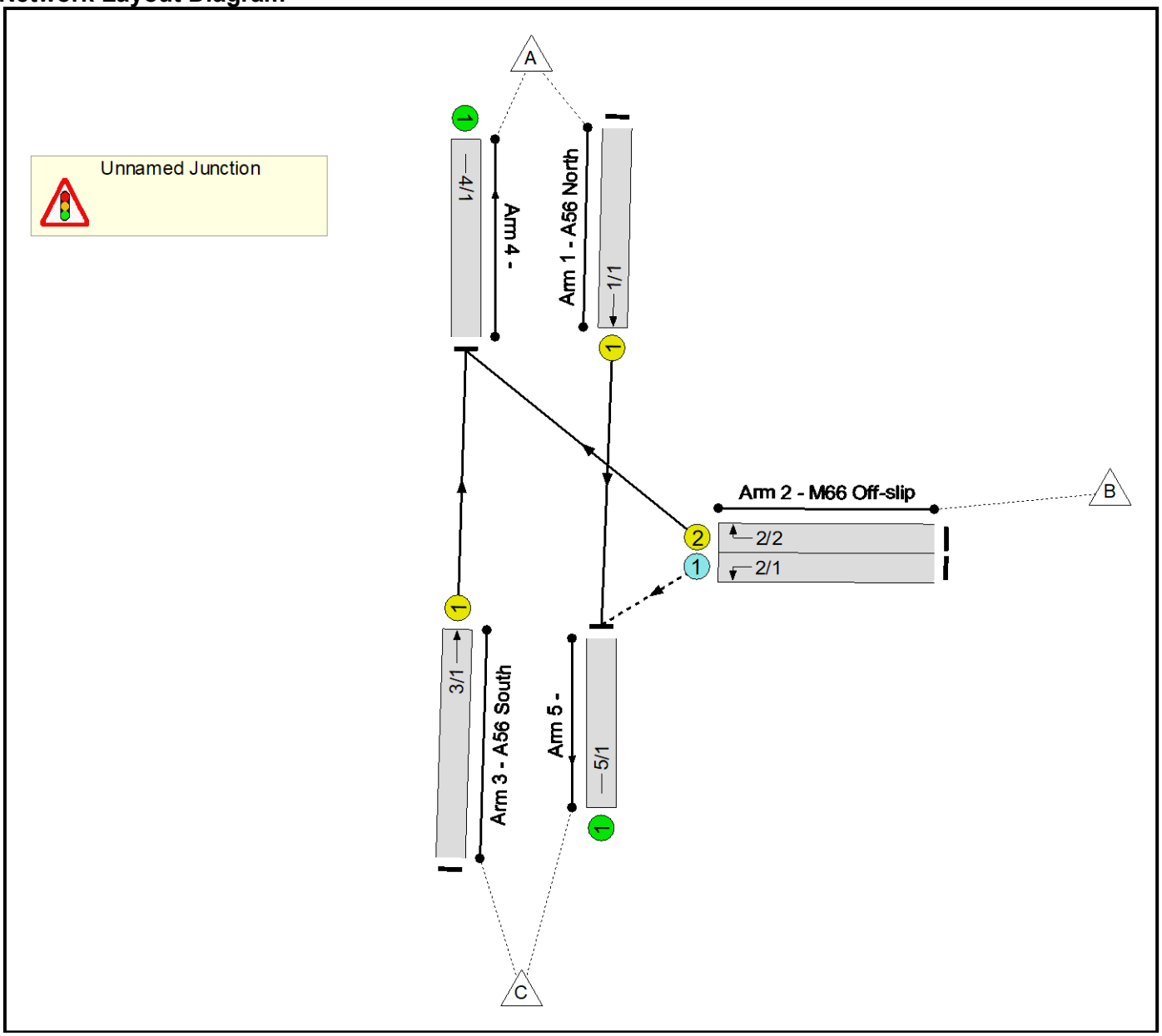
# APPENDIX 12

# Full Input Data And Results

## User and Project Details

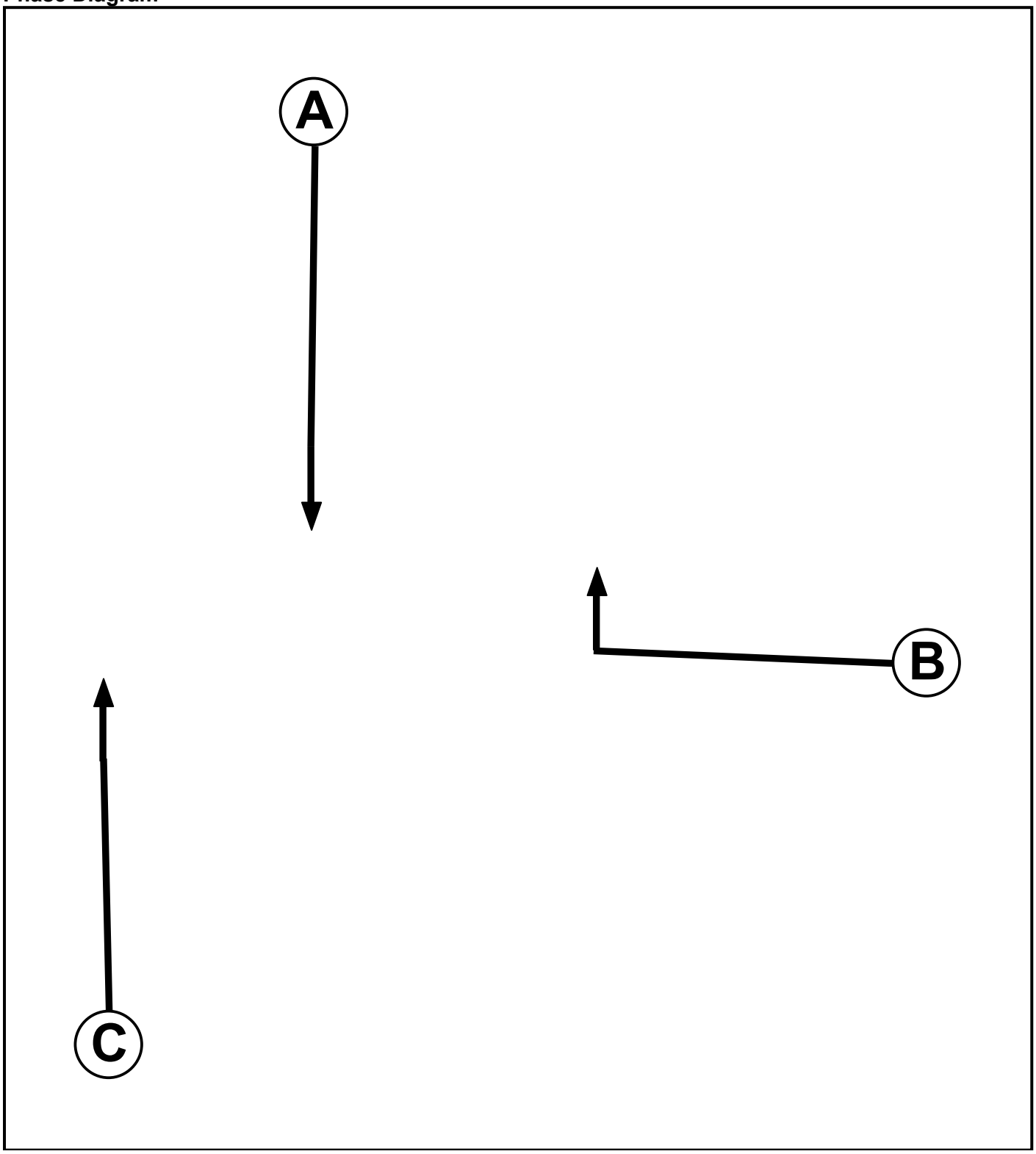
| | |
|---|---|
| **Project:** | |
| **Title:** | |
| **Location:** | |
| **Additional detail:** | |
| **File name:** | A56_M66 Off-Slip (with NH Comments).lsg3x |
| **Author:** | |
| **Company:** | |
| **Address:** | |

## Network Layout Diagram



Full Input Data And Results

**Phase Diagram**




**Phase Input Data**

| Phase Name | Phase Type | Assoc. Phase | Street Min (s) | Cont Min (s) |
|---|---|---|---|---|
| A | Traffic | | 7 | 7 |
| B | Traffic | | 7 | 7 |
| C | Traffic | | 7 | 7 |

Full Input Data And Results

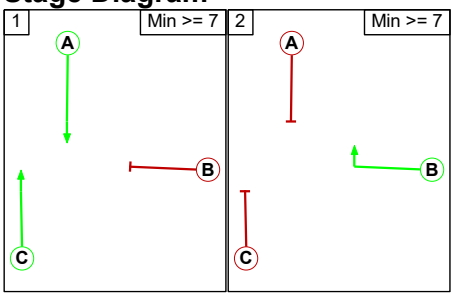
## Phase Intergreens Matrix

| | Starting Phase | | | |
|---|---|---|---|---|
| Terminating Phase | | A | B | C |
| | A | | 5 | - |
| | B | 5 | | 5 |
| | C | - | 5 | |

## Phases in Stage

| Stage No. | Phases in Stage |
|---|---|
| 1 | A C |
| 2 | B |

## Stage Diagram




## Phase Delays

| Term. Stage | Start Stage | Phase | Type | Value | Cont value |
|---|---|---|---|---|---|
| There are no Phase Delays defined | | | | | |

## Prohibited Stage Change

| | To Stage | | |
|---|---|---|---|
| From Stage | | 1 | 2 |
| | 1 | | 5 |
| | 2 | 5 | |

Full Input Data And Results

## Give-Way Lane Input Data

**Junction: Unnamed Junction**

| Lane | Movement | Max Flow when Giving Way (PCU/Hr) | Min Flow when Giving Way (PCU/Hr) | Opposing Lane | Opp. Lane Coeff. | Opp. Mvmnts. | Right Turn Storage (PCU) | Non-Blocking Storage (PCU) | RTF | Right Turn Move up (s) | Max Turns in Intergreen (PCU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/1 (M66 Off-slip) | 5/1 (Left) | 1439 | 0 | 1/1 | 0.22 | All | - | - | - | - | - |

Full Input Data And Results

## Lane Input Data

**Junction: Unnamed Junction**

| Lane | Lane Type | Phases | Start Disp. (s) | End Disp. (s) | Physical Length (PCU) | Sat Flow Type | Def User Saturation Flow (PCU/Hr) | Lane Width (m) | Gradient (%) | Nearside Lane | Turns | Turning Radius (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/1 (A56 North) | U | A | 2 | 3 | 60.0 | Geom | - | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf |
| 2/1 (M66 Off-slip) | O | | 2 | 3 | 60.0 | Geom | - | 4.00 | 0.00 | Y | Arm 5 Left | 18.00 |
| 2/2 (M66 Off-slip) | U | C | 2 | 3 | 60.0 | Geom | - | 3.65 | 0.00 | Y | Arm 4 Right | 12.00 |
| 3/1 (A56 South) | U | B | 2 | 3 | 60.0 | Geom | - | 3.65 | 0.00 | Y | Arm 4 Ahead | Inf |
| 4/1 | U | | 2 | 3 | 60.0 | Inf | - | - | - | - | - | - |
| 5/1 | U | | 2 | 3 | 60.0 | Inf | - | - | - | - | - | - |

## Traffic Flow Groups

| Flow Group | Start Time | End Time | Duration | Formula |
|---|---|---|---|---|
| 1: '2023 Surveyed Flows - AM Peak' | 08:00 | 09:00 | 01:00 | |
| 2: '2023 Surveyed Flows - PM Peak' | 16:30 | 17:30 | 01:00 | |
| 3: '2028 Base Flows - AM Peak' | 08:00 | 09:00 | 01:00 | |
| 4: '2028 Base Flows - PM Peak' | 16:30 | 17:30 | 01:00 | |
| 5: '2033 Base Flows - AM Peak' | 08:00 | 09:00 | 01:00 | |
| 6: '2033 Base Flows - PM Peak' | 16:30 | 17:30 | 01:00 | |
| 7: '2028 With Dev Flows - AM Peak' | 08:00 | 09:00 | 01:00 | |
| 8: '2028 With Dev Flows - PM Peak' | 16:30 | 17:30 | 01:00 | |
| 9: '2033 With Dev Flows - AM Peak' | 08:00 | 09:00 | 01:00 | |
| 10: '2033 With Dev Flows - PM Peak' | 16:30 | 17:30 | 01:00 | |

**Scenario 1: '2023 Surveyed Flows - AM Peak'** (FG1: '2023 Surveyed Flows - AM Peak', Plan 1: 'Network Control

Full Input Data And Results
Plan 1')

## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | |
|---|---|---|---|---|---|
| | | A | B | C | Tot. |
| Origin | A | 0 | 0 | 560 | 560 |
| | B | 349 | 0 | 62 | 411 |
| | C | 491 | 0 | 0 | 491 |
| | Tot. | 840 | 0 | 622 | 1462 |

## Traffic Lane Flows

| Lane | Scenario 1: 2023 Surveyed Flows - AM Peak |
|---|---|
| **Junction: Unnamed Junction** | |
| 1/1 | 560 |
| 2/1 | 62 |
| 2/2 | 349 |
| 3/1 | 491 |
| 4/1 | 840 |
| 5/1 | 622 |

## Lane Saturation Flows

**Junction: Unnamed Junction**

| Lane | Lane Width (m) | Gradient (%) | Nearside Lane | Allowed Turns | Turning Radius (m) | Turning Prop. | Sat Flow (PCU/Hr) | Flared Sat Flow (PCU/Hr) |
|---|---|---|---|---|---|---|---|---|
| 1/1 (A56 North) | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 2/1 (M66 Off-slip) | 4.00 | 0.00 | Y | Arm 5 Left | 18.00 | 100.0 % | 1860 | 1860 |
| 2/2 (M66 Off-slip) | 3.65 | 0.00 | Y | Arm 4 Right | 12.00 | 100.0 % | 1760 | 1760 |
| 3/1 (A56 South) | 3.65 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 4/1 | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 | Infinite Saturation Flow | | | | | | Inf | Inf |

**Scenario 2: '2023 Surveyed Flows - PM Peak'** (FG2: '2023 Surveyed Flows - PM Peak', Plan 1: 'Network Control Plan 1')

## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | |
|---|---|---|---|---|---|
| | | A | B | C | Tot. |
| Origin | A | 0 | 0 | 418 | 418 |
| | B | 673 | 0 | 170 | 843 |
| | C | 630 | 0 | 0 | 630 |
| | Tot. | 1303 | 0 | 588 | 1891 |

Full Input Data And Results

## Traffic Lane Flows

| Lane | Scenario 2: 2023 Surveyed Flows - PM Peak |
|---|---|
| **Junction: Unnamed Junction** | |
| 1/1 | 418 |
| 2/1 | 170 |
| 2/2 | 673 |
| 3/1 | 630 |
| 4/1 | 1303 |
| 5/1 | 588 |

## Lane Saturation Flows

| Junction: Unnamed Junction | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Lane** | **Lane Width (m)** | **Gradient (%)** | **Nearside Lane** | **Allowed Turns** | **Turning Radius (m)** | **Turning Prop.** | **Sat Flow (PCU/Hr)** | **Flared Sat Flow (PCU/Hr)** |
| 1/1 (A56 North) | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 2/1 (M66 Off-slip) | 4.00 | 0.00 | Y | Arm 5 Left | 18.00 | 100.0 % | 1860 | 1860 |
| 2/2 (M66 Off-slip) | 3.65 | 0.00 | Y | Arm 4 Right | 12.00 | 100.0 % | 1760 | 1760 |
| 3/1 (A56 South) | 3.65 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 4/1 | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 | Infinite Saturation Flow | | | | | | Inf | Inf |

**Scenario 3: '2028 Base Flows - AM Peak'** (FG3: '2028 Base Flows - AM Peak', Plan 1: 'Network Control Plan 1')

## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | |
|---|---|---|---|---|---|
| | | A | B | C | Tot. |
| Origin | A | 0 | 0 | 616 | 616 |
| | B | 376 | 0 | 65 | 441 |
| | C | 523 | 0 | 0 | 523 |
| | Tot. | 899 | 0 | 681 | 1580 |

Full Input Data And Results

## Traffic Lane Flows

| Lane | Scenario 3: 2028 Base Flows - AM Peak |
|---|---|
| **Junction: Unnamed Junction** | |
| 1/1 | 616 |
| 2/1 | 65 |
| 2/2 | 376 |
| 3/1 | 523 |
| 4/1 | 899 |
| 5/1 | 681 |

## Lane Saturation Flows

**Junction: Unnamed Junction**

| Lane | Lane Width (m) | Gradient (%) | Nearside Lane | Allowed Turns | Turning Radius (m) | Turning Prop. | Sat Flow (PCU/Hr) | Flared Sat Flow (PCU/Hr) |
|---|---|---|---|---|---|---|---|---|
| 1/1 (A56 North) | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 2/1 (M66 Off-slip) | 4.00 | 0.00 | Y | Arm 5 Left | 18.00 | 100.0 % | 1860 | 1860 |
| 2/2 (M66 Off-slip) | 3.65 | 0.00 | Y | Arm 4 Right | 12.00 | 100.0 % | 1760 | 1760 |
| 3/1 (A56 South) | 3.65 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 4/1 | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 | Infinite Saturation Flow | | | | | | Inf | Inf |

**Scenario 4: '2028 Base Flows - PM Peak'** (FG4: '2028 Base Flows - PM Peak', Plan 1: 'Network Control Plan 1')

## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | |
|---|---|---|---|---|---|
| | | A | B | C | Tot. |
| Origin | A | 0 | 0 | 453 | 453 |
| | B | 741 | 0 | 178 | 919 |
| | C | 689 | 0 | 0 | 689 |
| | Tot. | 1430 | 0 | 631 | 2061 |

Full Input Data And Results

## Traffic Lane Flows

| Lane | Scenario 4: 2028 Base Flows - PM Peak |
|---|---|
| **Junction: Unnamed Junction** | |
| 1/1 | 453 |
| 2/1 | 178 |
| 2/2 | 741 |
| 3/1 | 689 |
| 4/1 | 1430 |
| 5/1 | 631 |

## Lane Saturation Flows

**Junction: Unnamed Junction**

| Lane | Lane Width (m) | Gradient (%) | Nearside Lane | Allowed Turns | Turning Radius (m) | Turning Prop. | Sat Flow (PCU/Hr) | Flared Sat Flow (PCU/Hr) |
|---|---|---|---|---|---|---|---|---|
| 1/1 (A56 North) | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 2/1 (M66 Off-slip) | 4.00 | 0.00 | Y | Arm 5 Left | 18.00 | 100.0 % | 1860 | 1860 |
| 2/2 (M66 Off-slip) | 3.65 | 0.00 | Y | Arm 4 Right | 12.00 | 100.0 % | 1760 | 1760 |
| 3/1 (A56 South) | 3.65 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 4/1 | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 | Infinite Saturation Flow | | | | | | Inf | Inf |

**Scenario 5: '2033 Base Flows - AM Peak'** (FG5: '2033 Base Flows - AM Peak', Plan 1: 'Network Control Plan 1')

## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | |
|---|---|---|---|---|---|
| | | A | B | C | Tot. |
| Origin | A | 0 | 0 | 645 | 645 |
| | B | 395 | 0 | 68 | 463 |
| | C | 548 | 0 | 0 | 548 |
| | Tot. | 943 | 0 | 713 | 1656 |

Full Input Data And Results

## Traffic Lane Flows

| Lane | Scenario 5: 2033 Base Flows - AM Peak |
|---|---|
| **Junction: Unnamed Junction** | |
| 1/1 | 645 |
| 2/1 | 68 |
| 2/2 | 395 |
| 3/1 | 548 |
| 4/1 | 943 |
| 5/1 | 713 |

## Lane Saturation Flows

**Junction: Unnamed Junction**

| Lane | Lane Width (m) | Gradient (%) | Nearside Lane | Allowed Turns | Turning Radius (m) | Turning Prop. | Sat Flow (PCU/Hr) | Flared Sat Flow (PCU/Hr) |
|---|---|---|---|---|---|---|---|---|
| 1/1 (A56 North) | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 2/1 (M66 Off-slip) | 4.00 | 0.00 | Y | Arm 5 Left | 18.00 | 100.0 % | 1860 | 1860 |
| 2/2 (M66 Off-slip) | 3.65 | 0.00 | Y | Arm 4 Right | 12.00 | 100.0 % | 1760 | 1760 |
| 3/1 (A56 South) | 3.65 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 4/1 | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 | Infinite Saturation Flow | | | | | | Inf | Inf |

**Scenario 6: '2033 Base Flows- PM Peak'** (FG6: '2033 Base Flows - PM Peak', Plan 1: 'Network Control Plan 1')

## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | |
|---|---|---|---|---|---|
| | | A | B | C | Tot. |
| Origin | A | 0 | 0 | 475 | 475 |
| | B | 776 | 0 | 187 | 963 |
| | C | 721 | 0 | 0 | 721 |
| | Tot. | 1497 | 0 | 662 | 2159 |

Full Input Data And Results

## Traffic Lane Flows

| Lane | Scenario 6: 2033 Base Flows- PM Peak |
|---|---|
| **Junction: Unnamed Junction** | |
| 1/1 | 475 |
| 2/1 | 187 |
| 2/2 | 776 |
| 3/1 | 721 |
| 4/1 | 1497 |
| 5/1 | 662 |

## Lane Saturation Flows

**Junction: Unnamed Junction**

| Lane | Lane Width (m) | Gradient (%) | Nearside Lane | Allowed Turns | Turning Radius (m) | Turning Prop. | Sat Flow (PCU/Hr) | Flared Sat Flow (PCU/Hr) |
|---|---|---|---|---|---|---|---|---|
| 1/1 (A56 North) | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 2/1 (M66 Off-slip) | 4.00 | 0.00 | Y | Arm 5 Left | 18.00 | 100.0 % | 1860 | 1860 |
| 2/2 (M66 Off-slip) | 3.65 | 0.00 | Y | Arm 4 Right | 12.00 | 100.0 % | 1760 | 1760 |
| 3/1 (A56 South) | 3.65 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 4/1 | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 | Infinite Saturation Flow | | | | | | Inf | Inf |

**Scenario 7: '2028 With Dev Flows - AM Peak'** (FG7: '2028 With Dev Flows - AM Peak', Plan 1: 'Network Control Plan 1')

## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | |
|---|---|---|---|---|---|
| | | A | B | C | Tot. |
| Origin | A | 0 | 0 | 631 | 631 |
| | B | 376 | 0 | 88 | 464 |
| | C | 591 | 0 | 0 | 591 |
| | Tot. | 967 | 0 | 719 | 1686 |

Full Input Data And Results

## Traffic Lane Flows

| Lane | Scenario 7: 2028 With Dev Flows - AM Peak |
|---|---|
| **Junction: Unnamed Junction** | |
| 1/1 | 631 |
| 2/1 | 88 |
| 2/2 | 376 |
| 3/1 | 591 |
| 4/1 | 967 |
| 5/1 | 719 |

## Lane Saturation Flows

**Junction: Unnamed Junction**

| Lane | Lane Width (m) | Gradient (%) | Nearside Lane | Allowed Turns | Turning Radius (m) | Turning Prop. | Sat Flow (PCU/Hr) | Flared Sat Flow (PCU/Hr) |
|---|---|---|---|---|---|---|---|---|
| 1/1 (A56 North) | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 2/1 (M66 Off-slip) | 4.00 | 0.00 | Y | Arm 5 Left | 18.00 | 100.0 % | 1860 | 1860 |
| 2/2 (M66 Off-slip) | 3.65 | 0.00 | Y | Arm 4 Right | 12.00 | 100.0 % | 1760 | 1760 |
| 3/1 (A56 South) | 3.65 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 4/1 | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 | Infinite Saturation Flow | | | | | | Inf | Inf |

**Scenario 8: '2028 With Dev Flows - PM Peak'** (FG8: '2028 With Dev Flows - PM Peak', Plan 1: 'Network Control Plan 1')

## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | |
|---|---|---|---|---|---|
| | | A | B | C | Tot. |
| Origin | A | 0 | 0 | 471 | 471 |
| | B | 741 | 0 | 224 | 965 |
| | C | 724 | 0 | 0 | 724 |
| | Tot. | 1465 | 0 | 695 | 2160 |

Full Input Data And Results

## Traffic Lane Flows

| Lane | Scenario 8: 2028 With Dev Flows - PM Peak |
|---|---|
| **Junction: Unnamed Junction** | |
| 1/1 | 471 |
| 2/1 | 224 |
| 2/2 | 741 |
| 3/1 | 724 |
| 4/1 | 1465 |
| 5/1 | 695 |

## Lane Saturation Flows

**Junction: Unnamed Junction**

| Lane | Lane Width (m) | Gradient (%) | Nearside Lane | Allowed Turns | Turning Radius (m) | Turning Prop. | Sat Flow (PCU/Hr) | Flared Sat Flow (PCU/Hr) |
|---|---|---|---|---|---|---|---|---|
| 1/1 (A56 North) | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 2/1 (M66 Off-slip) | 4.00 | 0.00 | Y | Arm 5 Left | 18.00 | 100.0 % | 1860 | 1860 |
| 2/2 (M66 Off-slip) | 3.65 | 0.00 | Y | Arm 4 Right | 12.00 | 100.0 % | 1760 | 1760 |
| 3/1 (A56 South) | 3.65 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 4/1 | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 | Infinite Saturation Flow | | | | | | Inf | Inf |

**Scenario 9: '2033 With Dev Flows - AM Peak'** (FG9: '2033 With Dev Flows - AM Peak', Plan 1: 'Network Control Plan 1')

## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | |
|---|---|---|---|---|---|
| | | A | B | C | Tot. |
| Origin | A | 0 | 0 | 660 | 660 |
| | B | 395 | 0 | 91 | 486 |
| | C | 617 | 0 | 0 | 617 |
| | Tot. | 1012 | 0 | 751 | 1763 |

Full Input Data And Results

## Traffic Lane Flows

| Lane | Scenario 9: 2033 With Dev Flows - AM Peak |
|---|---|
| **Junction: Unnamed Junction** | |
| 1/1 | 660 |
| 2/1 | 91 |
| 2/2 | 395 |
| 3/1 | 617 |
| 4/1 | 1012 |
| 5/1 | 751 |

## Lane Saturation Flows

| Junction: Unnamed Junction | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Lane** | **Lane Width (m)** | **Gradient (%)** | **Nearside Lane** | **Allowed Turns** | **Turning Radius (m)** | **Turning Prop.** | **Sat Flow (PCU/Hr)** | **Flared Sat Flow (PCU/Hr)** |
| 1/1 (A56 North) | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 2/1 (M66 Off-slip) | 4.00 | 0.00 | Y | Arm 5 Left | 18.00 | 100.0 % | 1860 | 1860 |
| 2/2 (M66 Off-slip) | 3.65 | 0.00 | Y | Arm 4 Right | 12.00 | 100.0 % | 1760 | 1760 |
| 3/1 (A56 South) | 3.65 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 4/1 | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 | Infinite Saturation Flow | | | | | | Inf | Inf |

**Scenario 10: '2033 With Dev Flows- PM Peak'** (FG10: '2033 With Dev Flows - PM Peak', Plan 1: 'Network Control Plan 1')

## Traffic Flows, Desired

**Desired Flow :**

| | | Destination | | | |
|---|---|---|---|---|---|
| | | A | B | C | Tot. |
| Origin | A | 0 | 0 | 492 | 492 |
| | B | 776 | 0 | 233 | 1009 |
| | C | 757 | 0 | 0 | 757 |
| | Tot. | 1533 | 0 | 725 | 2258 |

Full Input Data And Results

## Traffic Lane Flows

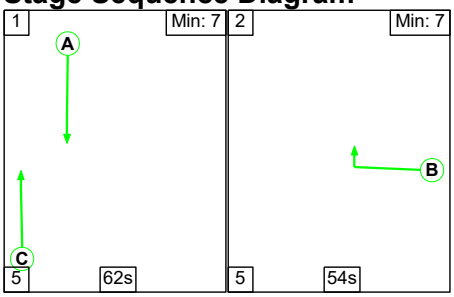
| Lane | Scenario 10: 2033 With Dev Flows- PM Peak |
|---|---|
| **Junction: Unnamed Junction** | |
| 1/1 | 492 |
| 2/1 | 233 |
| 2/2 | 776 |
| 3/1 | 757 |
| 4/1 | 1533 |
| 5/1 | 725 |

## Lane Saturation Flows

| Junction: Unnamed Junction | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Lane** | **Lane Width (m)** | **Gradient (%)** | **Nearside Lane** | **Allowed Turns** | **Turning Radius (m)** | **Turning Prop.** | **Sat Flow (PCU/Hr)** | **Flared Sat Flow (PCU/Hr)** |
| 1/1 (A56 North) | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 2/1 (M66 Off-slip) | 4.00 | 0.00 | Y | Arm 5 Left | 18.00 | 100.0 % | 1860 | 1860 |
| 2/2 (M66 Off-slip) | 3.65 | 0.00 | Y | Arm 4 Right | 12.00 | 100.0 % | 1760 | 1760 |
| 3/1 (A56 South) | 3.65 | 0.00 | Y | Arm 4 Ahead | Inf | 100.0 % | 1980 | 1980 |
| 4/1 | Infinite Saturation Flow | | | | | | Inf | Inf |
| 5/1 | Infinite Saturation Flow | | | | | | Inf | Inf |

**Scenario 1: '2023 Surveyed Flows - AM Peak'** (FG1: '2023 Surveyed Flows - AM Peak', Plan 1: 'Network Control Plan 1')

## Stage Sequence Diagram

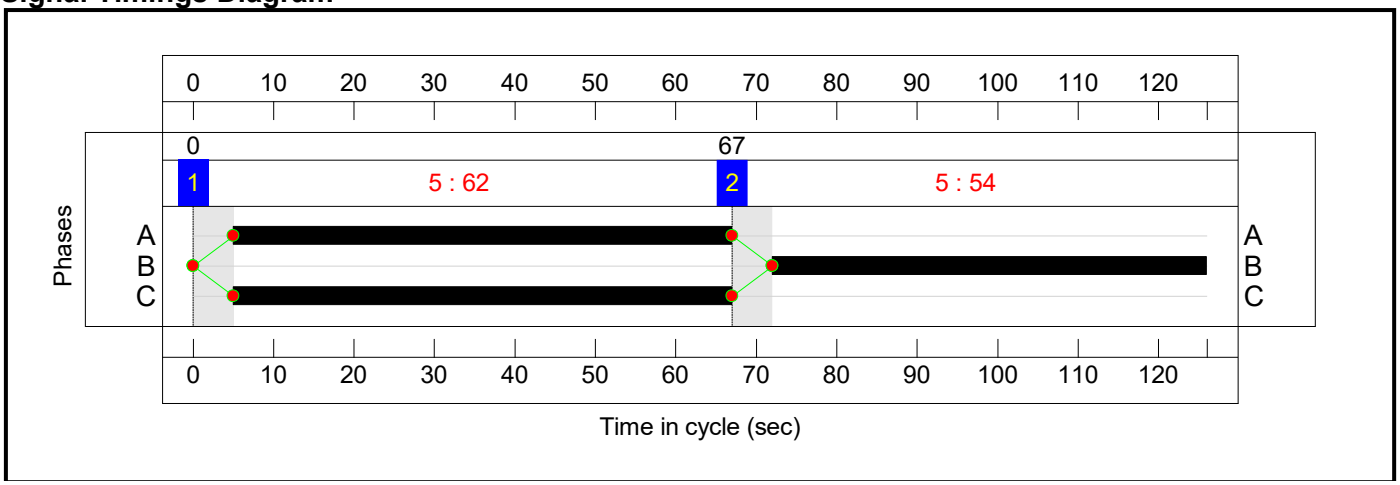



## Stage Timings

| Stage | 1 | 2 |
|---|---|---|
| **Duration** | 62 | 54 |
| **Change Point** | 0 | 67 |

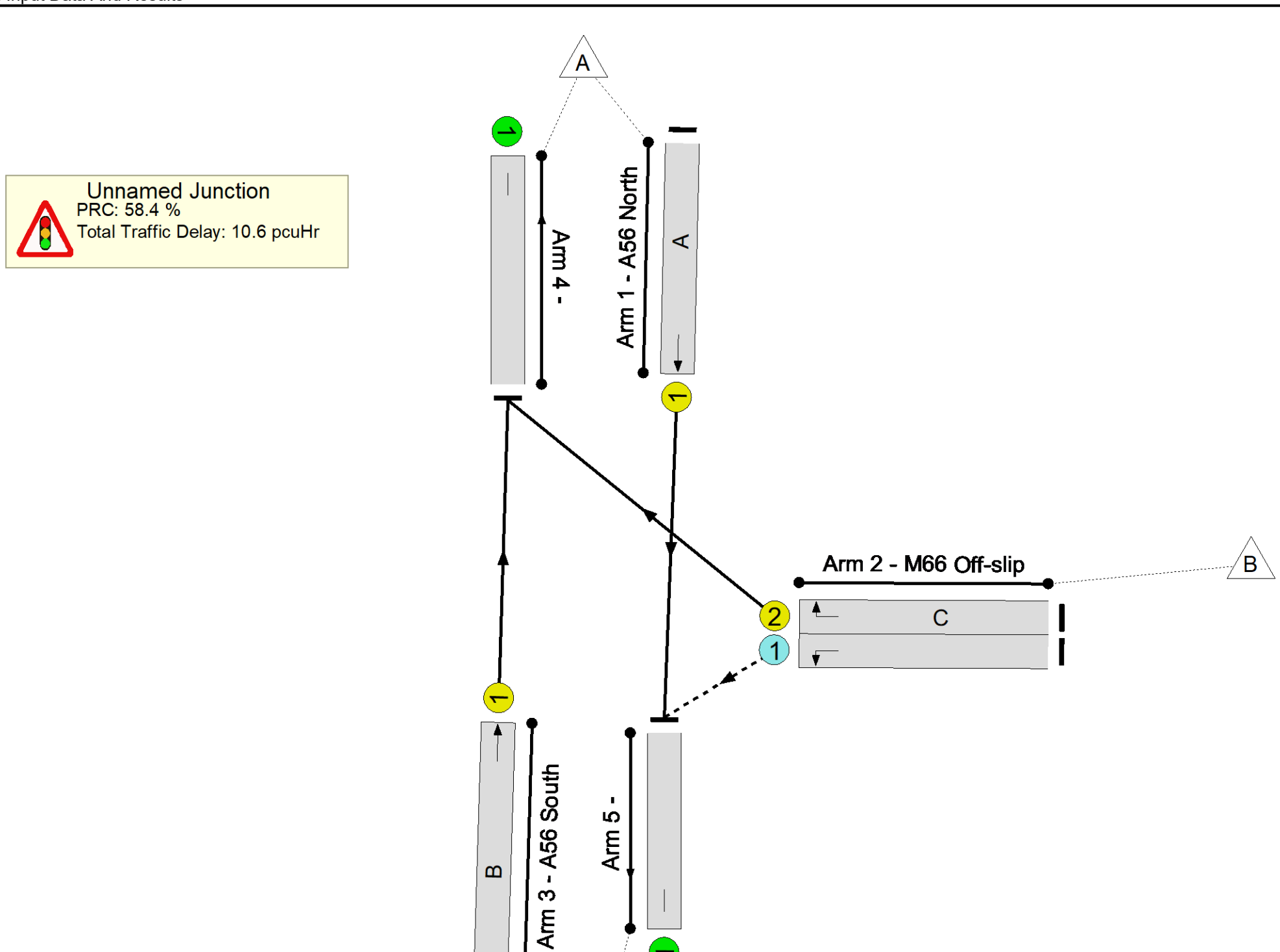
Full Input Data And Results

## Signal Timings Diagram



Full Input Data And Results

**Network Layout Diagram**


Unnamed Junction
PRC: 58.4 %
Total Traffic Delay: 10.6 pcuHr
A
Arm 4 -
Arm 1 - A56 North
A
Arm 2 - M66 Off-slip
B
C
B
Arm 3 - A56 South
Arm 5 -

## Network Results

| Item | Lane Description | Lane Type | Controller Stream | Position In Filtered Route | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | - | - | **N/A** | - | - | | - | - | - | - | - | - | **56.8%** |
| **Unnamed Junction** | - | - | **N/A** | - | - | | - | - | - | - | - | - | **56.8%** |
| 1/1 | A56 North Ahead | U | N/A | N/A | A | | 1 | 62 | - | 560 | 1980 | 990 | 56.6% |
| 2/1 | M66 Off-slip Left | O | N/A | N/A | - | | - | - | - | 62 | 1860 | 1526 | 4.1% |
| 2/2 | M66 Off-slip Right | U | N/A | N/A | C | | 1 | 62 | - | 349 | 1760 | 880 | 39.7% |
| 3/1 | A56 South Ahead | U | N/A | N/A | B | | 1 | 54 | - | 491 | 1980 | 864 | 56.8% |
| 4/1 | | U | N/A | N/A | - | | - | - | - | 840 | Inf | Inf | 0.0% |
| 5/1 | | U | N/A | N/A | - | | - | - | - | 622 | Inf | Inf | 0.0% |

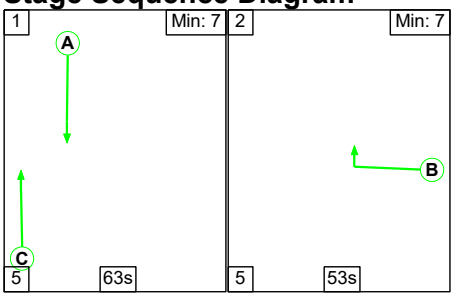
| Item | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Uniform Delay (pcuHr) | Rand + Oversat Delay (pcuHr) | Storage Area Uniform Delay (pcuHr) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Max. Back of Uniform Queue (pcu) | Rand + Oversat Queue (pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | - | - | **31** | **31** | **0** | **8.9** | **1.7** | **0.0** | **10.6** | - | - | - | - |
| **Unnamed Junction** | - | - | **31** | **31** | **0** | **8.9** | **1.7** | **0.0** | **10.6** | - | - | - | - |
| 1/1 | 560 | 560 | - | - | - | 3.4 | 0.6 | - | 4.1 | 26.1 | 13.5 | 0.6 | 14.2 |
| 2/1 | 62 | 62 | 31 | 31 | 0 | 0.0 | 0.0 | - | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 |
| 2/2 | 349 | 349 | - | - | - | 1.9 | 0.3 | - | 2.2 | 23.0 | 7.6 | 0.3 | 7.9 |
| 3/1 | 491 | 491 | - | - | - | 3.6 | 0.7 | - | 4.3 | 31.4 | 12.8 | 0.7 | 13.5 |
| 4/1 | 840 | 840 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5/1 | 622 | 622 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

C1 PRC for Signalled Lanes (%): 58.4 Total Delay for Signalled Lanes (pcuHr): 10.58 Cycle Time (s): 126
PRC Over All Lanes (%): 58.4 Total Delay Over All Lanes(pcuHr): 10.60

Full Input Data And Results

**Scenario 2: '2023 Surveyed Flows - PM Peak'** (FG2: '2023 Surveyed Flows - PM Peak', Plan 1: 'Network Control Plan 1')

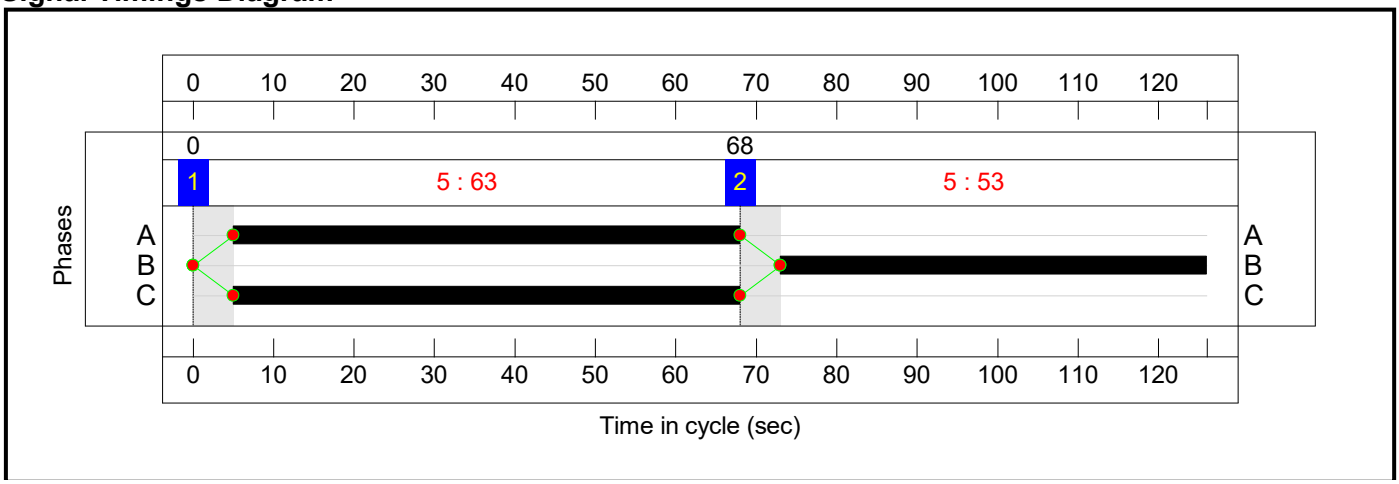
## Stage Sequence Diagram




## Stage Timings

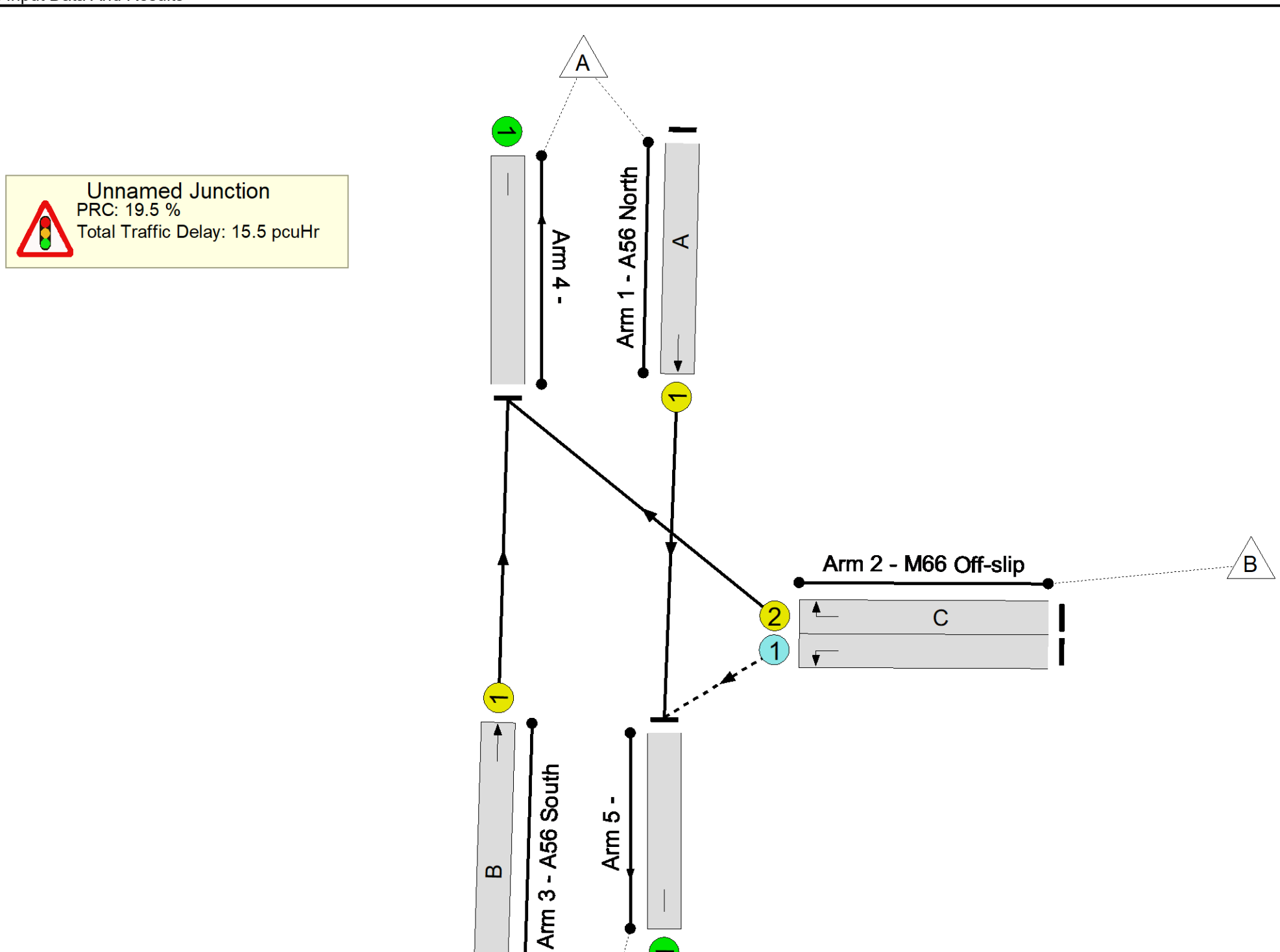
| Stage | 1 | 2 |
|---|---|---|
| Duration | 63 | 53 |
| Change Point | 0 | 68 |

## Signal Timings Diagram



Full Input Data And Results

**Network Layout Diagram**


Unnamed Junction
PRC: 19.5 %
Total Traffic Delay: 15.5 pcuHr
A
Arm 1 - A56 North
A
Arm 4 -
Arm 2 - M66 Off-slip
B
C
Arm 3 - A56 South
B
Arm 5 -

Full Input Data And Results

## Network Results

| Item | Lane Description | Lane Type | Controller Stream | Position In Filtered Route | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **75.3%** |
| **Unnamed Junction** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **75.3%** |
| 1/1 | A56 North Ahead | U | N/A | N/A | A | | 1 | 63 | - | 418 | 1980 | 1006 | 41.6% |
| 2/1 | M66 Off-slip Left | O | N/A | N/A | - | | - | - | - | 170 | 1860 | 1554 | 10.9% |
| 2/2 | M66 Off-slip Right | U | N/A | N/A | C | | 1 | 63 | - | 673 | 1760 | 894 | 75.3% |
| 3/1 | A56 South Ahead | U | N/A | N/A | B | | 1 | 53 | - | 630 | 1980 | 849 | 74.2% |
| 4/1 | | U | N/A | N/A | - | | - | - | - | 1303 | Inf | Inf | 0.0% |
| 5/1 | | U | N/A | N/A | - | | - | - | - | 588 | Inf | Inf | 0.0% |

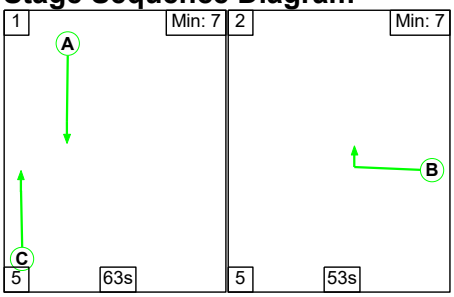
| Item | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Uniform Delay (pcuHr) | Rand + Oversat Delay (pcuHr) | Storage Area Uniform Delay (pcuHr) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Max. Back of Uniform Queue (pcu) | Rand + Oversat Queue (pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **86** | **84** | **0** | **12.1** | **3.3** | **0.0** | **15.5** | **-** | **-** | **-** | **-** |
| **Unnamed Junction** | **-** | **-** | **86** | **84** | **0** | **12.1** | **3.3** | **0.0** | **15.5** | **-** | **-** | **-** | **-** |
| 1/1 | 418 | 418 | - | - | - | 2.2 | 0.4 | - | 2.6 | 22.4 | 9.1 | 0.4 | 9.4 |
| 2/1 | 170 | 170 | 86 | 84 | 0 | 0.0 | 0.1 | - | 0.1 | 1.3 | 0.0 | 0.1 | 0.1 |
| 2/2 | 673 | 673 | - | - | - | 4.6 | 1.5 | - | 6.1 | 32.7 | 18.7 | 1.5 | 20.2 |
| 3/1 | 630 | 630 | - | - | - | 5.3 | 1.4 | - | 6.7 | 38.3 | 18.4 | 1.4 | 19.8 |
| 4/1 | 1303 | 1303 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5/1 | 588 | 588 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

C1 PRC for Signalled Lanes (%): 19.5 Total Delay for Signalled Lanes (pcuHr): 15.42 Cycle Time (s): 126
PRC Over All Lanes (%): 19.5 Total Delay Over All Lanes(pcuHr): 15.49

Full Input Data And Results

**Scenario 3: '2028 Base Flows - AM Peak'** (FG3: '2028 Base Flows - AM Peak', Plan 1: 'Network Control Plan 1')

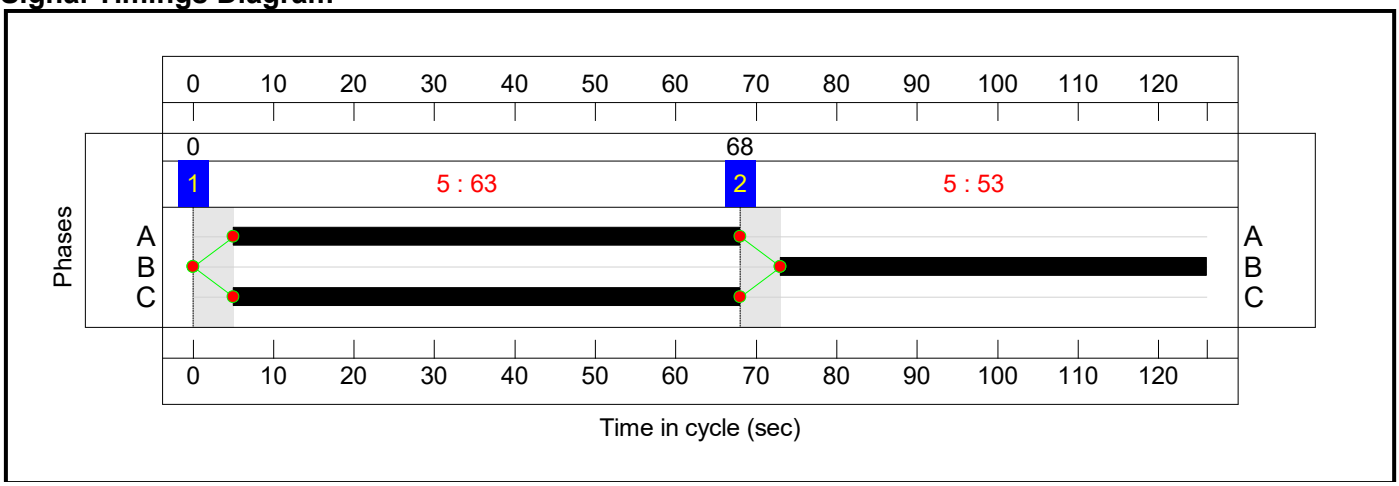
## Stage Sequence Diagram




## Stage Timings

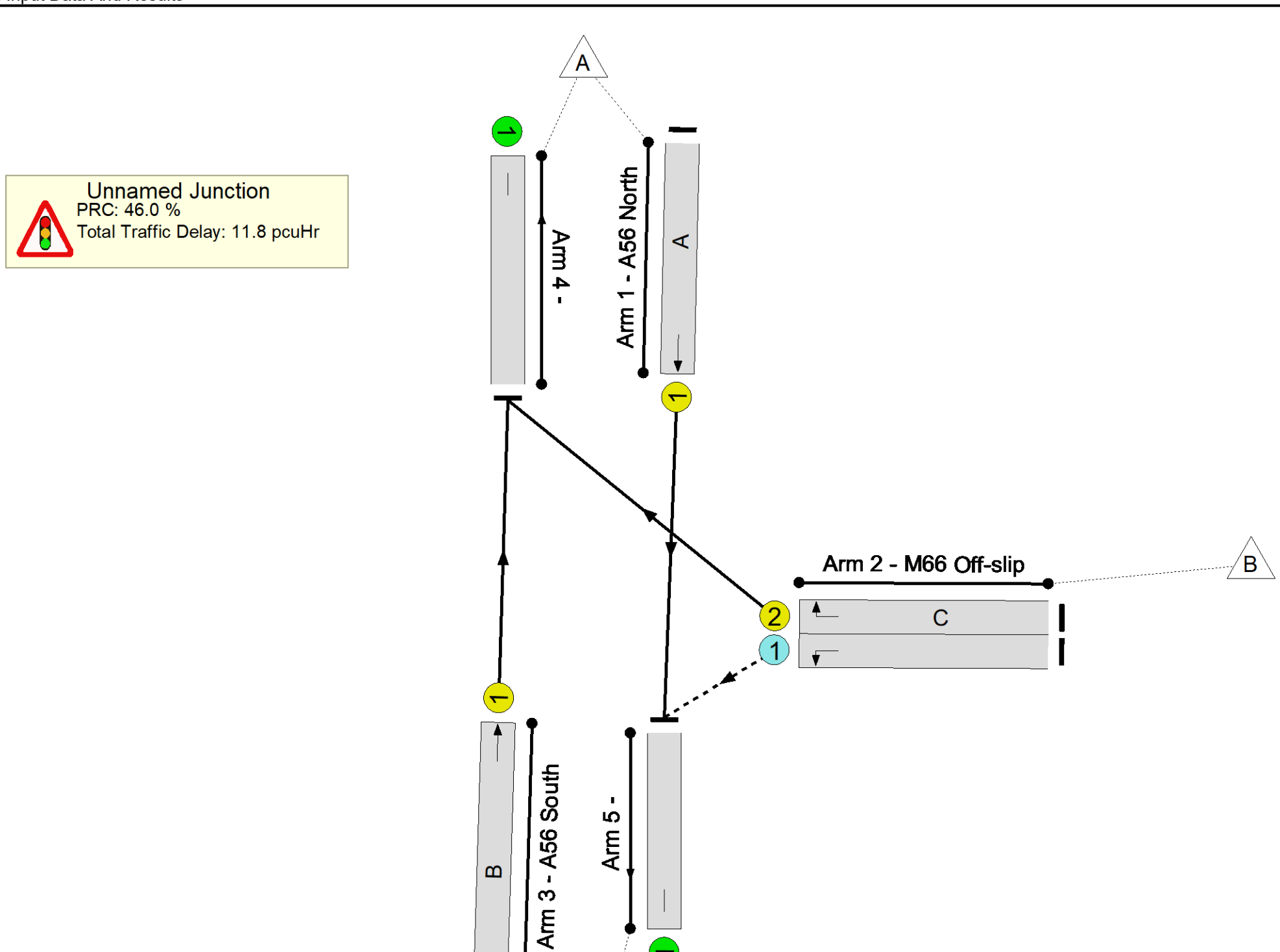
| Stage | 1 | 2 |
|---|---|---|
| Duration | 63 | 53 |
| Change Point | 0 | 68 |

## Signal Timings Diagram



Full Input Data And Results

**Network Layout Diagram**


Unnamed Junction
PRC: 46.0 %
Total Traffic Delay: 11.8 pcuHr
A
Arm 4 -
Arm 1 - A56 North
A
Arm 2 - M66 Off-slip
B
C
B
Arm 3 - A56 South
Arm 5 -

Full Input Data And Results

## Network Results

| Item | Lane Description | Lane Type | Controller Stream | Position In Filtered Route | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **61.6%** |
| **Unnamed Junction** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **61.6%** |
| 1/1 | A56 North Ahead | U | N/A | N/A | A | | 1 | 63 | - | 616 | 1980 | 1006 | 61.3% |
| 2/1 | M66 Off-slip Left | O | N/A | N/A | - | | - | - | - | 65 | 1860 | 1511 | 4.3% |
| 2/2 | M66 Off-slip Right | U | N/A | N/A | C | | 1 | 63 | - | 376 | 1760 | 894 | 42.1% |
| 3/1 | A56 South Ahead | U | N/A | N/A | B | | 1 | 53 | - | 523 | 1980 | 849 | 61.6% |
| 4/1 | | U | N/A | N/A | - | | - | - | - | 899 | Inf | Inf | 0.0% |
| 5/1 | | U | N/A | N/A | - | | - | - | - | 681 | Inf | Inf | 0.0% |

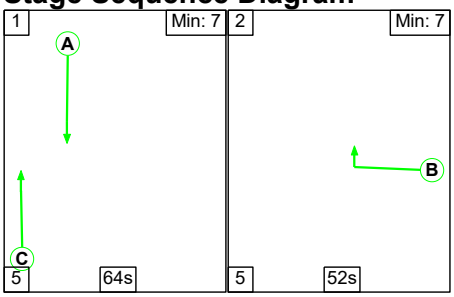
| Item | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Uniform Delay (pcuHr) | Rand + Oversat Delay (pcuHr) | Storage Area Uniform Delay (pcuHr) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Max. Back of Uniform Queue (pcu) | Rand + Oversat Queue (pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **33** | **32** | **0** | **9.9** | **2.0** | **0.0** | **11.8** | **-** | **-** | **-** | **-** |
| **Unnamed Junction** | **-** | **-** | **33** | **32** | **0** | **9.9** | **2.0** | **0.0** | **11.8** | **-** | **-** | **-** | **-** |
| 1/1 | 616 | 616 | - | - | - | 3.8 | 0.8 | - | 4.6 | 26.7 | 15.2 | 0.8 | 16.0 |
| 2/1 | 65 | 65 | 33 | 32 | 0 | 0.0 | 0.0 | - | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 |
| 2/2 | 376 | 376 | - | - | - | 2.0 | 0.4 | - | 2.4 | 22.9 | 8.1 | 0.4 | 8.5 |
| 3/1 | 523 | 523 | - | - | - | 4.1 | 0.8 | - | 4.9 | 33.5 | 14.1 | 0.8 | 14.9 |
| 4/1 | 899 | 899 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5/1 | 681 | 681 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

C1 PRC for Signalled Lanes (%): 46.0 Total Delay for Signalled Lanes (pcuHr): 11.83 Cycle Time (s): 126
PRC Over All Lanes (%): 46.0 Total Delay Over All Lanes(pcuHr): 11.85

Full Input Data And Results

**Scenario 4: '2028 Base Flows - PM Peak'** (FG4: '2028 Base Flows - PM Peak', Plan 1: 'Network Control Plan 1')

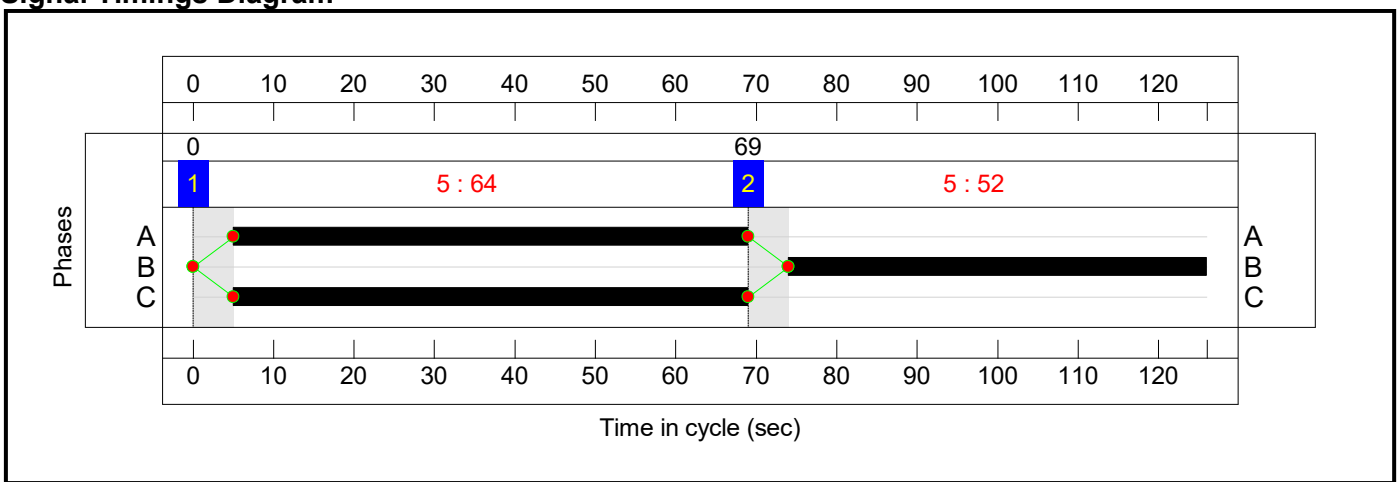
## Stage Sequence Diagram




## Stage Timings

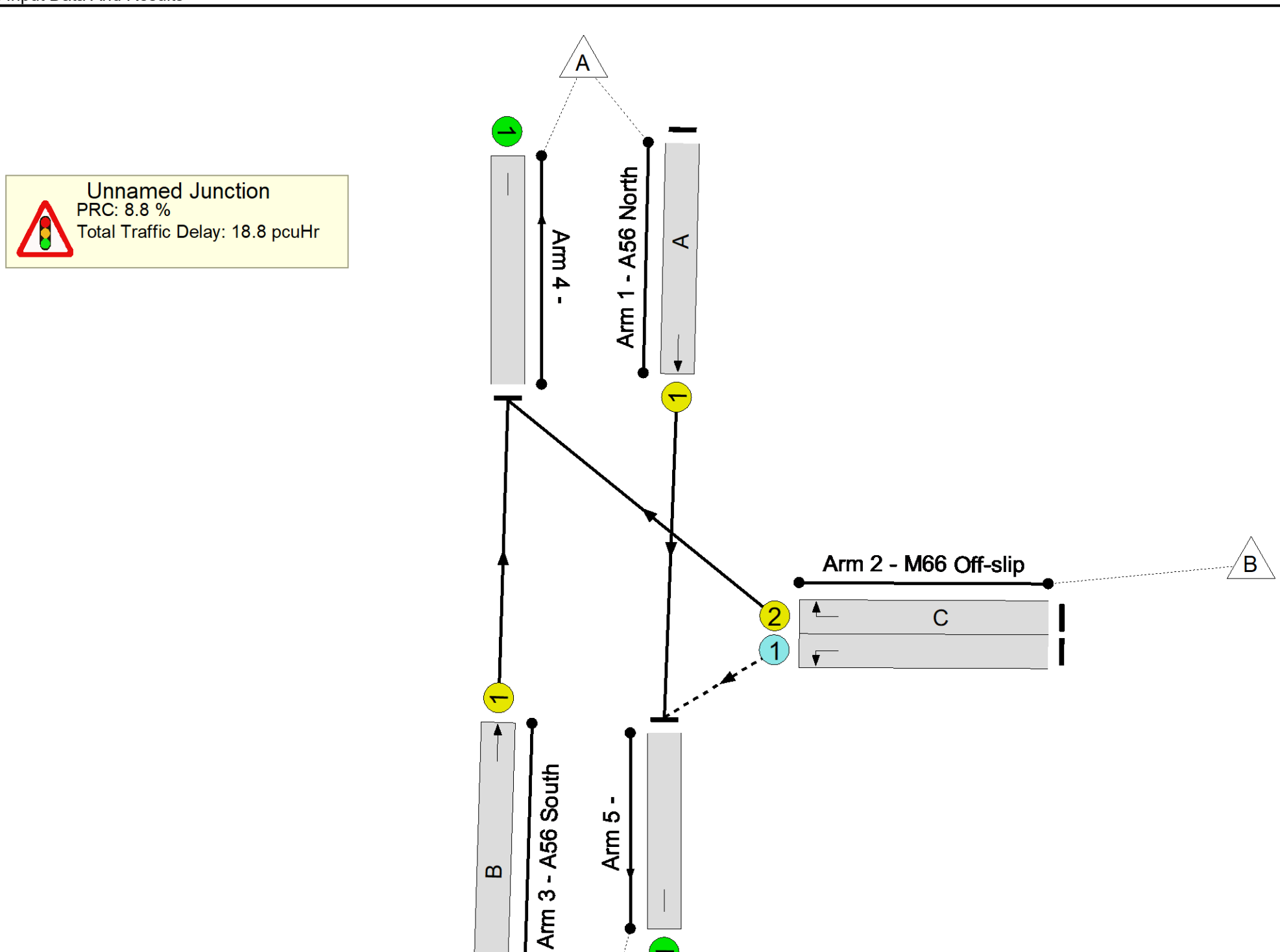
| Stage | 1 | 2 |
|---|---|---|
| Duration | 64 | 52 |
| Change Point | 0 | 69 |

## Signal Timings Diagram



Full Input Data And Results

**Network Layout Diagram**


Unnamed Junction
PRC: 8.8 %
Total Traffic Delay: 18.8 pcuHr
A
Arm 4 -
Arm 1 - A56 North
A
Arm 2 - M66 Off-slip
B
C
B
Arm 3 - A56 South
Arm 5 -

Full Input Data And Results

## Network Results

| Item | Lane Description | Lane Type | Controller Stream | Position In Filtered Route | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **82.7%** |
| **Unnamed Junction** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **82.7%** |
| 1/1 | A56 North Ahead | U | N/A | N/A | A | | 1 | 64 | - | 453 | 1980 | 1021 | 44.3% |
| 2/1 | M66 Off-slip Left | O | N/A | N/A | - | | - | - | - | 178 | 1860 | 1543 | 11.5% |
| 2/2 | M66 Off-slip Right | U | N/A | N/A | C | | 1 | 64 | - | 741 | 1760 | 908 | 81.6% |
| 3/1 | A56 South Ahead | U | N/A | N/A | B | | 1 | 52 | - | 689 | 1980 | 833 | 82.7% |
| 4/1 | | U | N/A | N/A | - | | - | - | - | 1430 | Inf | Inf | 0.0% |
| 5/1 | | U | N/A | N/A | - | | - | - | - | 631 | Inf | Inf | 0.0% |

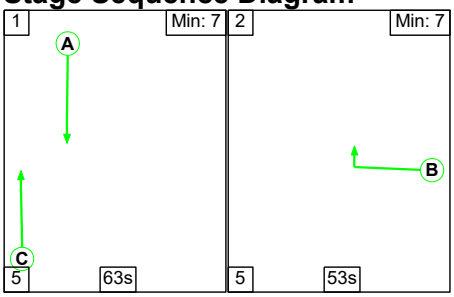
| Item | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Uniform Delay (pcuHr) | Rand + Oversat Delay (pcuHr) | Storage Area Uniform Delay (pcuHr) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Max. Back of Uniform Queue (pcu) | Rand + Oversat Queue (pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **92** | **86** | **0** | **13.9** | **4.9** | **0.0** | **18.8** | **-** | **-** | **-** | **-** |
| **Unnamed Junction** | **-** | **-** | **92** | **86** | **0** | **13.9** | **4.9** | **0.0** | **18.8** | **-** | **-** | **-** | **-** |
| 1/1 | 453 | 453 | - | - | - | 2.4 | 0.4 | - | 2.8 | 22.3 | 9.9 | 0.4 | 10.3 |
| 2/1 | 178 | 178 | 92 | 86 | 0 | 0.0 | 0.1 | - | 0.1 | 1.3 | 0.0 | 0.1 | 0.1 |
| 2/2 | 741 | 741 | - | - | - | 5.2 | 2.2 | - | 7.4 | 36.0 | 21.6 | 2.2 | 23.8 |
| 3/1 | 689 | 689 | - | - | - | 6.2 | 2.3 | - | 8.5 | 44.6 | 21.2 | 2.3 | 23.6 |
| 4/1 | 1430 | 1430 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5/1 | 631 | 631 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

C1 PRC for Signalled Lanes (%): 8.8 Total Delay for Signalled Lanes (pcuHr): 18.75 Cycle Time (s): 126
PRC Over All Lanes (%): 8.8 Total Delay Over All Lanes(pcuHr): 18.81

Full Input Data And Results

**Scenario 5: '2033 Base Flows - AM Peak'** (FG5: '2033 Base Flows - AM Peak', Plan 1: 'Network Control Plan 1')

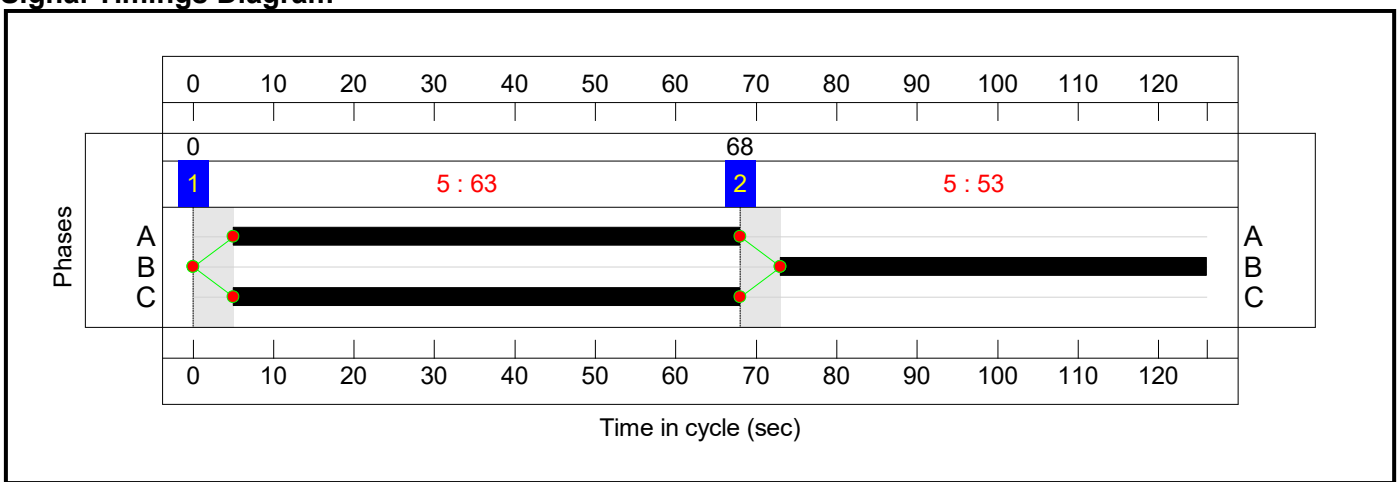
## Stage Sequence Diagram




## Stage Timings

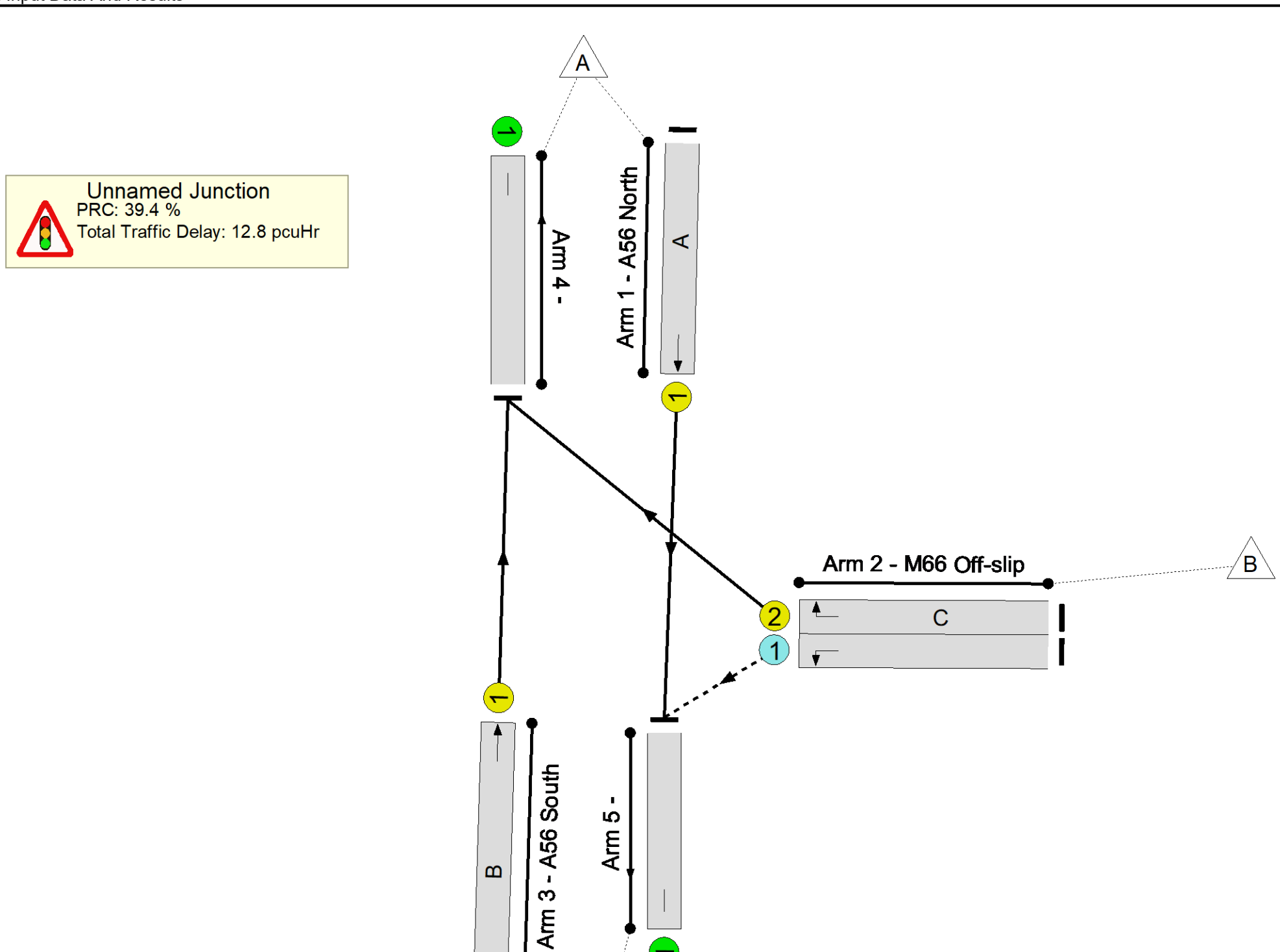
| Stage | 1 | 2 |
|---|---|---|
| Duration | 63 | 53 |
| Change Point | 0 | 68 |

## Signal Timings Diagram



Full Input Data And Results

**Network Layout Diagram**


Unnamed Junction
PRC: 39.4 %
Total Traffic Delay: 12.8 pcuHr
A
Arm 1 - A56 North
Arm 4 -
Arm 2 - M66 Off-slip
B
C
Arm 3 - A56 South
Arm 5 -

Full Input Data And Results

## Network Results

| Item | Lane Description | Lane Type | Controller Stream | Position In Filtered Route | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **64.6%** |
| **Unnamed Junction** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **64.6%** |
| 1/1 | A56 North Ahead | U | N/A | N/A | A | | 1 | 63 | - | 645 | 1980 | 1006 | 64.1% |
| 2/1 | M66 Off-slip Left | O | N/A | N/A | - | | - | - | - | 68 | 1860 | 1504 | 4.5% |
| 2/2 | M66 Off-slip Right | U | N/A | N/A | C | | 1 | 63 | - | 395 | 1760 | 894 | 44.2% |
| 3/1 | A56 South Ahead | U | N/A | N/A | B | | 1 | 53 | - | 548 | 1980 | 849 | 64.6% |
| 4/1 | | U | N/A | N/A | - | | - | - | - | 943 | Inf | Inf | 0.0% |
| 5/1 | | U | N/A | N/A | - | | - | - | - | 713 | Inf | Inf | 0.0% |

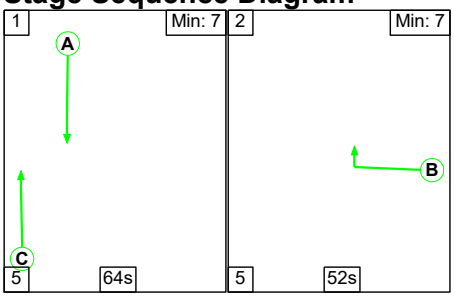
| Item | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Uniform Delay (pcuHr) | Rand + Oversat Delay (pcuHr) | Storage Area Uniform Delay (pcuHr) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Max. Back of Uniform Queue (pcu) | Rand + Oversat Queue (pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **35** | **33** | **0** | **10.5** | **2.2** | **0.0** | **12.8** | **-** | **-** | **-** | **-** |
| **Unnamed Junction** | **-** | **-** | **35** | **33** | **0** | **10.5** | **2.2** | **0.0** | **12.8** | **-** | **-** | **-** | **-** |
| 1/1 | 645 | 645 | - | - | - | 4.1 | 0.9 | - | 4.9 | 27.6 | 16.3 | 0.9 | 17.2 |
| 2/1 | 68 | 68 | 35 | 33 | 0 | 0.0 | 0.0 | - | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 |
| 2/2 | 395 | 395 | - | - | - | 2.2 | 0.4 | - | 2.6 | 23.3 | 8.7 | 0.4 | 9.1 |
| 3/1 | 548 | 548 | - | - | - | 4.3 | 0.9 | - | 5.2 | 34.4 | 15.1 | 0.9 | 16.0 |
| 4/1 | 943 | 943 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5/1 | 713 | 713 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

C1 PRC for Signalled Lanes (%): 39.4 Total Delay for Signalled Lanes (pcuHr): 12.73 Cycle Time (s): 126
PRC Over All Lanes (%): 39.4 Total Delay Over All Lanes(pcuHr): 12.76

Full Input Data And Results

**Scenario 6: '2033 Base Flows- PM Peak'** (FG6: '2033 Base Flows - PM Peak', Plan 1: 'Network Control Plan 1')

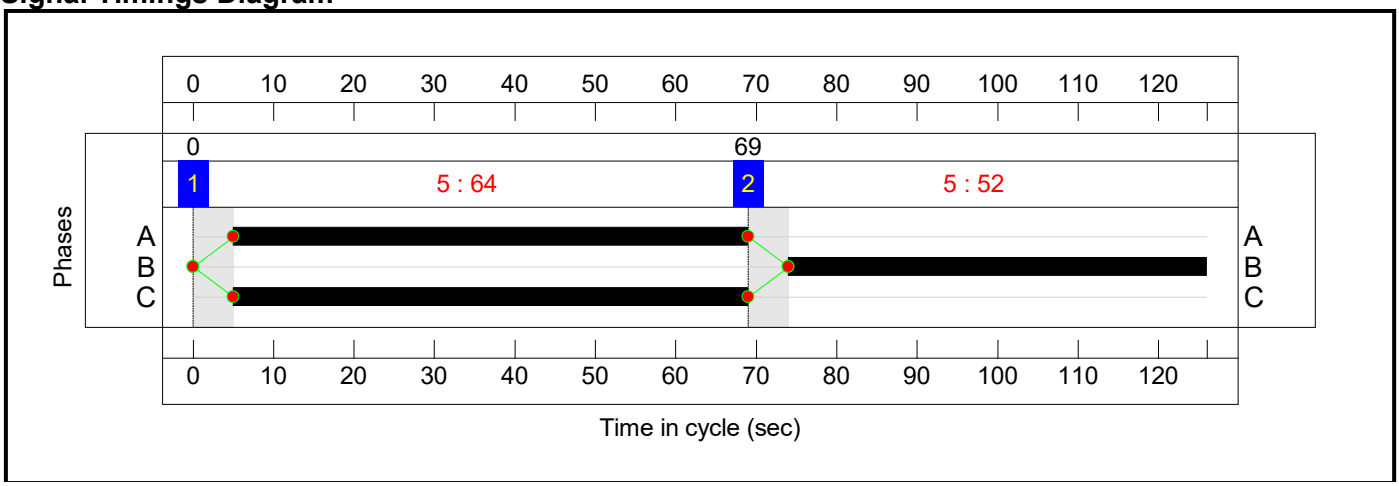
## Stage Sequence Diagram




## Stage Timings

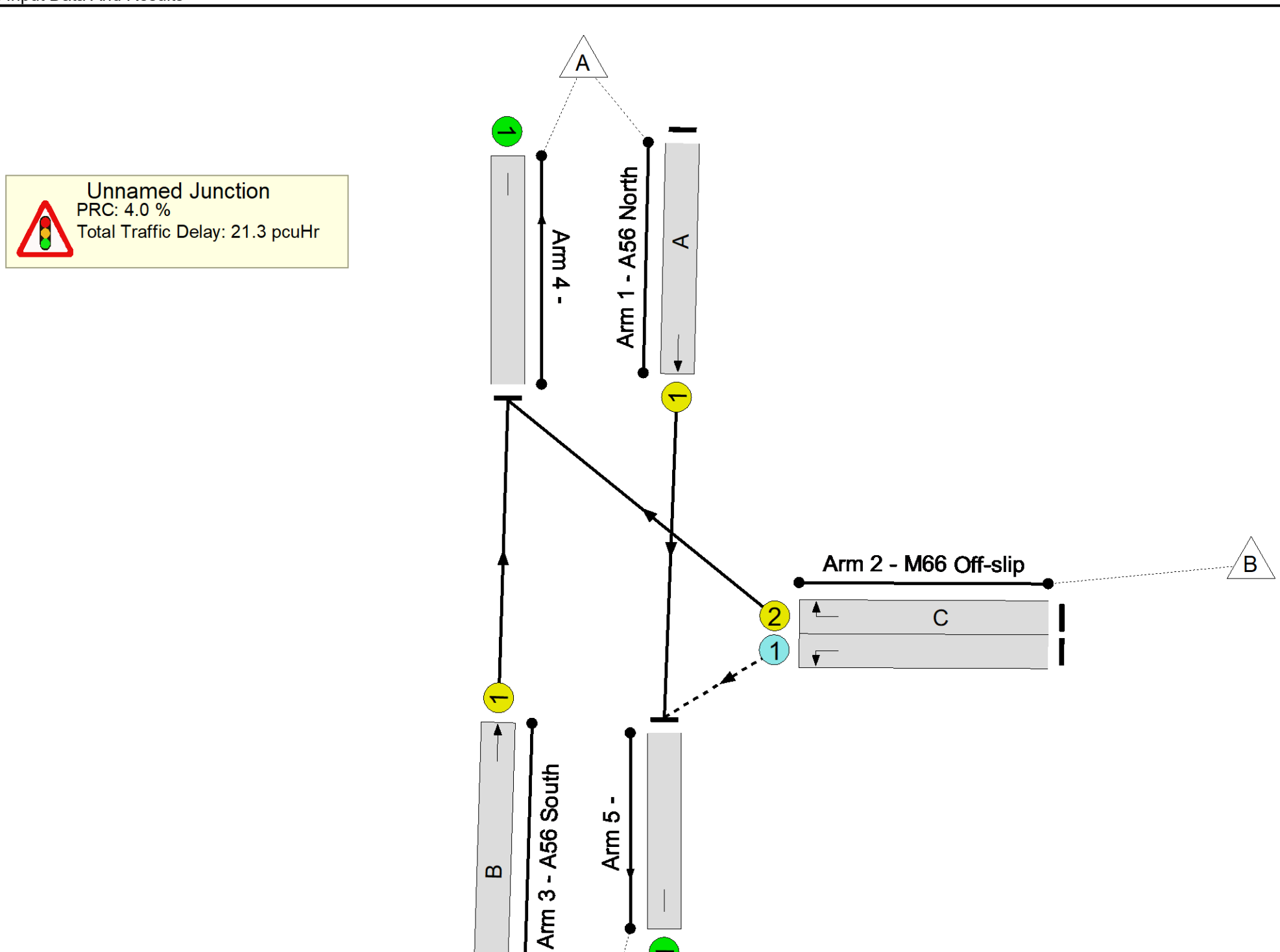
| Stage | 1 | 2 |
|---|---|---|
| Duration | 64 | 52 |
| Change Point | 0 | 69 |

## Signal Timings Diagram



Full Input Data And Results

**Network Layout Diagram**


Unnamed Junction
PRC: 4.0 %
Total Traffic Delay: 21.3 pcuHr
A
Arm 4 -
Arm 1 - A56 North
A
Arm 2 - M66 Off-slip
B
C
B
Arm 3 - A56 South
Arm 5 -

Full Input Data And Results

## Network Results

| Item | Lane Description | Lane Type | Controller Stream | Position In Filtered Route | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **86.6%** |
| **Unnamed Junction** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **86.6%** |
| 1/1 | A56 North Ahead | U | N/A | N/A | A | | 1 | 64 | - | 475 | 1980 | 1021 | 46.5% |
| 2/1 | M66 Off-slip Left | O | N/A | N/A | - | | - | - | - | 187 | 1860 | 1538 | 12.2% |
| 2/2 | M66 Off-slip Right | U | N/A | N/A | C | | 1 | 64 | - | 776 | 1760 | 908 | 85.5% |
| 3/1 | A56 South Ahead | U | N/A | N/A | B | | 1 | 52 | - | 721 | 1980 | 833 | 86.6% |
| 4/1 | | U | N/A | N/A | - | | - | - | - | 1497 | Inf | Inf | 0.0% |
| 5/1 | | U | N/A | N/A | - | | - | - | - | 662 | Inf | Inf | 0.0% |

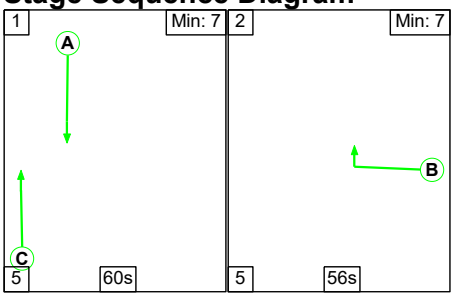
| Item | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Uniform Delay (pcuHr) | Rand + Oversat Delay (pcuHr) | Storage Area Uniform Delay (pcuHr) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Max. Back of Uniform Queue (pcu) | Rand + Oversat Queue (pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **96** | **91** | **0** | **14.9** | **6.4** | **0.0** | **21.3** | **-** | **-** | **-** | **-** |
| **Unnamed Junction** | **-** | **-** | **96** | **91** | **0** | **14.9** | **6.4** | **0.0** | **21.3** | **-** | **-** | **-** | **-** |
| 1/1 | 475 | 475 | - | - | - | 2.6 | 0.4 | - | 3.0 | 22.7 | 10.6 | 0.4 | 11.0 |
| 2/1 | 187 | 187 | 96 | 91 | 0 | 0.0 | 0.1 | - | 0.1 | 1.3 | 0.0 | 0.1 | 0.1 |
| 2/2 | 776 | 776 | - | - | - | 5.7 | 2.8 | - | 8.5 | 39.5 | 23.5 | 2.8 | 26.3 |
| 3/1 | 721 | 721 | - | - | - | 6.7 | 3.1 | - | 9.7 | 48.5 | 22.8 | 3.1 | 25.9 |
| 4/1 | 1497 | 1497 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5/1 | 662 | 662 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

C1 PRC for Signalled Lanes (%): 4.0 Total Delay for Signalled Lanes (pcuHr): 21.23 Cycle Time (s): 126
PRC Over All Lanes (%): 4.0 Total Delay Over All Lanes(pcuHr): 21.30

Full Input Data And Results

**Scenario 7: '2028 With Dev Flows - AM Peak'** (FG7: '2028 With Dev Flows - AM Peak', Plan 1: 'Network Control Plan 1')

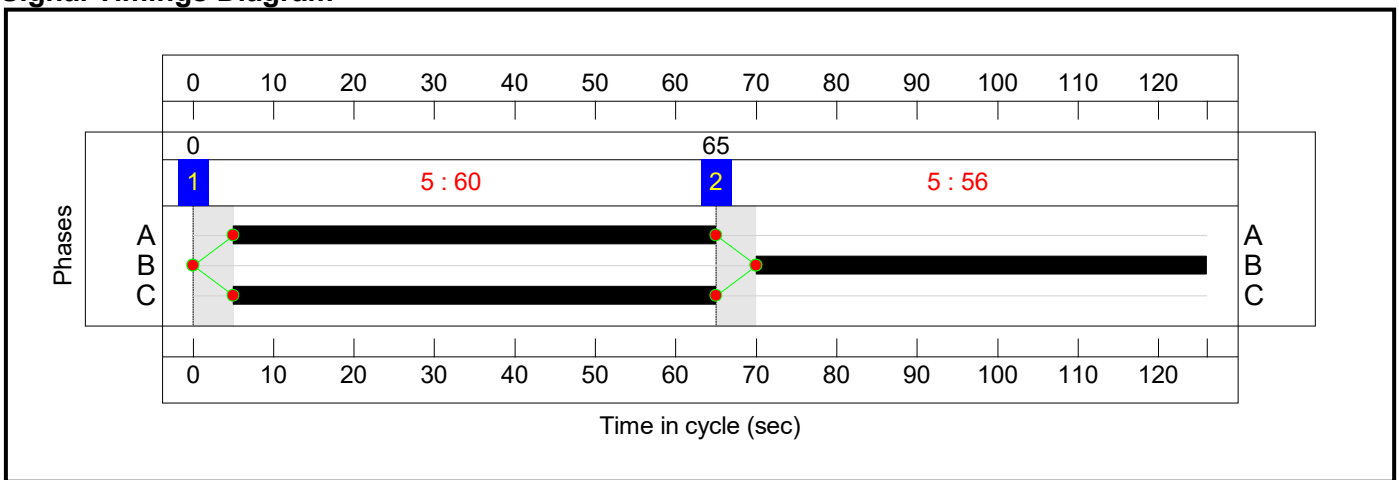
## Stage Sequence Diagram




## Stage Timings

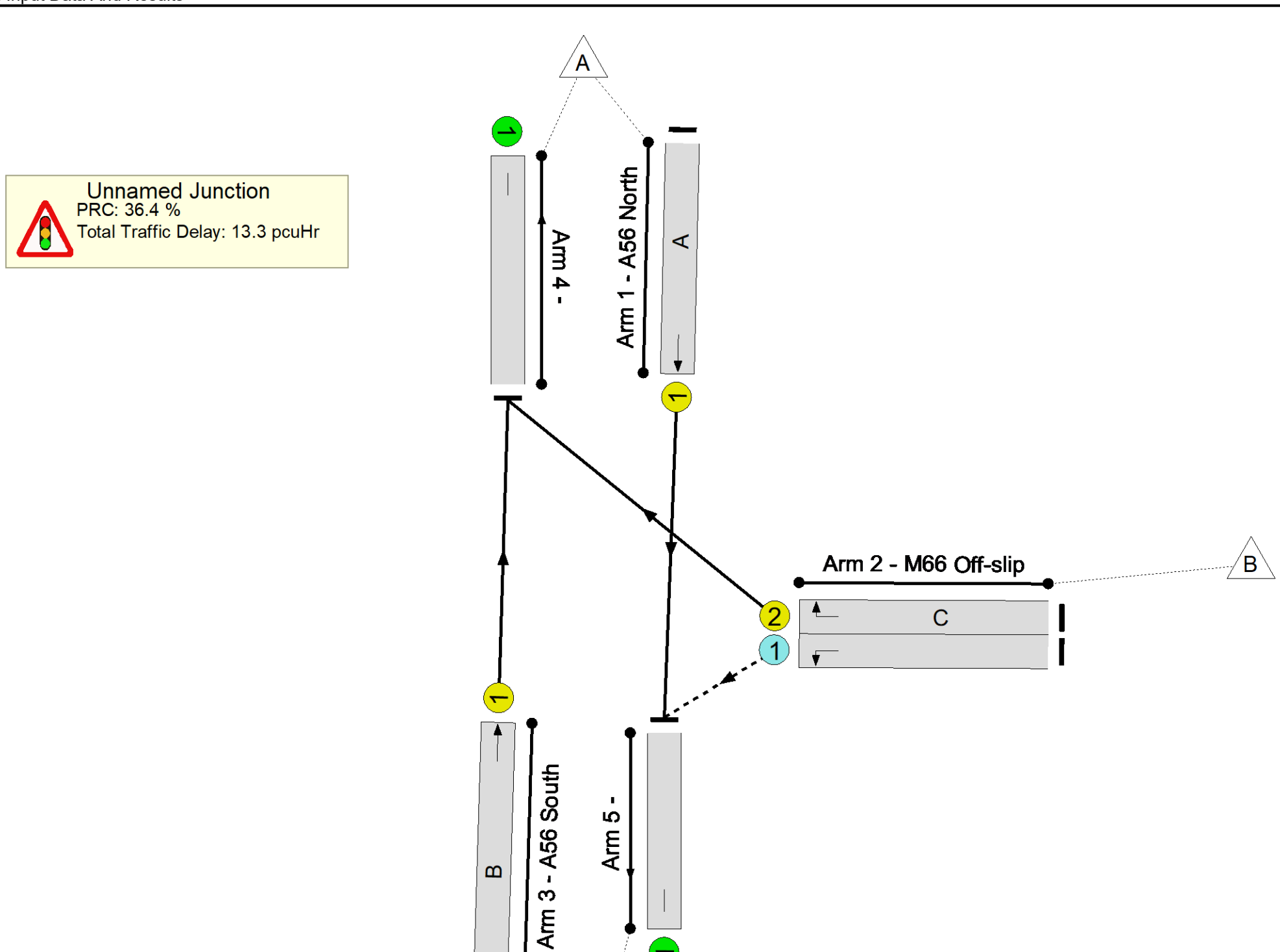
| Stage | 1 | 2 |
|---|---|---|
| Duration | 60 | 56 |
| Change Point | 0 | 65 |

## Signal Timings Diagram



Full Input Data And Results

**Network Layout Diagram**


Unnamed Junction
PRC: 36.4 %
Total Traffic Delay: 13.3 pcuHr
A
Arm 1 - A56 North
Arm 4 -
Arm 2 - M66 Off-slip
B
C
Arm 3 - A56 South
Arm 5 -

Full Input Data And Results

## Network Results

| Item | Lane Description | Lane Type | Controller Stream | Position In Filtered Route | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **66.0%** |
| **Unnamed Junction** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **66.0%** |
| 1/1 | A56 North Ahead | U | N/A | N/A | A | | 1 | 60 | - | 631 | 1980 | 959 | 65.8% |
| 2/1 | M66 Off-slip Left | O | N/A | N/A | - | | - | - | - | 88 | 1860 | 1517 | 5.8% |
| 2/2 | M66 Off-slip Right | U | N/A | N/A | C | | 1 | 60 | - | 376 | 1760 | 852 | 44.1% |
| 3/1 | A56 South Ahead | U | N/A | N/A | B | | 1 | 56 | - | 591 | 1980 | 896 | 66.0% |
| 4/1 | | U | N/A | N/A | - | | - | - | - | 967 | Inf | Inf | 0.0% |
| 5/1 | | U | N/A | N/A | - | | - | - | - | 719 | Inf | Inf | 0.0% |

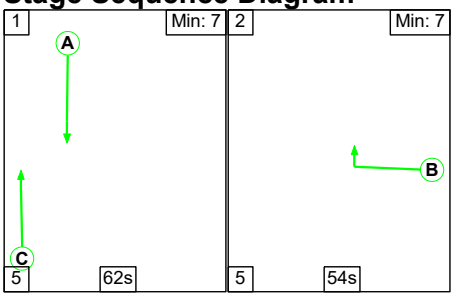
| Item | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Uniform Delay (pcuHr) | Rand + Oversat Delay (pcuHr) | Storage Area Uniform Delay (pcuHr) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Max. Back of Uniform Queue (pcu) | Rand + Oversat Queue (pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **43** | **45** | **0** | **11.0** | **2.3** | **0.0** | **13.3** | **-** | **-** | **-** | **-** |
| **Unnamed Junction** | **-** | **-** | **43** | **45** | **0** | **11.0** | **2.3** | **0.0** | **13.3** | **-** | **-** | **-** | **-** |
| 1/1 | 631 | 631 | - | - | - | 4.3 | 1.0 | - | 5.3 | 30.1 | 16.7 | 1.0 | 17.6 |
| 2/1 | 88 | 88 | 43 | 45 | 0 | 0.0 | 0.0 | - | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 |
| 2/2 | 376 | 376 | - | - | - | 2.2 | 0.4 | - | 2.6 | 25.1 | 8.6 | 0.4 | 9.0 |
| 3/1 | 591 | 591 | - | - | - | 4.4 | 1.0 | - | 5.4 | 32.8 | 16.1 | 1.0 | 17.1 |
| 4/1 | 967 | 967 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5/1 | 719 | 719 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

C1 PRC for Signalled Lanes (%): 36.4 Total Delay for Signalled Lanes (pcuHr): 13.28 Cycle Time (s): 126
PRC Over All Lanes (%): 36.4 Total Delay Over All Lanes(pcuHr): 13.31

Full Input Data And Results

**Scenario 8: '2028 With Dev Flows - PM Peak'** (FG8: '2028 With Dev Flows - PM Peak', Plan 1: 'Network Control Plan 1')

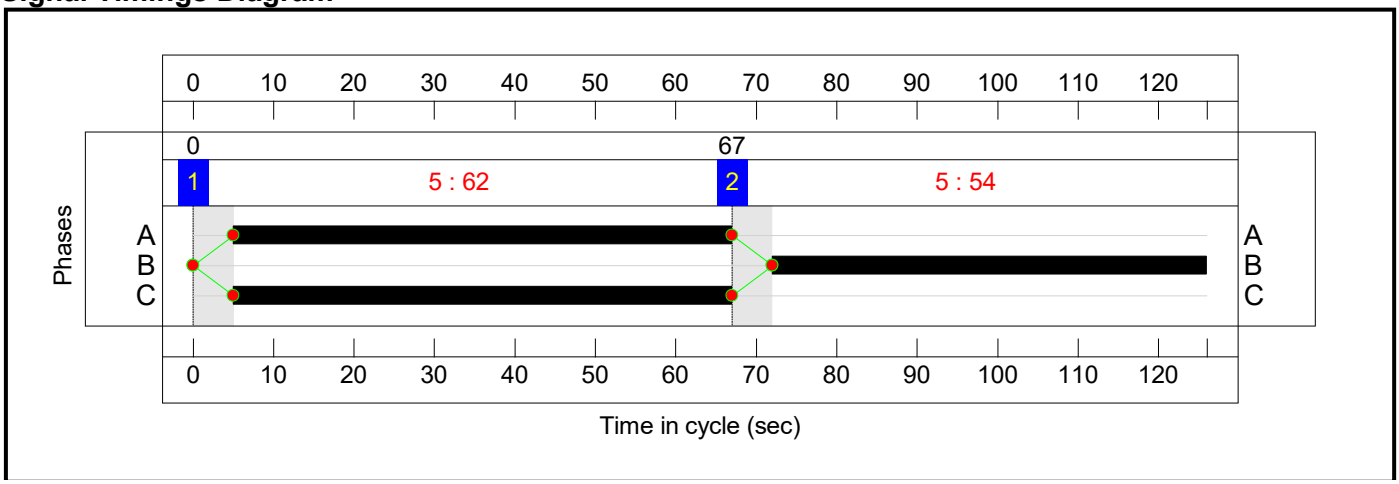
## Stage Sequence Diagram




## Stage Timings

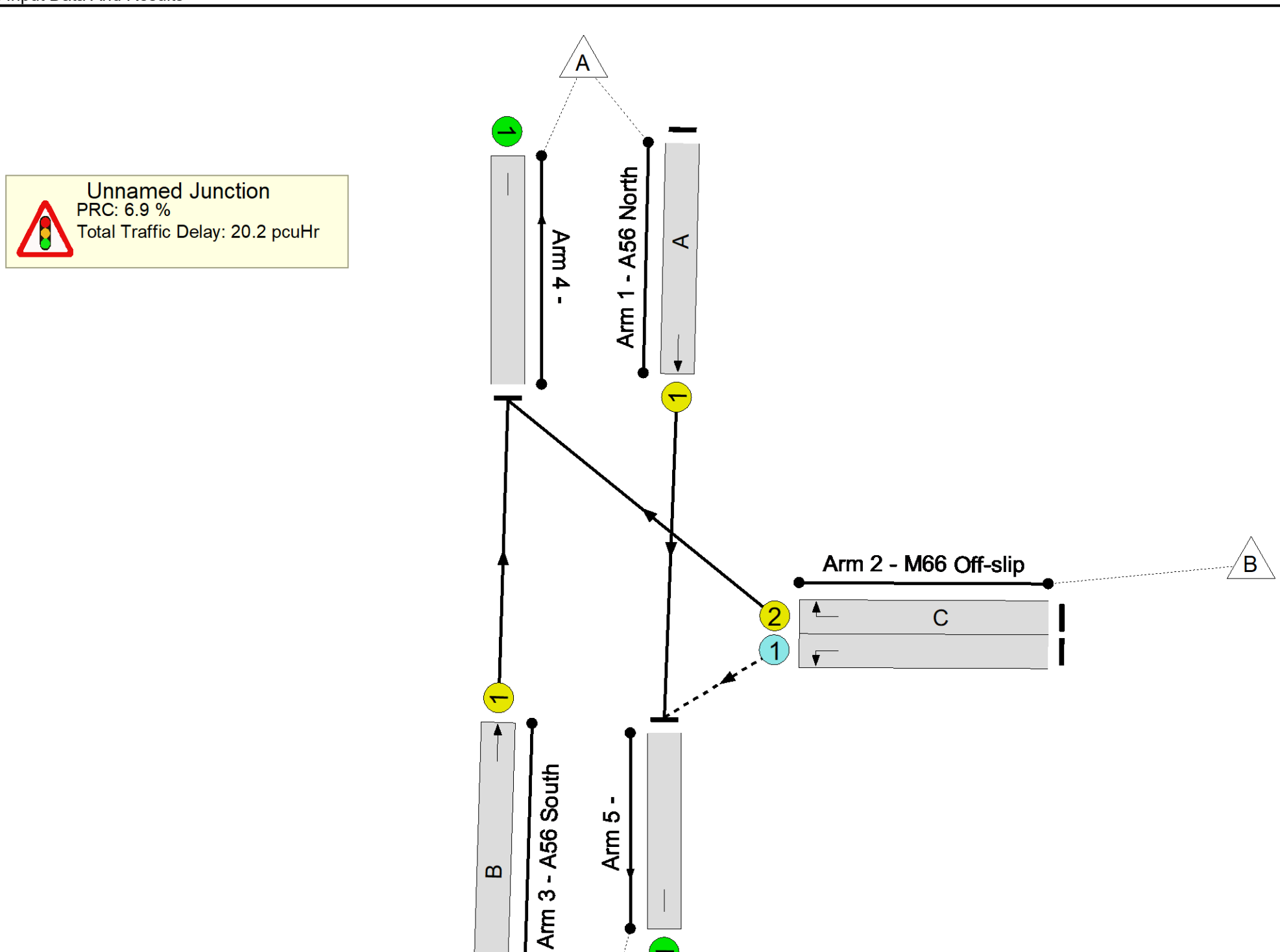
| Stage | 1 | 2 |
|---|---|---|
| Duration | 62 | 54 |
| Change Point | 0 | 67 |

## Signal Timings Diagram



Full Input Data And Results

**Network Layout Diagram**


Unnamed Junction
PRC: 6.9 %
Total Traffic Delay: 20.2 pcuHr
A
Arm 1 - A56 North
Arm 4 -
Arm 2 - M66 Off-slip
B
C
Arm 3 - A56 South
Arm 5 -

## Network Results

| Item | Lane Description | Lane Type | Controller Stream | Position In Filtered Route | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **84.2%** |
| **Unnamed Junction** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **84.2%** |
| 1/1 | A56 North Ahead | U | N/A | N/A | A | | 1 | 62 | - | 471 | 1980 | 990 | 47.6% |
| 2/1 | M66 Off-slip Left | O | N/A | N/A | - | | - | - | - | 224 | 1860 | 1546 | 14.5% |
| 2/2 | M66 Off-slip Right | U | N/A | N/A | C | | 1 | 62 | - | 741 | 1760 | 880 | 84.2% |
| 3/1 | A56 South Ahead | U | N/A | N/A | B | | 1 | 54 | - | 724 | 1980 | 864 | 83.8% |
| 4/1 | | U | N/A | N/A | - | | - | - | - | 1465 | Inf | Inf | 0.0% |
| 5/1 | | U | N/A | N/A | - | | - | - | - | 695 | Inf | Inf | 0.0% |

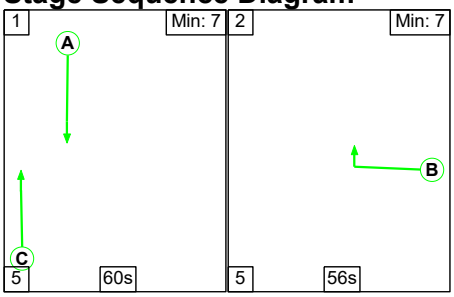
| Item | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Uniform Delay (pcuHr) | Rand + Oversat Delay (pcuHr) | Storage Area Uniform Delay (pcuHr) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Max. Back of Uniform Queue (pcu) | Rand + Oversat Queue (pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **112** | **112** | **0** | **14.6** | **5.6** | **0.0** | **20.2** | **-** | **-** | **-** | **-** |
| **Unnamed Junction** | **-** | **-** | **112** | **112** | **0** | **14.6** | **5.6** | **0.0** | **20.2** | **-** | **-** | **-** | **-** |
| 1/1 | 471 | 471 | - | - | - | 2.7 | 0.5 | - | 3.2 | 24.1 | 10.7 | 0.5 | 11.2 |
| 2/1 | 224 | 224 | 112 | 112 | 0 | 0.0 | 0.1 | - | 0.1 | 1.4 | 0.0 | 0.1 | 0.1 |
| 2/2 | 741 | 741 | - | - | - | 5.6 | 2.6 | - | 8.2 | 39.7 | 22.2 | 2.6 | 24.8 |
| 3/1 | 724 | 724 | - | - | - | 6.3 | 2.5 | - | 8.8 | 43.9 | 22.3 | 2.5 | 24.8 |
| 4/1 | 1465 | 1465 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5/1 | 695 | 695 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

C1 PRC for Signalled Lanes (%): 6.9 Total Delay for Signalled Lanes (pcuHr): 20.16 Cycle Time (s): 126
PRC Over All Lanes (%): 6.9 Total Delay Over All Lanes(pcuHr): 20.25

Full Input Data And Results

**Scenario 9: '2033 With Dev Flows - AM Peak'** (FG9: '2033 With Dev Flows - AM Peak', Plan 1: 'Network Control Plan 1')

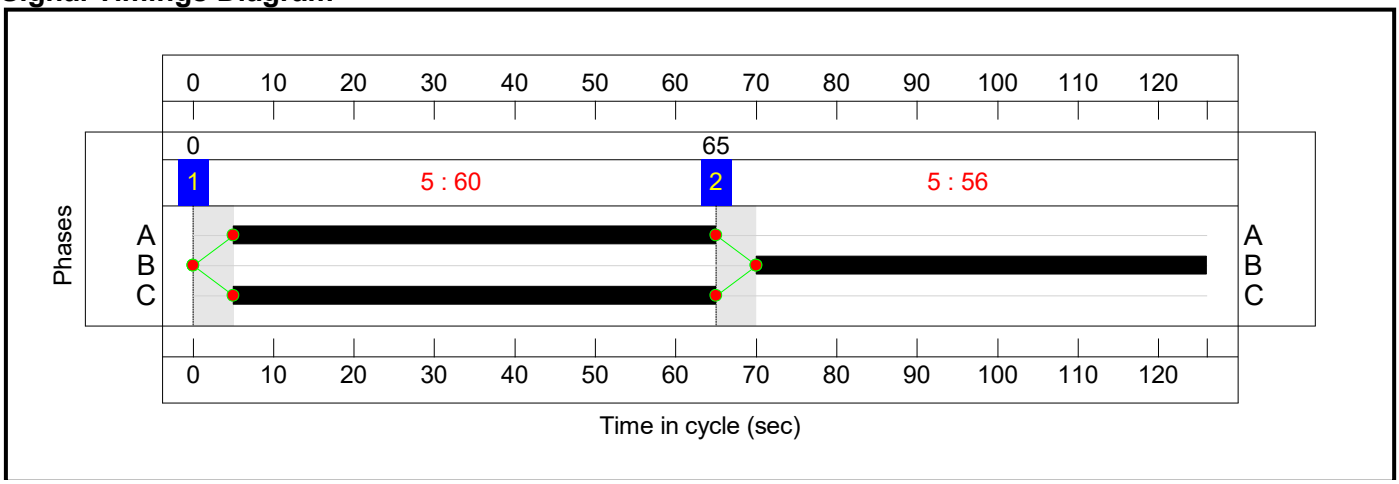
## Stage Sequence Diagram




## Stage Timings

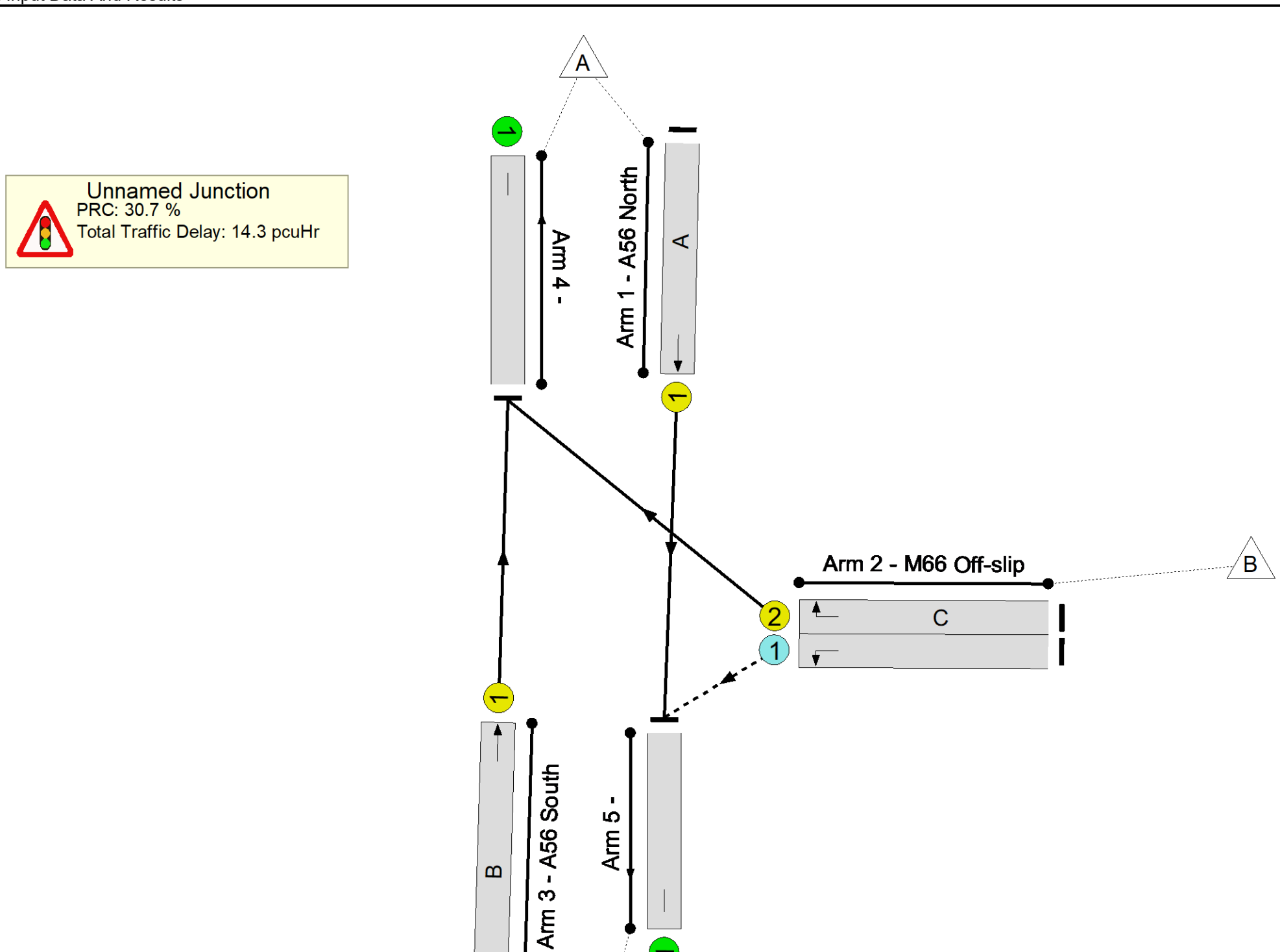
| Stage | 1 | 2 |
|---|---|---|
| Duration | 60 | 56 |
| Change Point | 0 | 65 |

## Signal Timings Diagram



Full Input Data And Results

**Network Layout Diagram**


Unnamed Junction
PRC: 30.7 %
Total Traffic Delay: 14.3 pcuHr
A
1
Arm 4 -
Arm 1 - A56 North
A
1
Arm 2 - M66 Off-slip
B
2
C
1
1
B
Arm 3 - A56 South
Arm 5 -

Full Input Data And Results

## Network Results

| Item | Lane Description | Lane Type | Controller Stream | Position In Filtered Route | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **68.9%** |
| **Unnamed Junction** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **68.9%** |
| 1/1 | A56 North Ahead | U | N/A | N/A | A | | 1 | 60 | - | 660 | 1980 | 959 | 68.9% |
| 2/1 | M66 Off-slip Left | O | N/A | N/A | - | | - | - | - | 91 | 1860 | 1511 | 6.0% |
| 2/2 | M66 Off-slip Right | U | N/A | N/A | C | | 1 | 60 | - | 395 | 1760 | 852 | 46.4% |
| 3/1 | A56 South Ahead | U | N/A | N/A | B | | 1 | 56 | - | 617 | 1980 | 896 | 68.9% |
| 4/1 | | U | N/A | N/A | - | | - | - | - | 1012 | Inf | Inf | 0.0% |
| 5/1 | | U | N/A | N/A | - | | - | - | - | 751 | Inf | Inf | 0.0% |

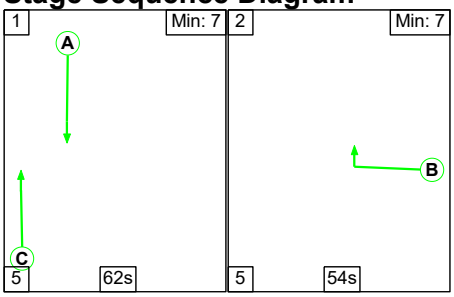
| Item | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Uniform Delay (pcuHr) | Rand + Oversat Delay (pcuHr) | Storage Area Uniform Delay (pcuHr) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Max. Back of Uniform Queue (pcu) | Rand + Oversat Queue (pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **44** | **47** | **0** | **11.7** | **2.7** | **0.0** | **14.3** | **-** | **-** | **-** | **-** |
| **Unnamed Junction** | **-** | **-** | **44** | **47** | **0** | **11.7** | **2.7** | **0.0** | **14.3** | **-** | **-** | **-** | **-** |
| 1/1 | 660 | 660 | - | - | - | 4.6 | 1.1 | - | 5.7 | 31.1 | 17.8 | 1.1 | 18.9 |
| 2/1 | 91 | 91 | 44 | 47 | 0 | 0.0 | 0.0 | - | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 |
| 2/2 | 395 | 395 | - | - | - | 2.4 | 0.4 | - | 2.8 | 25.6 | 9.1 | 0.4 | 9.5 |
| 3/1 | 617 | 617 | - | - | - | 4.7 | 1.1 | - | 5.8 | 33.9 | 17.1 | 1.1 | 18.2 |
| 4/1 | 1012 | 1012 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5/1 | 751 | 751 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

C1 PRC for Signalled Lanes (%): 30.7 Total Delay for Signalled Lanes (pcuHr): 14.31 Cycle Time (s): 126
PRC Over All Lanes (%): 30.7 Total Delay Over All Lanes(pcuHr): 14.35

Full Input Data And Results

**Scenario 10: '2033 With Dev Flows- PM Peak'** (FG10: '2033 With Dev Flows - PM Peak', Plan 1: 'Network Control Plan 1')

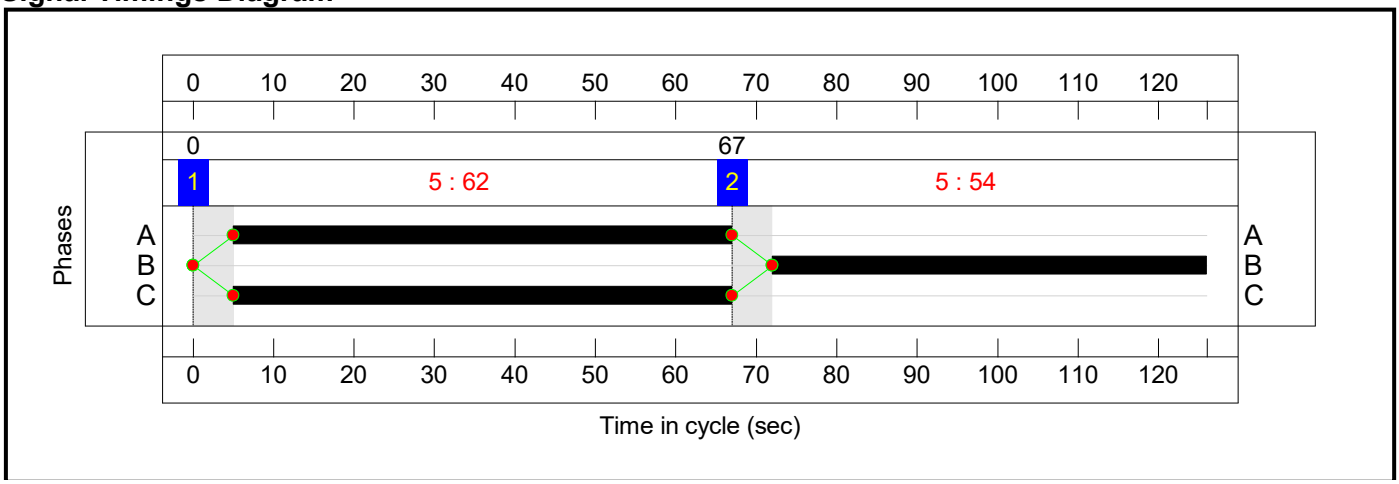
## Stage Sequence Diagram




## Stage Timings

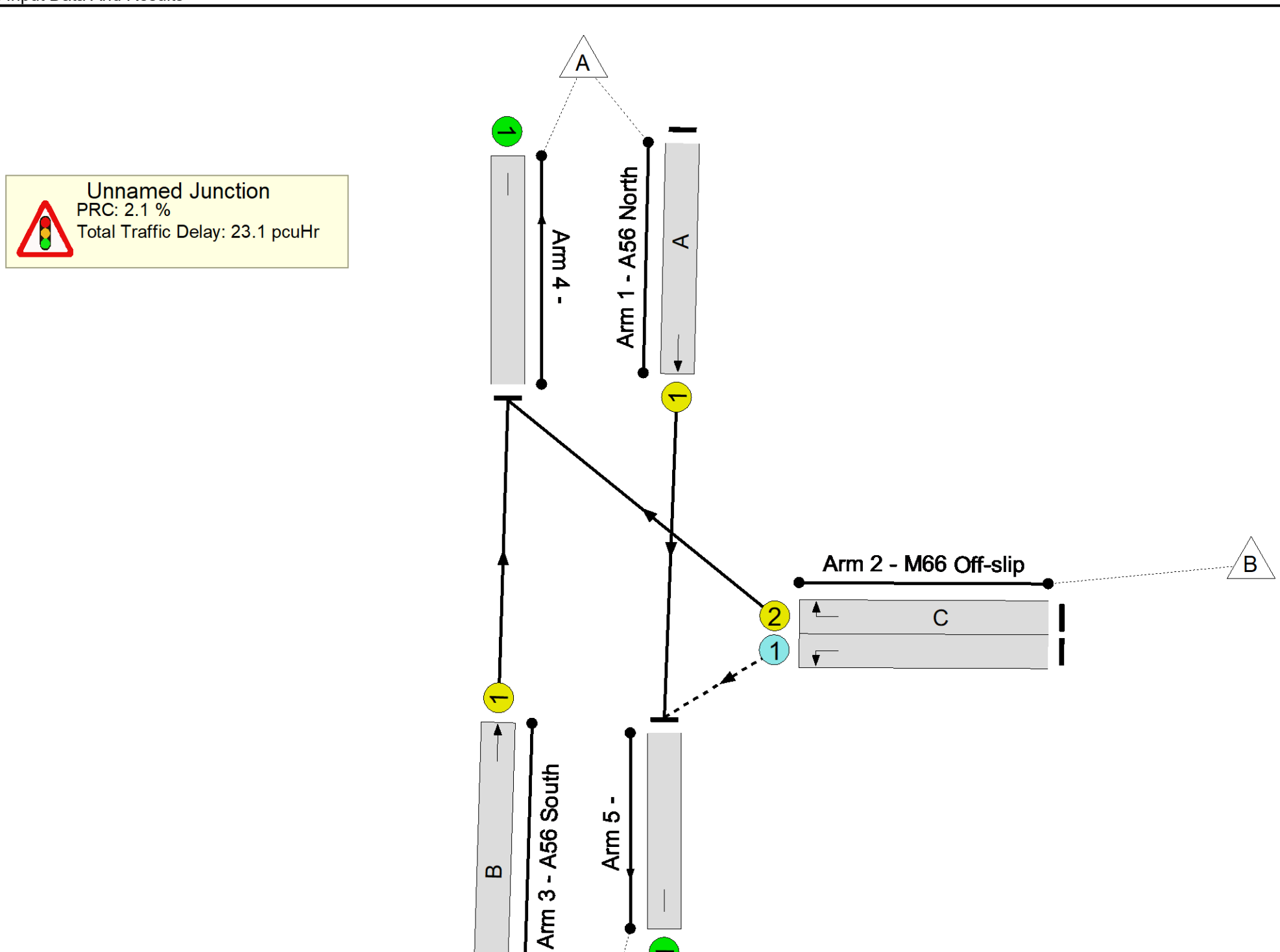
| Stage | 1 | 2 |
|---|---|---|
| Duration | 62 | 54 |
| Change Point | 0 | 67 |

## Signal Timings Diagram



Full Input Data And Results

**Network Layout Diagram**


Unnamed Junction
PRC: 2.1 %
Total Traffic Delay: 23.1 pcuHr
A
Arm 4 -
Arm 1 - A56 North
A
Arm 2 - M66 Off-slip
B
C
B
Arm 3 - A56 South
Arm 5 -

Full Input Data And Results

## Network Results

| Item | Lane Description | Lane Type | Controller Stream | Position In Filtered Route | Full Phase | Arrow Phase | Num Greens | Total Green (s) | Arrow Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **88.2%** |
| **Unnamed Junction** | **-** | **-** | **N/A** | **-** | **-** | | **-** | **-** | **-** | **-** | **-** | **-** | **88.2%** |
| 1/1 | A56 North Ahead | U | N/A | N/A | A | | 1 | 62 | - | 492 | 1980 | 990 | 49.7% |
| 2/1 | M66 Off-slip Left | O | N/A | N/A | - | | - | - | - | 233 | 1860 | 1541 | 15.1% |
| 2/2 | M66 Off-slip Right | U | N/A | N/A | C | | 1 | 62 | - | 776 | 1760 | 880 | 88.2% |
| 3/1 | A56 South Ahead | U | N/A | N/A | B | | 1 | 54 | - | 757 | 1980 | 864 | 87.6% |
| 4/1 | | U | N/A | N/A | - | | - | - | - | 1533 | Inf | Inf | 0.0% |
| 5/1 | | U | N/A | N/A | - | | - | - | - | 725 | Inf | Inf | 0.0% |

| Item | Arriving (pcu) | Leaving (pcu) | Turners In Gaps (pcu) | Turners When Unopposed (pcu) | Turners In Intergreen (pcu) | Uniform Delay (pcuHr) | Rand + Oversat Delay (pcuHr) | Storage Area Uniform Delay (pcuHr) | Total Delay (pcuHr) | Av. Delay Per PCU (s/pcu) | Max. Back of Uniform Queue (pcu) | Rand + Oversat Queue (pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network** | **-** | **-** | **116** | **116** | **0** | **15.7** | **7.4** | **0.0** | **23.1** | **-** | **-** | **-** | **-** |
| **Unnamed Junction** | **-** | **-** | **116** | **116** | **0** | **15.7** | **7.4** | **0.0** | **23.1** | **-** | **-** | **-** | **-** |
| 1/1 | 492 | 492 | - | - | - | 2.9 | 0.5 | - | 3.4 | 24.6 | 11.3 | 0.5 | 11.8 |
| 2/1 | 233 | 233 | 116 | 116 | 0 | 0.0 | 0.1 | - | 0.1 | 1.4 | 0.0 | 0.1 | 0.1 |
| 2/2 | 776 | 776 | - | - | - | 6.1 | 3.5 | - | 9.6 | 44.4 | 24.1 | 3.5 | 27.6 |
| 3/1 | 757 | 757 | - | - | - | 6.8 | 3.3 | - | 10.1 | 48.2 | 24.0 | 3.3 | 27.3 |
| 4/1 | 1533 | 1533 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5/1 | 725 | 725 | - | - | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

C1 PRC for Signalled Lanes (%): 2.1 Total Delay for Signalled Lanes (pcuHr): 23.06 Cycle Time (s): 126
PRC Over All Lanes (%): 2.1 Total Delay Over All Lanes(pcuHr): 23.15

# APPENDIX 13

# Junctions 11

## PICADY 11 - Priority Intersection Module

Version: 11.0.0.2177
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**The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution**

**Filename:** A56 Manchester Road - M66 On-Slip.j11
**Path:** Z:\projects\4839 Walmersley Brook, Bury\Picady
**Report generation date:** 03/02/2026 13:37:25

---

»Existing Layout - 2023 | Surveyed Flows | AM
»Existing Layout - 2023 | Surveyed Flows | PM
»Existing Layout - 2028 | Base Flows | AM
»Existing Layout - 2028 | Base Flows | PM
»Existing Layout - 2033 | Base Flows | AM
»Existing Layout - 2033 | Base Flows | PM
»Existing Layout - 2028 | With Dev Flows | AM
»Existing Layout - 2028 | With Dev Flows | PM
»Existing Layout - 2033 | With Dev Flows | AM
»Existing Layout - 2033 | With Dev Flows | PM

### Summary of junction performance

| | AM | | | | | | PM | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) |
| | Existing Layout - 2023 - Surveyed Flows | | | | | | | | | | | |
| Stream B-AC | D1 | 0.0 | 0.00 | 0.00 | A | 2.98 | D2 | 0.0 | 0.00 | 0.00 | A | 0.48 |
| Stream C-B | | 1.7 | 17.46 | 0.63 | C | | | 0.3 | 6.88 | 0.21 | A | |
| | Existing Layout - 2028 - Base Flows | | | | | | | | | | | |
| Stream B-AC | D3 | 0.0 | 0.00 | 0.00 | A | 3.68 | D4 | 0.0 | 0.00 | 0.00 | A | 0.48 |
| Stream C-B | | 2.2 | 22.44 | 0.70 | C | | | 0.3 | 7.22 | 0.23 | A | |
| | Existing Layout - 2028 - With Dev Flows | | | | | | | | | | | |
| Stream B-AC | D7 | 0.0 | 0.00 | 0.00 | A | 6.23 | D8 | 0.0 | 0.00 | 0.00 | A | 0.59 |
| Stream C-B | | 3.8 | 34.20 | 0.81 | D | | | 0.4 | 7.69 | 0.27 | A | |
| | Existing Layout - 2033 - Base Flows | | | | | | | | | | | |
| Stream B-AC | D5 | 0.0 | 0.00 | 0.00 | A | 4.68 | D6 | 0.0 | 0.00 | 0.00 | A | 0.50 |
| Stream C-B | | 2.9 | 28.43 | 0.76 | D | | | 0.3 | 7.47 | 0.24 | A | |
| | Existing Layout - 2033 - With Dev Flows | | | | | | | | | | | |
| Stream B-AC | D9 | 0.0 | 0.00 | 0.00 | A | 8.81 | D10 | 0.0 | 0.00 | 0.00 | A | 0.62 |
| Stream C-B | | 5.5 | 48.44 | 0.87 | E | | | 0.4 | 7.99 | 0.29 | A | |

*There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.*

*Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.*

## File summary

### File Description

| | |
|---|---|
| **Title** | A56 Manchester Road - M66 On-Slip |
| **Location** | Bury |
| **Site number** | |
| **Date** | 26/08/2025 |
| **Version** | |
| **Status** | TIA |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | 4839 |
| **Enumerator** | EDD |
| **Description** | Based on existing. |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perHour | s | -Min | perMin |

## Analysis Options

| Vehicle length (m) | Calculate Queue Percentiles | Calculate detailed queueing delay | Show lane queues in feet / metres | Show all PICADY stream intercepts | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) | Use simulation for HCM roundabouts | Use iterations for HCM roundabouts |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.75 | ✓ | | | | | 0.85 | 36.00 | 20.00 | | |

## Demand Set Summary

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| **D1** | 2023 | Surveyed Flows | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |
| **D2** | 2023 | Surveyed Flows | PM | ONE HOUR | 16:15 | 17:45 | 15 | ✓ |
| **D3** | 2028 | Base Flows | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |
| **D4** | 2028 | Base Flows | PM | ONE HOUR | 16:15 | 17:45 | 15 | ✓ |
| **D5** | 2033 | Base Flows | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |
| **D6** | 2033 | Base Flows | PM | ONE HOUR | 16:15 | 17:45 | 15 | ✓ |
| **D7** | 2028 | With Dev Flows | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |
| **D8** | 2028 | With Dev Flows | PM | ONE HOUR | 16:15 | 17:45 | 15 | ✓ |
| **D9** | 2033 | With Dev Flows | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |
| **D10** | 2033 | With Dev Flows | PM | ONE HOUR | 16:15 | 17:45 | 15 | ✓ |

## Analysis Set Details

| ID | Name | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |
|---|---|---|---|---|
| **A1** | Existing Layout | ✓ | 100.000 | 100.000 |

# Existing Layout - 2023 | Surveyed Flows | AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Exit Only | Two-way | | 2.98 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 2.98 | A |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | A56 Manchester Road (N) | | Major |
| B | M66 On-Slip | | Minor |
| C | A56 Manchester Road (S) | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right-turn storage | Width for right-turn storage (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 9.65 | | ✓ | 4.00 | 250.0 | | - |

*Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.*

### Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|
| B | | | | |

### Slope / Intercept / Capacity

#### Priority Intersection Slopes and Intercepts

| Stream | Intercept (PCU/hr) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|
| B-A | 440 | 0.067 | 0.170 | 0.107 | 0.243 |
| B-C | 574 | 0.074 | 0.187 | - | - |
| C-B | 860 | 0.280 | 0.280 | - | - |

*The slopes and intercepts shown above include custom intercept adjustments only.*

*Streams may be combined, in which case capacity will be adjusted.*

*Values are shown for the first time segment only; they may differ for subsequent time segments.*

# Traffic Demand

## Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D1 | 2023 | Surveyed Flows | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |

## Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 985 | 100.000 |
| B | | ONE HOUR | ✓ | 0 | 100.000 |
| C | | ONE HOUR | ✓ | 878 | 100.000 |

# Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 487 | 498 |
| | B | 0 | 0 | 0 |
| | C | 560 | 318 | 0 |

# Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.0 | ~1 | A | 0 | 0 |
| C-A | | | | | | 514 | 771 |
| C-B | 0.63 | 17.46 | 1.7 | 6.0 | C | 292 | 438 |
| A-B | | | | | | 447 | 670 |
| A-C | | | | | | 457 | 685 |

## Main Results for each time segment

### 07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 326 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 422 | 105 | 0.00 | | | 422 | | | | |
| C-B | 239 | 60 | 0.00 | 652 | 0.367 | 237 | 0.0 | 0.6 | 8.635 | A |
| A-B | 367 | 92 | 0.00 | | | 367 | | | | |
| A-C | 375 | 94 | 0.00 | | | 375 | | | | |

### 08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 288 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 503 | 126 | 0.00 | | | 503 | | | | |
| C-B | 286 | 71 | 0.00 | 611 | 0.468 | 285 | 0.6 | 0.9 | 10.978 | B |
| A-B | 438 | 109 | 0.00 | | | 438 | | | | |
| A-C | 448 | 112 | 0.00 | | | 448 | | | | |

### 08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 231 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 617 | 154 | 0.00 | | | 617 | | | | |
| C-B | 350 | 88 | 0.00 | 556 | 0.630 | 347 | 0.9 | 1.6 | 17.003 | C |
| A-B | 536 | 134 | 0.00 | | | 536 | | | | |
| A-C | 548 | 137 | 0.00 | | | 548 | | | | |

### 08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 231 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 617 | 154 | 0.00 | | | 617 | | | | |
| C-B | 350 | 88 | 0.00 | 556 | 0.630 | 350 | 1.6 | 1.7 | 17.461 | C |
| A-B | 536 | 134 | 0.00 | | | 536 | | | | |
| A-C | 548 | 137 | 0.00 | | | 548 | | | | |

### 08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 287 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 503 | 126 | 0.00 | | | 503 | | | | |
| C-B | 286 | 71 | 0.00 | 611 | 0.468 | 289 | 1.7 | 0.9 | 11.265 | B |
| A-B | 438 | 109 | 0.00 | | | 438 | | | | |
| A-C | 448 | 112 | 0.00 | | | 448 | | | | |

### 09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 325 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 422 | 105 | 0.00 | | | 422 | | | | |
| C-B | 239 | 60 | 0.00 | 652 | 0.367 | 241 | 0.9 | 0.6 | 8.781 | A |
| A-B | 367 | 92 | 0.00 | | | 367 | | | | |
| A-C | 375 | 94 | 0.00 | | | 375 | | | | |

## Queue Variation Results for each time segment

### 07:45 - 08:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.57 | 0.55 | 1.00 | 1.40 | 1.45 | | | N/A | N/A |

### 08:00 - 08:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.86 | 0.11 | 0.91 | 1.46 | 1.46 | | | N/A | N/A |

### 08:15 - 08:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 1.62 | 0.03 | 0.29 | 1.62 | 6.03 | | | N/A | N/A |

### 08:30 - 08:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 1.66 | 0.03 | 0.28 | 1.66 | 5.68 | | | N/A | N/A |

### 08:45 - 09:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.90 | 0.06 | 0.70 | 1.68 | 2.23 | | | N/A | N/A |

### 09:00 - 09:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.59 | 0.04 | 0.40 | 1.04 | 1.74 | | | N/A | N/A |

# Existing Layout - 2023 | Surveyed Flows | PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Exit Only | Two-way | | 0.48 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.48 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D2 | 2023 | Surveyed Flows | PM | ONE HOUR | 16:15 | 17:45 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 637 | 100.000 |
| B | | ONE HOUR | ✓ | 0 | 100.000 |
| C | | ONE HOUR | ✓ | 1172 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 207 | 430 |
| | B | 0 | 0 | 0 |
| | C | 1045 | 127 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.0 | ~1 | A | 0 | 0 |
| C-A | | | | | | 959 | 1438 |
| C-B | 0.21 | 6.88 | 0.3 | 1.2 | A | 117 | 175 |
| A-B | | | | | | 190 | 285 |
| A-C | | | | | | 395 | 592 |

## Main Results for each time segment

### 16:15 - 16:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 348 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 787 | 197 | 0.00 | | | 787 | | | | |
| C-B | 96 | 24 | 0.00 | 725 | 0.132 | 95 | 0.0 | 0.2 | 5.708 | A |
| A-B | 156 | 39 | 0.00 | | | 156 | | | | |
| A-C | 324 | 81 | 0.00 | | | 324 | | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 315 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 939 | 235 | 0.00 | | | 939 | | | | |
| C-B | 114 | 29 | 0.00 | 699 | 0.163 | 114 | 0.2 | 0.2 | 6.151 | A |
| A-B | 186 | 47 | 0.00 | | | 186 | | | | |
| A-C | 387 | 97 | 0.00 | | | 387 | | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 267 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1151 | 288 | 0.00 | | | 1151 | | | | |
| C-B | 140 | 35 | 0.00 | 663 | 0.211 | 140 | 0.2 | 0.3 | 6.874 | A |
| A-B | 228 | 57 | 0.00 | | | 228 | | | | |
| A-C | 473 | 118 | 0.00 | | | 473 | | | | |

### 17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 266 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1151 | 288 | 0.00 | | | 1151 | | | | |
| C-B | 140 | 35 | 0.00 | 663 | 0.211 | 140 | 0.3 | 0.3 | 6.879 | A |
| A-B | 228 | 57 | 0.00 | | | 228 | | | | |
| A-C | 473 | 118 | 0.00 | | | 473 | | | | |

### 17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 315 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 939 | 235 | 0.00 | | | 939 | | | | |
| C-B | 114 | 29 | 0.00 | 699 | 0.163 | 114 | 0.3 | 0.2 | 6.159 | A |
| A-B | 186 | 47 | 0.00 | | | 186 | | | | |
| A-C | 387 | 97 | 0.00 | | | 387 | | | | |

### 17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 348 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 787 | 197 | 0.00 | | | 787 | | | | |
| C-B | 96 | 24 | 0.00 | 725 | 0.132 | 96 | 0.2 | 0.2 | 5.722 | A |
| A-B | 156 | 39 | 0.00 | | | 156 | | | | |
| A-C | 324 | 81 | 0.00 | | | 324 | | | | |

## Queue Variation Results for each time segment

### 16:15 - 16:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.15 | 0.00 | 0.00 | 0.15 | 0.15 | | | N/A | N/A |

### 16:30 - 16:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.19 | 0.00 | 0.00 | 0.19 | 0.19 | | | N/A | N/A |

### 16:45 - 17:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.26 | 0.03 | 0.25 | 0.46 | 0.48 | | | N/A | N/A |

### 17:00 - 17:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.27 | 0.03 | 0.30 | 0.89 | 1.22 | | | N/A | N/A |

### 17:15 - 17:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.20 | 0.00 | 0.00 | 0.20 | 0.20 | | | N/A | N/A |

### 17:30 - 17:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.15 | 0.00 | 0.00 | 0.15 | 0.15 | | | N/A | N/A |

# Existing Layout - 2028 | Base Flows | AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Exit Only | Two-way | | 3.68 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 3.68 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D3 | 2028 | Base Flows | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 1085 | 100.000 |
| B | | ONE HOUR | ✓ | 0 | 100.000 |
| C | | ONE HOUR | ✓ | 939 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 534 | 551 |
| | B | 0 | 0 | 0 |
| | C | 607 | 332 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.0 | ~1 | A | 0 | 0 |
| C-A | | | | | | 557 | 835 |
| C-B | 0.70 | 22.44 | 2.2 | 10.6 | C | 305 | 457 |
| A-B | | | | | | 490 | 735 |
| A-C | | | | | | 506 | 758 |

## Main Results for each time segment

### 07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 310 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 457 | 114 | 0.00 | | | 457 | | | | |
| C-B | 250 | 62 | 0.00 | 631 | 0.396 | 247 | 0.0 | 0.6 | 9.330 | A |
| A-B | 402 | 101 | 0.00 | | | 402 | | | | |
| A-C | 415 | 104 | 0.00 | | | 415 | | | | |

### 08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 268 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 546 | 136 | 0.00 | | | 546 | | | | |
| C-B | 298 | 75 | 0.00 | 586 | 0.509 | 297 | 0.6 | 1.0 | 12.379 | B |
| A-B | 480 | 120 | 0.00 | | | 480 | | | | |
| A-C | 495 | 124 | 0.00 | | | 495 | | | | |

### 08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 204 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 668 | 167 | 0.00 | | | 668 | | | | |
| C-B | 366 | 91 | 0.00 | 525 | 0.696 | 361 | 1.0 | 2.1 | 21.401 | C |
| A-B | 588 | 147 | 0.00 | | | 588 | | | | |
| A-C | 607 | 152 | 0.00 | | | 607 | | | | |

### 08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 203 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 668 | 167 | 0.00 | | | 668 | | | | |
| C-B | 366 | 91 | 0.00 | 525 | 0.696 | 365 | 2.1 | 2.2 | 22.438 | C |
| A-B | 588 | 147 | 0.00 | | | 588 | | | | |
| A-C | 607 | 152 | 0.00 | | | 607 | | | | |

### 08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 266 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 546 | 136 | 0.00 | | | 546 | | | | |
| C-B | 298 | 75 | 0.00 | 586 | 0.509 | 303 | 2.2 | 1.1 | 12.905 | B |
| A-B | 480 | 120 | 0.00 | | | 480 | | | | |
| A-C | 495 | 124 | 0.00 | | | 495 | | | | |

### 09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 309 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 457 | 114 | 0.00 | | | 457 | | | | |
| C-B | 250 | 62 | 0.00 | 631 | 0.396 | 252 | 1.1 | 0.7 | 9.535 | A |
| A-B | 402 | 101 | 0.00 | | | 402 | | | | |
| A-C | 415 | 104 | 0.00 | | | 415 | | | | |

## Queue Variation Results for each time segment

### 07:45 - 08:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.65 | 0.55 | 1.00 | 1.40 | 1.45 | | | N/A | N/A |

### 08:00 - 08:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 1.01 | 0.09 | 0.94 | 1.65 | 1.96 | | | N/A | N/A |

### 08:15 - 08:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 2.13 | 0.03 | 0.31 | 3.08 | 10.62 | | | N/A | N/A |

### 08:30 - 08:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 2.21 | 0.03 | 0.29 | 2.21 | 9.05 | | | N/A | N/A |

### 08:45 - 09:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 1.07 | 0.05 | 0.52 | 2.41 | 3.55 | | | N/A | N/A |

### 09:00 - 09:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.67 | 0.04 | 0.36 | 1.54 | 2.59 | | | N/A | N/A |

# Existing Layout - 2028 | Base Flows | PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Exit Only | Two-way | | 0.48 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.48 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D4 | 2028 | Base Flows | PM | ONE HOUR | 16:15 | 17:45 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 696 | 100.000 |
| B | | ONE HOUR | ✓ | 0 | 100.000 |
| C | | ONE HOUR | ✓ | 1294 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 230 | 466 |
| | B | 0 | 0 | 0 |
| | C | 1161 | 133 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.0 | ~1 | A | 0 | 0 |
| C-A | | | | | | 1065 | 1598 |
| C-B | 0.23 | 7.22 | 0.3 | 1.3 | A | 122 | 183 |
| A-B | | | | | | 211 | 317 |
| A-C | | | | | | 428 | 641 |

## Main Results for each time segment

### 16:15 - 16:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 333 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 874 | 219 | 0.00 | | | 874 | | | | |
| C-B | 100 | 25 | 0.00 | 713 | 0.140 | 99 | 0.0 | 0.2 | 5.864 | A |
| A-B | 173 | 43 | 0.00 | | | 173 | | | | |
| A-C | 351 | 88 | 0.00 | | | 351 | | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 295 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1044 | 261 | 0.00 | | | 1044 | | | | |
| C-B | 120 | 30 | 0.00 | 684 | 0.175 | 119 | 0.2 | 0.2 | 6.371 | A |
| A-B | 207 | 52 | 0.00 | | | 207 | | | | |
| A-C | 419 | 105 | 0.00 | | | 419 | | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 240 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1278 | 320 | 0.00 | | | 1278 | | | | |
| C-B | 146 | 37 | 0.00 | 645 | 0.227 | 146 | 0.2 | 0.3 | 7.213 | A |
| A-B | 253 | 63 | 0.00 | | | 253 | | | | |
| A-C | 513 | 128 | 0.00 | | | 513 | | | | |

### 17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 240 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1278 | 320 | 0.00 | | | 1278 | | | | |
| C-B | 146 | 37 | 0.00 | 645 | 0.227 | 146 | 0.3 | 0.3 | 7.221 | A |
| A-B | 253 | 63 | 0.00 | | | 253 | | | | |
| A-C | 513 | 128 | 0.00 | | | 513 | | | | |

### 17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 295 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1044 | 261 | 0.00 | | | 1044 | | | | |
| C-B | 120 | 30 | 0.00 | 684 | 0.175 | 120 | 0.3 | 0.2 | 6.384 | A |
| A-B | 207 | 52 | 0.00 | | | 207 | | | | |
| A-C | 419 | 105 | 0.00 | | | 419 | | | | |

### 17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 332 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 874 | 219 | 0.00 | | | 874 | | | | |
| C-B | 100 | 25 | 0.00 | 713 | 0.140 | 100 | 0.2 | 0.2 | 5.881 | A |
| A-B | 173 | 43 | 0.00 | | | 173 | | | | |
| A-C | 351 | 88 | 0.00 | | | 351 | | | | |

## Queue Variation Results for each time segment

### 16:15 - 16:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.16 | 0.00 | 0.00 | 0.16 | 0.16 | | | N/A | N/A |

### 16:30 - 16:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.21 | 0.00 | 0.00 | 0.21 | 0.21 | | | N/A | N/A |

### 16:45 - 17:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.29 | 0.03 | 0.25 | 0.46 | 0.48 | | | N/A | N/A |

### 17:00 - 17:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.29 | 0.03 | 0.31 | 1.02 | 1.31 | | | N/A | N/A |

### 17:15 - 17:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.21 | 0.00 | 0.00 | 0.21 | 0.21 | | | N/A | N/A |

### 17:30 - 17:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.16 | 0.00 | 0.00 | 0.16 | 0.16 | | | N/A | N/A |

# Existing Layout - 2033 | Base Flows | AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Exit Only | Two-way | | 4.68 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 4.68 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D5 | 2033 | Base Flows | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 1137 | 100.000 |
| B | | ONE HOUR | ✓ | 0 | 100.000 |
| C | | ONE HOUR | ✓ | 985 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 560 | 577 |
| | B | 0 | 0 | 0 |
| | C | 636 | 349 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.0 | ~1 | A | 0 | 0 |
| C-A | | | | | | 584 | 875 |
| C-B | 0.76 | 28.43 | 2.9 | 14.8 | D | 320 | 480 |
| A-B | | | | | | 514 | 771 |
| A-C | | | | | | 529 | 794 |

## Main Results for each time segment

### 07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 300 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 479 | 120 | 0.00 | | | 479 | | | | |
| C-B | 263 | 66 | 0.00 | 620 | 0.424 | 260 | 0.0 | 0.7 | 9.911 | A |
| A-B | 422 | 105 | 0.00 | | | 422 | | | | |
| A-C | 434 | 109 | 0.00 | | | 434 | | | | |

### 08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 255 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 572 | 143 | 0.00 | | | 572 | | | | |
| C-B | 314 | 78 | 0.00 | 573 | 0.547 | 312 | 0.7 | 1.2 | 13.682 | B |
| A-B | 503 | 126 | 0.00 | | | 503 | | | | |
| A-C | 519 | 130 | 0.00 | | | 519 | | | | |

### 08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 186 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 700 | 175 | 0.00 | | | 700 | | | | |
| C-B | 384 | 96 | 0.00 | 509 | 0.755 | 378 | 1.2 | 2.8 | 26.291 | D |
| A-B | 617 | 154 | 0.00 | | | 617 | | | | |
| A-C | 635 | 159 | 0.00 | | | 635 | | | | |

### 08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 184 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 700 | 175 | 0.00 | | | 700 | | | | |
| C-B | 384 | 96 | 0.00 | 509 | 0.755 | 384 | 2.8 | 2.9 | 28.433 | D |
| A-B | 617 | 154 | 0.00 | | | 617 | | | | |
| A-C | 635 | 159 | 0.00 | | | 635 | | | | |

### 08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 252 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 572 | 143 | 0.00 | | | 572 | | | | |
| C-B | 314 | 78 | 0.00 | 573 | 0.547 | 320 | 2.9 | 1.2 | 14.589 | B |
| A-B | 503 | 126 | 0.00 | | | 503 | | | | |
| A-C | 519 | 130 | 0.00 | | | 519 | | | | |

### 09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 299 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 479 | 120 | 0.00 | | | 479 | | | | |
| C-B | 263 | 66 | 0.00 | 620 | 0.424 | 265 | 1.2 | 0.7 | 10.196 | B |
| A-B | 422 | 105 | 0.00 | | | 422 | | | | |
| A-C | 434 | 109 | 0.00 | | | 434 | | | | |

## Queue Variation Results for each time segment

### 07:45 - 08:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.72 | 0.55 | 1.00 | 1.40 | 1.45 | | | N/A | N/A |

### 08:00 - 08:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 1.17 | 0.08 | 0.97 | 2.09 | 2.84 | | | N/A | N/A |

### 08:15 - 08:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 2.76 | 0.03 | 0.34 | 6.20 | 14.81 | | | N/A | N/A |

### 08:30 - 08:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 2.91 | 0.03 | 0.31 | 3.56 | 13.87 | | | N/A | N/A |

### 08:45 - 09:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 1.25 | 0.04 | 0.45 | 3.10 | 4.93 | | | N/A | N/A |

### 09:00 - 09:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.75 | 0.03 | 0.34 | 1.74 | 3.41 | | | N/A | N/A |

# Existing Layout - 2033 | Base Flows | PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Exit Only | Two-way | | 0.50 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.50 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D6 | 2033 | Base Flows | PM | ONE HOUR | 16:15 | 17:45 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 728 | 100.000 |
| B | | ONE HOUR | ✓ | 0 | 100.000 |
| C | | ONE HOUR | ✓ | 1355 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 240 | 488 |
| | B | 0 | 0 | 0 |
| | C | 1216 | 139 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.0 | ~1 | A | 0 | 0 |
| C-A | | | | | | 1116 | 1674 |
| C-B | 0.24 | 7.47 | 0.3 | 1.4 | A | 128 | 191 |
| A-B | | | | | | 220 | 330 |
| A-C | | | | | | 448 | 672 |

## Main Results for each time segment

### 16:15 - 16:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 324 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 915 | 229 | 0.00 | | | 915 | | | | |
| C-B | 105 | 26 | 0.00 | 706 | 0.148 | 104 | 0.0 | 0.2 | 5.974 | A |
| A-B | 181 | 45 | 0.00 | | | 181 | | | | |
| A-C | 367 | 92 | 0.00 | | | 367 | | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 284 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1093 | 273 | 0.00 | | | 1093 | | | | |
| C-B | 125 | 31 | 0.00 | 676 | 0.185 | 125 | 0.2 | 0.2 | 6.528 | A |
| A-B | 216 | 54 | 0.00 | | | 216 | | | | |
| A-C | 439 | 110 | 0.00 | | | 439 | | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 225 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1339 | 335 | 0.00 | | | 1339 | | | | |
| C-B | 153 | 38 | 0.00 | 635 | 0.241 | 153 | 0.2 | 0.3 | 7.459 | A |
| A-B | 264 | 66 | 0.00 | | | 264 | | | | |
| A-C | 537 | 134 | 0.00 | | | 537 | | | | |

### 17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 225 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1339 | 335 | 0.00 | | | 1339 | | | | |
| C-B | 153 | 38 | 0.00 | 635 | 0.241 | 153 | 0.3 | 0.3 | 7.468 | A |
| A-B | 264 | 66 | 0.00 | | | 264 | | | | |
| A-C | 537 | 134 | 0.00 | | | 537 | | | | |

### 17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 284 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1093 | 273 | 0.00 | | | 1093 | | | | |
| C-B | 125 | 31 | 0.00 | 676 | 0.185 | 125 | 0.3 | 0.2 | 6.540 | A |
| A-B | 216 | 54 | 0.00 | | | 216 | | | | |
| A-C | 439 | 110 | 0.00 | | | 439 | | | | |

### 17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 324 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 915 | 229 | 0.00 | | | 915 | | | | |
| C-B | 105 | 26 | 0.00 | 706 | 0.148 | 105 | 0.2 | 0.2 | 5.990 | A |
| A-B | 181 | 45 | 0.00 | | | 181 | | | | |
| A-C | 367 | 92 | 0.00 | | | 367 | | | | |

## Queue Variation Results for each time segment

### 16:15 - 16:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.17 | 0.00 | 0.00 | 0.17 | 0.17 | | | N/A | N/A |

### 16:30 - 16:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.22 | 0.00 | 0.00 | 0.22 | 0.22 | | | N/A | N/A |

### 16:45 - 17:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.31 | 0.03 | 0.25 | 0.46 | 0.48 | | | N/A | N/A |

### 17:00 - 17:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.32 | 0.03 | 0.31 | 1.10 | 1.40 | | | N/A | N/A |

### 17:15 - 17:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.23 | 0.00 | 0.00 | 0.23 | 0.23 | | | N/A | N/A |

### 17:30 - 17:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.18 | 0.00 | 0.00 | 0.18 | 0.18 | | | N/A | N/A |

# Existing Layout - 2028 | With Dev Flows | AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Exit Only | Two-way | | 6.23 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 6.23 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D7 | 2028 | With Dev Flows | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 1093 | 100.000 |
| B | | ONE HOUR | ✓ | 0 | 100.000 |
| C | | ONE HOUR | ✓ | 1003 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 534 | 559 |
| | B | 0 | 0 | 0 |
| | C | 621 | 382 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.0 | ~1 | A | 0 | 0 |
| C-A | | | | | | 570 | 855 |
| C-B | 0.81 | 34.20 | 3.8 | 19.9 | D | 351 | 526 |
| A-B | | | | | | 490 | 735 |
| A-C | | | | | | 513 | 769 |

## Main Results for each time segment

### 07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 300 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 468 | 117 | 0.00 | | | 468 | | | | |
| C-B | 288 | 72 | 0.00 | 629 | 0.457 | 284 | 0.0 | 0.8 | 10.347 | B |
| A-B | 402 | 101 | 0.00 | | | 402 | | | | |
| A-C | 421 | 105 | 0.00 | | | 421 | | | | |

### 08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 254 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 558 | 140 | 0.00 | | | 558 | | | | |
| C-B | 343 | 86 | 0.00 | 584 | 0.588 | 341 | 0.8 | 1.4 | 14.676 | B |
| A-B | 480 | 120 | 0.00 | | | 480 | | | | |
| A-C | 503 | 126 | 0.00 | | | 503 | | | | |

### 08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 184 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 684 | 171 | 0.00 | | | 684 | | | | |
| C-B | 421 | 105 | 0.00 | 522 | 0.805 | 412 | 1.4 | 3.5 | 30.460 | D |
| A-B | 588 | 147 | 0.00 | | | 588 | | | | |
| A-C | 615 | 154 | 0.00 | | | 615 | | | | |

### 08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 182 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 684 | 171 | 0.00 | | | 684 | | | | |
| C-B | 421 | 105 | 0.00 | 522 | 0.805 | 420 | 3.5 | 3.8 | 34.196 | D |
| A-B | 588 | 147 | 0.00 | | | 588 | | | | |
| A-C | 615 | 154 | 0.00 | | | 615 | | | | |

### 08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 251 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 558 | 140 | 0.00 | | | 558 | | | | |
| C-B | 343 | 86 | 0.00 | 584 | 0.588 | 353 | 3.8 | 1.5 | 16.106 | C |
| A-B | 480 | 120 | 0.00 | | | 480 | | | | |
| A-C | 503 | 126 | 0.00 | | | 503 | | | | |

### 09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 298 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 468 | 117 | 0.00 | | | 468 | | | | |
| C-B | 288 | 72 | 0.00 | 629 | 0.457 | 290 | 1.5 | 0.9 | 10.698 | B |
| A-B | 402 | 101 | 0.00 | | | 402 | | | | |
| A-C | 421 | 105 | 0.00 | | | 421 | | | | |

## Queue Variation Results for each time segment

### 07:45 - 08:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.82 | 0.55 | 1.00 | 1.40 | 1.45 | | | N/A | N/A |

### 08:00 - 08:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 1.37 | 0.08 | 1.00 | 2.82 | 3.85 | | | N/A | N/A |

### 08:15 - 08:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 3.53 | 0.04 | 0.39 | 9.38 | 18.66 | | | N/A | N/A |

### 08:30 - 08:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 3.78 | 0.03 | 0.33 | 6.75 | 19.90 | | | N/A | N/A |

### 08:45 - 09:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 1.48 | 0.04 | 0.42 | 3.88 | 6.55 | | | N/A | N/A |

### 09:00 - 09:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.86 | 0.03 | 0.32 | 1.85 | 4.20 | | | N/A | N/A |

# Existing Layout - 2028 | With Dev Flows | PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Exit Only | Two-way | | 0.59 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.59 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D8 | 2028 | With Dev Flows | PM | ONE HOUR | 16:15 | 17:45 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 709 | 100.000 |
| B | | ONE HOUR | ✓ | 0 | 100.000 |
| C | | ONE HOUR | ✓ | 1326 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 230 | 479 |
| | B | 0 | 0 | 0 |
| | C | 1169 | 157 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.0 | ~1 | A | 0 | 0 |
| C-A | | | | | | 1073 | 1609 |
| C-B | 0.27 | 7.69 | 0.4 | 1.3 | A | 144 | 216 |
| A-B | | | | | | 211 | 317 |
| A-C | | | | | | 440 | 659 |

## Main Results for each time segment

### 16:15 - 16:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 326 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 880 | 220 | 0.00 | | | 880 | | | | |
| C-B | 118 | 30 | 0.00 | 710 | 0.166 | 117 | 0.0 | 0.2 | 6.068 | A |
| A-B | 173 | 43 | 0.00 | | | 173 | | | | |
| A-C | 361 | 90 | 0.00 | | | 361 | | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 287 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1051 | 263 | 0.00 | | | 1051 | | | | |
| C-B | 141 | 35 | 0.00 | 681 | 0.207 | 141 | 0.2 | 0.3 | 6.662 | A |
| A-B | 207 | 52 | 0.00 | | | 207 | | | | |
| A-C | 431 | 108 | 0.00 | | | 431 | | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 229 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1287 | 322 | 0.00 | | | 1287 | | | | |
| C-B | 173 | 43 | 0.00 | 641 | 0.270 | 172 | 0.3 | 0.4 | 7.678 | A |
| A-B | 253 | 63 | 0.00 | | | 253 | | | | |
| A-C | 527 | 132 | 0.00 | | | 527 | | | | |

### 17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 229 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1287 | 322 | 0.00 | | | 1287 | | | | |
| C-B | 173 | 43 | 0.00 | 641 | 0.270 | 173 | 0.4 | 0.4 | 7.692 | A |
| A-B | 253 | 63 | 0.00 | | | 253 | | | | |
| A-C | 527 | 132 | 0.00 | | | 527 | | | | |

### 17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 287 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1051 | 263 | 0.00 | | | 1051 | | | | |
| C-B | 141 | 35 | 0.00 | 681 | 0.207 | 142 | 0.4 | 0.3 | 6.680 | A |
| A-B | 207 | 52 | 0.00 | | | 207 | | | | |
| A-C | 431 | 108 | 0.00 | | | 431 | | | | |

### 17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 326 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 880 | 220 | 0.00 | | | 880 | | | | |
| C-B | 118 | 30 | 0.00 | 710 | 0.166 | 118 | 0.3 | 0.2 | 6.087 | A |
| A-B | 173 | 43 | 0.00 | | | 173 | | | | |
| A-C | 361 | 90 | 0.00 | | | 361 | | | | |

## Queue Variation Results for each time segment

### 16:15 - 16:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.20 | 0.00 | 0.00 | 0.20 | 0.20 | | | N/A | N/A |

### 16:30 - 16:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.26 | 0.00 | 0.00 | 0.26 | 0.26 | | | N/A | N/A |

### 16:45 - 17:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.37 | 0.03 | 0.25 | 0.46 | 0.48 | | | N/A | N/A |

### 17:00 - 17:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.37 | 0.03 | 0.32 | 1.24 | 1.28 | | | N/A | N/A |

### 17:15 - 17:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.26 | 0.00 | 0.00 | 0.26 | 0.26 | | | N/A | N/A |

### 17:30 - 17:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.20 | 0.00 | 0.00 | 0.20 | 0.20 | | | N/A | N/A |

# Existing Layout - 2033 | With Dev Flows | AM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Exit Only | Two-way | | 8.81 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 8.81 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D9 | 2033 | With Dev Flows | AM | ONE HOUR | 07:45 | 09:15 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 1145 | 100.000 |
| B | | ONE HOUR | ✓ | 0 | 100.000 |
| C | | ONE HOUR | ✓ | 1049 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 560 | 585 |
| | B | 0 | 0 | 0 |
| | C | 650 | 399 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.0 | ~1 | A | 0 | 0 |
| C-A | | | | | | 596 | 895 |
| C-B | 0.87 | 48.44 | 5.5 | 29.8 | E | 366 | 549 |
| A-B | | | | | | 514 | 771 |
| A-C | | | | | | 537 | 805 |

## Main Results for each time segment

### 07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 289 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 489 | 122 | 0.00 | | | 489 | | | | |
| C-B | 300 | 75 | 0.00 | 618 | 0.486 | 297 | 0.0 | 0.9 | 11.082 | B |
| A-B | 422 | 105 | 0.00 | | | 422 | | | | |
| A-C | 440 | 110 | 0.00 | | | 440 | | | | |

### 08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 240 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 584 | 146 | 0.00 | | | 584 | | | | |
| C-B | 359 | 90 | 0.00 | 571 | 0.628 | 356 | 0.9 | 1.6 | 16.510 | C |
| A-B | 503 | 126 | 0.00 | | | 503 | | | | |
| A-C | 526 | 131 | 0.00 | | | 526 | | | | |

### 08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 165 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 716 | 179 | 0.00 | | | 716 | | | | |
| C-B | 439 | 110 | 0.00 | 506 | 0.868 | 426 | 1.6 | 4.9 | 39.654 | E |
| A-B | 617 | 154 | 0.00 | | | 617 | | | | |
| A-C | 644 | 161 | 0.00 | | | 644 | | | | |

### 08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 161 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 716 | 179 | 0.00 | | | 716 | | | | |
| C-B | 439 | 110 | 0.00 | 506 | 0.868 | 437 | 4.9 | 5.5 | 48.438 | E |
| A-B | 617 | 154 | 0.00 | | | 617 | | | | |
| A-C | 644 | 161 | 0.00 | | | 644 | | | | |

### 08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 235 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 584 | 146 | 0.00 | | | 584 | | | | |
| C-B | 359 | 90 | 0.00 | 571 | 0.628 | 374 | 5.5 | 1.8 | 19.449 | C |
| A-B | 503 | 126 | 0.00 | | | 503 | | | | |
| A-C | 526 | 131 | 0.00 | | | 526 | | | | |

### 09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 288 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 489 | 122 | 0.00 | | | 489 | | | | |
| C-B | 300 | 75 | 0.00 | 618 | 0.486 | 304 | 1.8 | 1.0 | 11.561 | B |
| A-B | 422 | 105 | 0.00 | | | 422 | | | | |
| A-C | 440 | 110 | 0.00 | | | 440 | | | | |

## Queue Variation Results for each time segment

### 07:45 - 08:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.92 | 0.55 | 1.00 | 1.40 | 1.45 | | | N/A | N/A |

### 08:00 - 08:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 1.61 | 0.07 | 1.01 | 3.64 | 5.08 | | | N/A | N/A |

### 08:15 - 08:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 4.91 | 0.05 | 0.77 | 14.07 | 23.38 | | | N/A | N/A |

### 08:30 - 08:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 5.51 | 0.04 | 0.40 | 14.38 | 29.82 | | | N/A | N/A |

### 08:45 - 09:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 1.77 | 0.04 | 0.39 | 4.72 | 8.60 | | | N/A | N/A |

### 09:00 - 09:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.97 | 0.03 | 0.31 | 1.67 | 4.83 | | | N/A | N/A |

# Existing Layout - 2033 | With Dev Flows | PM

### Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Queue variations | Analysis Options | Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high. |

## Junction Network

### Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | untitled | T-Junction | Two-way | Exit Only | Two-way | | 0.62 | A |

### Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|---|---|---|---|
| Left | Normal/unknown | 0.62 | A |

## Traffic Demand

### Demand Set Details

| ID | Year | Scenario | Time period | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|---|---|---|---|---|---|---|---|
| D10 | 2033 | With Dev Flows | PM | ONE HOUR | 16:15 | 17:45 | 15 | ✓ |

### Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|---|---|---|---|---|---|
| A | | ONE HOUR | ✓ | 741 | 100.000 |
| B | | ONE HOUR | ✓ | 0 | 100.000 |
| C | | ONE HOUR | ✓ | 1387 | 100.000 |

## Origin-Destination Data

### Demand (PCU/hr)

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 240 | 501 |
| | B | 0 | 0 | 0 |
| | C | 1223 | 164 | 0 |

## Vehicle Mix

| HV data entry mode | PCU Factor for a HV (PCU) |
|---|---|
| HV Percentages | 2.00 |

### Heavy Vehicle %

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) |
|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.0 | ~1 | A | 0 | 0 |
| C-A | | | | | | 1122 | 1683 |
| C-B | 0.29 | 7.99 | 0.4 | 1.6 | A | 150 | 226 |
| A-B | | | | | | 220 | 330 |
| A-C | | | | | | 460 | 690 |

## Main Results for each time segment

### 16:15 - 16:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 317 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 921 | 230 | 0.00 | | | 921 | | | | |
| C-B | 123 | 31 | 0.00 | 703 | 0.176 | 123 | 0.0 | 0.2 | 6.191 | A |
| A-B | 181 | 45 | 0.00 | | | 181 | | | | |
| A-C | 377 | 94 | 0.00 | | | 377 | | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 276 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1099 | 275 | 0.00 | | | 1099 | | | | |
| C-B | 147 | 37 | 0.00 | 673 | 0.219 | 147 | 0.2 | 0.3 | 6.844 | A |
| A-B | 216 | 54 | 0.00 | | | 216 | | | | |
| A-C | 450 | 113 | 0.00 | | | 450 | | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 213 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1347 | 337 | 0.00 | | | 1347 | | | | |
| C-B | 181 | 45 | 0.00 | 631 | 0.286 | 180 | 0.3 | 0.4 | 7.976 | A |
| A-B | 264 | 66 | 0.00 | | | 264 | | | | |
| A-C | 552 | 138 | 0.00 | | | 552 | | | | |

### 17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 213 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1347 | 337 | 0.00 | | | 1347 | | | | |
| C-B | 181 | 45 | 0.00 | 631 | 0.286 | 181 | 0.4 | 0.4 | 7.992 | A |
| A-B | 264 | 66 | 0.00 | | | 264 | | | | |
| A-C | 552 | 138 | 0.00 | | | 552 | | | | |

### 17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 276 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 1099 | 275 | 0.00 | | | 1099 | | | | |
| C-B | 147 | 37 | 0.00 | 673 | 0.219 | 148 | 0.4 | 0.3 | 6.861 | A |
| A-B | 216 | 54 | 0.00 | | | 216 | | | | |
| A-C | 450 | 113 | 0.00 | | | 450 | | | | |

### 17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Pedestrian demand (Ped/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | Start queue (PCU) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0 | 0 | 0.00 | 317 | 0.000 | 0 | 0.0 | 0.0 | 0.000 | A |
| C-A | 921 | 230 | 0.00 | | | 921 | | | | |
| C-B | 123 | 31 | 0.00 | 703 | 0.176 | 124 | 0.3 | 0.2 | 6.216 | A |
| A-B | 181 | 45 | 0.00 | | | 181 | | | | |
| A-C | 377 | 94 | 0.00 | | | 377 | | | | |

## Queue Variation Results for each time segment

### 16:15 - 16:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.21 | 0.00 | 0.00 | 0.21 | 0.21 | | | N/A | N/A |

### 16:30 - 16:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.28 | 0.00 | 0.00 | 0.28 | 0.28 | | | N/A | N/A |

### 16:45 - 17:00

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.40 | 0.03 | 0.25 | 0.46 | 0.48 | | | N/A | N/A |

### 17:00 - 17:15

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.40 | 0.03 | 0.31 | 1.29 | 1.56 | | | N/A | N/A |

### 17:15 - 17:30

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.28 | 0.00 | 0.00 | 0.28 | 0.28 | | | N/A | N/A |

### 17:30 - 17:45

| Stream | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile message | Marker message | Probability of reaching or exceeding marker | Probability of exactly reaching marker |
|---|---|---|---|---|---|---|---|---|---|
| B-AC | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | N/A | N/A |
| C-B | 0.21 | 0.00 | 0.00 | 0.21 | 0.21 | | | N/A | N/A |

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# APPENDIX 7 – AIR QUALITY ASSESSMENT (ENZYGO)

enzygo
environmental consultants



# Air Quality Assessment

## Land to the East of Walmersley Road, Bury

**Hollins Strategic Land LLP**

MAN.1671.012.AQ.R.001.P03

'Experience and expertise working in union'

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# Air Quality Assessment

| | |
|---|---|
| Project: | Land to the East of Walmersley Road, Bury |
| For: | Hollins Strategic Land LLP |
| Reference: | MAN.1671.012.AQ.R.001.P03 |
| Status: | 3rd Draft |
| Date: | March 2026 |
| Author: | Kel Sullivan BSc (Hons) – Graduate Air Quality Consultant |
| Reviewer: | Conal Kearney BEng (Hons) MSc MIAQM MIEnvSc - Director of Air Quality |

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# Non-Technical Summary

i. This report assesses air quality impacts and pollutant exposure associated with the proposed mixed-use development on Land to the East of Walmersley Road, Bury.

ii. The development has potential to cause impacts at nearby sensitive locations during the construction and operational phases. Impacts could arise due to fugitive dust emissions generated by construction phase activities and road traffic emissions generated during the operational phase. Local emission sources also have potential to introduce future site occupiers to poor air quality.

iii. Construction phase dust impacts were assessed in accordance industry standard guidance to determine risk and identify necessary dust control measures. The implementation of recommend best practice control measures during construction would ensure that residual impacts are not significant.

iv. On-site pollutant exposure impacts were assessed using dispersion modelling with results compared against national air quality standards to determine site suitability. The results indicated that pollutant concentrations across the site are acceptable at all proposed sensitive locations. Further mitigation to protect future residents during occupation is not required.

v. Operational road traffic impacts were modelled with and without the development in place, and results were assessed against industry standard criteria to determine the overall significance of operational phase impacts. The results indicated that operational impacts were defined as negligible at all modelled sensitive locations and impacts are not significant.

vi. In summary, it is considered that air quality impacts generated by the Proposed Development are not significant and should not form a constraint to planning permission.

# 1.0 Introduction

## 1.1 Background

1.1.1 Enzygo Limited (Ltd) was commissioned by Hollins Strategic Land LLP to produce an Air Quality Assessment (AQA) in support of a planning application for a mixed-use development on Land to the East of Walmersley Brook, Walmersley Road, Bury. Hereafter referred to as the 'Proposed Development'.

1.1.2 An application for outline permission with all matters reserved other than access for mixed use development for up to 350 dwellings (Use Class C3), up to 2,500 sq mts employment/commercial uses (Use Classes E(c), E(d), E(e), E(f), E(g)(ii) and E(g)(iii)), a local centre comprising up to 249 square metres of retail floorspace (Use Class E(a)), mobility hub, public open space and associated infrastructure.

1.1.3 Emissions associated with construction activities and traffic generated during operation have potential to cause impacts at sensitive locations within the vicinity of the site. Additionally, existing pollutant emissions associated with the A56 (Walmersley Road) and M66 may introduce future residential occupiers to an area of poor air quality.

1.1.4 An AQA has been undertake determine baseline conditions at the site, assess site suitability for the proposed end-use and assess the potential impacts as a result of the Proposed Development. The assessment was undertaken in accordance with the requirements of the National Planning Policy Framework (NPPF), Greater Manchester Combined Authority (GMCA) and Bury Metropolitan Borough Council (BMBC).

1.1.5 Details of the assessment methodology, assessment inputs, results and conclusions are detailed within this report.

## 1.2 Site Location and Context

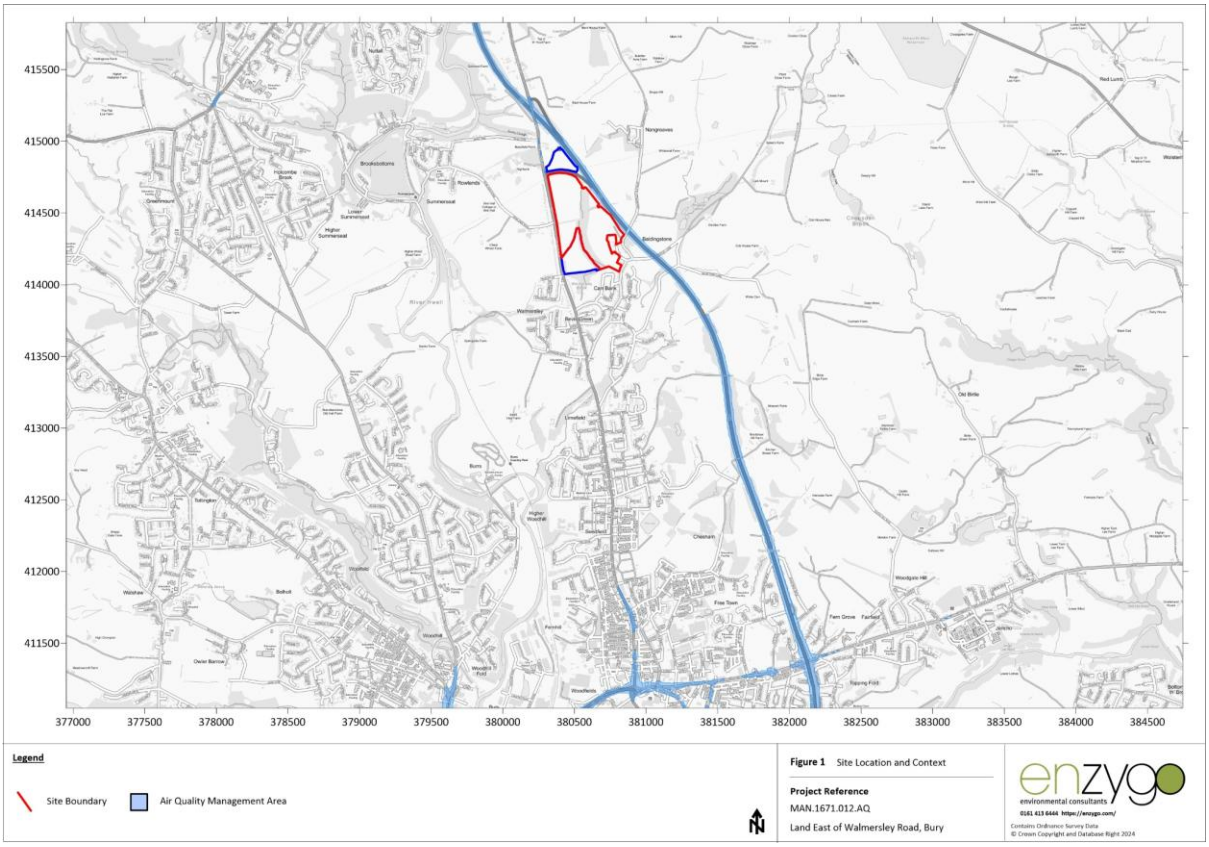
1.2.1 The Proposed Development site is located at the approximate National Grid Reference (NGR): 380510, 414460, approximately 3 km north of the centre of Bury.

1.2.2 The northern and eastern boundaries of the site adjoin the M66, while the western boundary lies adjacent to the A56 (Walmersley Road). Residential properties are located along Walmersley Old Road which adjoin the southern boundary, further dwellings situated to the west off the A56.

1.2.3 A desktop review identified one Air Quality Management Area (AQMA) in close proximity to the site, covering the M66 and key arterial routes within Bury Town Centre. No ecological designations were identified within the immediate surroundings.

1.2.4 Figure 1 below shows a map of the site boundary and surrounding context.

**Figure 1: Site Location and Surrounding Context**



# 2.0 Legislation Guidance and Policy

## 2.1 Introduction

2.1.1 The following legislation, guidance and policy were considered during the AQA:

- European Union (EU) Directive 2008/50/EC;
- The National Planning Policy Framework (NPPF), updated on 7th February 2025;
- The National Planning Practice Guidance (NPPG), relevant chapters produced on 1st November 2019;
- Section 82 of the Environment Act (1995) (Part IV);
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Department for Environment, Food and Rural Affairs (DEFRA), 2023[1];
- The Air Quality Standards (Amendment) Regulations (2016);
- Local Air Quality Management Technical Guidance (2022)[2];
- Guidance on the Assessment of Dust from Demolition and Construction, Institute of Air Quality Management (IAQM), January 2024[3]; and
- Land-Use Planning and Development Control: Planning for Air Quality Guidance, Environmental Protection UK and IAQM, January 2017[4].

## 2.2 UK Legislation and National Strategy

2.2.1 Part IV of the Environment Act the Secretary of State to publish a national Air Quality Strategy (AQS). The national AQS[1] produced by the Department for Environment, Food and Rural Affairs (DEFRA) sets out the framework to reducing adverse impacts of air pollution upon human health, vegetation, and ecosystems. To achieve this the AQS defines air quality objectives (AQOs) for 10 key pollutant species, including nitrogen dioxide ($NO_2$), fine particulate matter ($PM_{10}$ and $PM_{2.5}$) which are relevant to this assessment.

2.2.2 In accordance with the Environment Act (1995), Local Authorities (LAs) have an obligation to periodically review and assess air quality within their administration to determine if specified pollutants are exceeding relevant objectives. This review involves the assessment of present and likely future air quality and is termed Local Air Quality Management (LAQM).

2.2.3 Should the LAQM process identify areas which are predicted to or currently exceeding relevant AQOs the local authority is required to designate an Air Quality Management Area (AQMA).

2.2.4 AQMAs require an Air Quality Action Plan (AQAP) which sets various measures and polices to improve air quality with the goal of restoring compliance with the AQOs. The process of LAQM is informed by DEFRA's Technical Guidance LAQM.TG22[2].

[1] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, DEFRA, 2023

[2] Local Air Quality Management Technical Guidance 2022 LAQM.TG22, DEFRA, August 2022.

[3] Guidance on the Assessment of Dust from Demolition and Construction Version 2.2, Institute of Air Quality Management, 2024.

[4] Land-Use Planning and Development Control: Planning for Air Quality, EPUK and IAQM, January 2017.

2.2.5 European Directive 2008/50/EC also sets out a similar approach to the AQS and defines limit values for the protection of human health and ecosystems. The Environmental Permitting (England and Wales) (Amendment) (EU Exit) Regulations 2019 ensures that the Environmental Permitting (EP) regime can continue following the UKs exit from the European Union (EU).

2.2.6 The regulations state also that exceedances of the objectives should be assessed in relation to air quality at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present".

2.2.7 The limits values, objectives and target values which are applicable to this assessment are summarised in Table 1 with relation to human health receptors.

**Table 1: National Air Quality Objectives**

| Pollutant | Air Quality Objectives | |
|---|---|---|
| | Concentration (µg/m³) | Averaging Periods |
| $NO_2$ | 40 | Annual mean |
| | 200 | 1-hour mean; not to be exceeded more than 18 times a year |
| $PM_{10}$ | 40 | Annual mean |
| | 50 | 24-hour mean; not to be exceeded more than 35 times a year |
| $PM_{2.5}$ | 20 | Annual mean |

2.2.8 LAQM.TG22[2] specifies locations where the AQOs should be applied as detailed in Table 2.

**Table 2: Where Air Quality Objectives Apply**

| Averaging Period | Objectives Should Apply At | Objectives Should Not Apply At |
|---|---|---|
| Annual mean | All locations where members of the public might be regularly exposed.<br>Building façades of residential properties, schools, hospitals, care homes etc. | Building facades of offices and places of work where members of the public do not have regular access<br>Hotels, unless people live there as their permanent residence<br>Gardens of residential properties<br>Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term |
| 24-hour mean | As above together with hotels, and gardens of residential properties | Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term |
| 1-hour mean | As above, and kerbside sites (for example, pavements of busy shopping streets)<br>Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more<br>Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer | Kerbside sites where the public would not be expected to have regular access |

## 2.3 Local Planning Policy

2.3.1 The Bury Core Strategy[5] was adopted in July 2013 and is one of the key tools to realise the vision of the Community Strategy. It is the central document within the Council's emerging Local Plan and sets out the vision, objectives, and spatial planning strategy for the borough up until 2029. Policies relevant to air quality are detailed below.

*Policy EN18 – Pollution Control*

*"The Council will seek to prevent both new and existing development from contributing to or being adversely affected by unacceptable levels of pollution either individually or cumulatively with other existing or proposed developments. In assessing the potential impact of pollution, the Council will have particular regard to:*

*a) human health and amenity;*

*b) existing levels of pollution;*

*c) the sensitivity of natural resources and/or uses that may be affected; and*

*d) any relevant strategies and targets for pollution control and reduction.*

*Where new development gives rise to the potential for unacceptable adverse impacts from pollution, the Council will require applicants to submit a Pollution Assessment which includes proposed mitigation measures. Where necessary, the Council will impose planning condition and/or obligations to ensure that the impacts of pollution are being effectively monitored and that proposed mitigation measures are being effectively implemented."*

*Policy CP2 - Delivering High Standards of Design and Layout in New Development*

*"The Council is keen to ensure that all new development makes a positive contribution to the appearance, function, safety, and amenity of the Borough's built environment and supports wider objectives for sustainable development. In consideration of these factors, the Council will seek to ensure that the design and layout of new development is appropriate to the site and the wider character and townscape of specific areas within the Borough.*

*All new development (including conversions, changes of use and extensions to existing buildings) will be expected to display high standards of design and layout. The following factors will be considered when assessing planning applications:*

*[…]*

*q) the impact on the amenity of adjacent neighbours or wider area by virtue of issues relating to safety, noise, dust, fumes, air and water quality or disturbance"*

### Bury Metropolitan Borough Council – Local Plan

2.3.2 The Bury Local Plan contains strategic and non-strategic planning policies that will manage the growth and development of the Borough up to 2037. When adopted the plan will form part of the Borough's overall development plan and policies contained within this document provide the future basis for planning determination. Policies relevant to air quality are detailed below.

[5] Bury Local Plan Publication Core Strategy, Bury Council, July 2013

*Policy Direction OP4 – Air Quality and Pollution Control*

*"It is proposed that the Local Plan should include a policy that seeks to prevent both new and existing development from contributing to, or being adversely affected by, unacceptable levels of pollution either individually or cumulatively with other existing or proposed developments.*

*It is considered that the policy should also set out the issues that the Council will have regard to when considering the potential impact of development on pollution and what should be required from applicants, including mitigation measures, in the event that a proposal is considered to have the potential to give rise to any impacts on air quality or other forms of pollution."*

*Policy Direction OP8: Amenity*

*"It is proposed that the Local Plan should include a policy that seeks to ensure that all new development does not have an adverse impact on the amenity of new and existing residents in the surrounding area."*

### Places for Everyone Joint Development Plan 2022 – 2039

2.3.3 The Places for Everyone Joint Development Plan[6] was adopted on the 21 March 2024. Places for Everyone is a long-term plan of nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth. This plan sets out how the borough should develop up until 2039. Policies relevant to air quality are detailed below.

*Policy JP-S5: Clean Air*

*"A comprehensive range of measures will be taken to support improvements in air quality, focusing particularly on locations where people live, where children learn and play, where there are impacts on the green infrastructure network and where air quality targets are not being met, including:*

1. *Locating and designing development, and focusing transport investment, so as to reduce reliance on forms of transport that generate air pollution;*
2. *Determining planning applications having regard to the most recent development and planning control guidance published jointly by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), and the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction, or relevant successor guidance, including the requirement for developers to submit construction management plans as appropriate;*
3. *Requiring applications for developments that could have an adverse impact on air quality to submit relevant air pollution data so that adverse impacts on air quality can be fully assessed and development only permitted where they are acceptable and/or suitable mitigation can be provided;*
4. *Restricting developments that would generate significant point source pollution such as some types of industrial activity and energy generation;*
5. *Significantly expanding the existing commercial network of electric vehicle charging points, both for public and private use, including as part of new developments;*
6. *Implementing the Clean Air and associated measures;*

[6] Places for Everyone Joint Development Plan Document For Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan, Greater Manchester Combined Authority, March 2024

7. *Facilitating the more sustainable distribution of goods within the urban area, including through accommodating urban consolidation centres and urban distribution centres that use ultra low-emission vehicles, and local delivery facilities to reduce repeat delivery attempts;*

8. *Designing streets to avoid trapping air pollution at ground level, including through the appropriate location and scale of buildings and trees;*

9. *Controlling traffic and parking within and around schools, early years sites and other locations that are particularly sensitive to air quality;*

10. *Promoting actions that help remove pollutants from the air, such as enhancing the green infrastructure network and using innovative building materials that capture air pollutants; and*

11. *Development should be located in areas that maximise the use of sustainable travel modes and be designed to minimise exposure to high levels of air pollution, particularly for vulnerable users.*

2.3.4 Reference has been made to these policies during the undertaking of this AQA by assessing the impacts of road vehicle exhaust emissions on nearby existing sensitive locations.

# 3.0 Methodology

## 3.1 Scope

3.1.1 Emissions generated by the Proposed Development during construction and operational phases have potential to cause impacts at existing sensitive locations. Additionally, $NO_2$ and fine PM emissions associated with the local road network have potential to introduce future site occupiers to an area of existing poor air quality. These constraints were assessed using the following methodology:

- Baseline Assessment;
- Construction Phase Dust Risk Assessment; and
- Operational Phase Impact Assessment.

## 3.2 Baseline Assessment

3.2.1 Baseline conditions within the assessment extents were determined by a review of the latest Greater Manchester Combined Authority (GMCA) Air Quality Status Report (ASR)[7] and diffusion tube results published on the Clean Air Greater Manchester website [8], and predicted background pollutant concentrations produced by DEFRA[9]. Local emission sources along with the nearby AQMAs were considered to identify potential emission sources in the local area.

## 3.3 Construction Phase Impacts

3.3.1 There is potential for fugitive dust impacts to occur at sensitive locations as a result of demolition, earthworks, construction and trackout activities during the construction phase of the Proposed Development. A qualitative assessment has been undertaken in accordance with the methodology outlined within the IAQM document[3].

3.3.2 The assessment has identified specific control measures to be implemented on site which aim to reduce residual fugitive dust impacts. Appendix C details the IAQM methodology.

## 3.4 Operational Phase Impacts

3.4.1 Dispersion modelling using the ADMS-Roads model (version 5.1.0) was used to provide model verification against local air quality monitoring results for 2024 and future year predictions during the anticipated completion year of 2028.

3.4.2 ADMS is developed by Cambridge Environmental Research Consultants (CERC) and routinely used throughout the UK for the prediction of pollutant dispersion from road sources. The model requires various inputs including traffic flow data, emission factor inventories and meteorological data which are detailed further in Appendix A.

3.4.3 Baseline and future year traffic flows were provided by Eddisons and include both LDV and HDV flows. TEMPRO v8 growth factors were applied where necessary to take account of forecasted growth between the baseline year and anticipated future years.

[7] 2024 Air Quality Annual Status Report, Greater Manchester Combined Authority, June 2025
[8] https://cleanairgm.com/data-hub/monitoring-reports
[9] https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021

### Off-site Impacts

3.4.4 $NO_2$ and PM concentrations were predicted at sensitive discrete receptors, with and without the development in place, along the roads where anticipated development traffic is anticipated to exceed the EPUK and IAQM thresholds[4]. The following scenarios were assessed:

- 2024 as baseline year for verification against latest ratified data;
- Opening year do-minimum (DM) - Predicted traffic flows for 2028 should the Proposed Development not be completed, plus local committed developments; and
- Opening year do-something (DS) - Predicted traffic flows for 2028, plus local committed developments with the addition of traffic flows generated by the Proposed Development.

3.4.5 Baseline and future year traffic flows were provided by Eddisons, the appointed transport consultant, and include both LDV and HDV flows. Growth factors were provided to convert baseline traffic to the future year scenarios.

### Emission Factors

3.4.6 Air quality condition is predicted to improve in the future and in order to provide a realistic assessment, the 2028 future scenarios include an expected reduction to future year emission factors guided by increasing EV fleets and future advancements to low emission technologies.

3.4.7 The use of future year emission factors accords with predictions provided by DEFRA which reflect a cleaner vehicle fleet driven by future advancements to low and zero emission technologies.

### EPUK and IAQM Impact Significance Criteria

3.4.8 Receptors potentially sensitive to changes in pollutant concentrations will be identified within the assessment extents and defined using the guidance provide in LAQM.TG22[2]. The impact at each receptor will be defined in accordance with EPUK and IAQM guidance[4] criteria shown in Table 3.

**Table 3: EPUK and IAQM Assessment Impact Criteria**

| Long Term Average Concentration | % Change in Concentration Relative to AQO | | | |
|---|---|---|---|---|
| | 1 | 2-5 | 6-10 | >10 |
| 75% or less of AQO | Negligible | Negligible | Slight | Moderate |
| 76 - 94% of AQO | Negligible | Slight | Moderate | Moderate |
| 95 - 102% of AQO | Slight | Moderate | Moderate | Substantial |
| 103 - 109% of AQO | Moderate | Moderate | Substantial | Substantial |

3.4.9 Changes of 0%, i.e. less than 0.5%, will be described as negligible in accordance with the EPUK and IAQM guidance[4].

3.4.10 The guidance suggests that any judgement on the overall significance of effect of a development will need to take into account such factors as:

- the existing and future air quality in the absence of the development;
- the extent of current and future population exposure to the impacts; and
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

3.4.11 These factors were considered, and an overall significance determined for the impact of operational phase road traffic emissions.

3.4.12 Full details of inputs utilised in the modelling assessment exercise and subsequent results are presented in Appendix A and Appendix B, respectively.

## 3.5 On-site Exposure

3.5.1 The suitability of the site in relation to future pollutant exposure was assessed by modelling $NO_2$ and PM concentrations across the development and comparing the results with the AQOs set out in Table 1. Exceedances of the annual mean AQOs at residential dwellings, or exceedances of the hourly AQOs at employment areas, would be determined a significant impact.

3.5.2 Table 3 provides a summary of AQOs assessed at the Proposed Development.

**Table 4: Relevant Air Quality Objectives**

| Land Use | Applicable AQOs |
|---|---|
| Residential Use | Annual mean |
| | 1-hour mean |
| | 24-hour mean |
| Employment Use | 1-hour mean |
| | 24-hour mean |

3.5.3 Dispersion modelling using the ADMS-Roads model (version 5.0.1.0), developed by Cambridge Environmental Research Consultants (CERC), was carried out to predicted future year concentrations during the anticipated completion year of 2028.

3.5.4 The model requires various inputs including traffic flow data, emission factor inventories, and meteorological data, among other inputs which are detailed further in Appendix A.

# 4.0 Baseline Conditions

## 4.1 Introduction

4.1.1 Available air quality data and the surrounding context was reviewed to provide a baseline for assessment. The following sources were used in the assessment of baseline conditions:

- DEFRA's LAQM Background Mapping Data and AQMA Database[9&10];
- Greater Manchester Local Air Quality Management $NO_2$ Diffusion Tube Results[11]; and
- Greater Manchester 2024 ASR[7].

## 4.2 Emission Sources

4.2.1 The primary sources of pollutants near the Proposed Development are road vehicle exhaust emissions, particularly along the A56 (Walmersley Road) and the M66 which run adjacent to the west and east of the proposed development boundary, respectively.

4.2.2 No other significant sources of pollutant emissions were identified in the assessment extents.

## 4.3 Air Quality Management Areas

4.3.1 GMCA undertakes an annual review and assessment of air quality across the combined authorities. Within Bury, roadside annual mean $NO_2$ concentrations currently exceed the AQO at an area across the borough and within the study area described as:

> *"The part of the Greater Manchester Combined Authority AQMA located within the Bury Metropolitan Borough Council Area. "*

4.3.2 The AQMA borders the eastern boundary of the Proposed Development and follows the M66 corridor. Given its close proximity, it is reasonable to assume that the AQMA will influence on-site conditions. Traffic generated by the Proposed Development also has the potential to contribute to impacts within the AQMA.

4.3.3 GMCA has concluded that concentrations of all other pollutants considered within the AQS are currently below the relevant AQOs and as such no further AQMAs have been designated in the study area.

## 4.4 Air Quality Monitoring

4.4.1 The ASR[7] was reviewed to identify representative monitoring stations which could inform existing background and roadside conditions. The closest automatic station, Bury Bridge (BUR03), is located 3.6 km southwest of the Proposed Development. There are also four diffusion tube monitoring sites located across the study area and adjacent to the affected road network. Recent monitoring data is presented in Table 5.

[10] https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=43

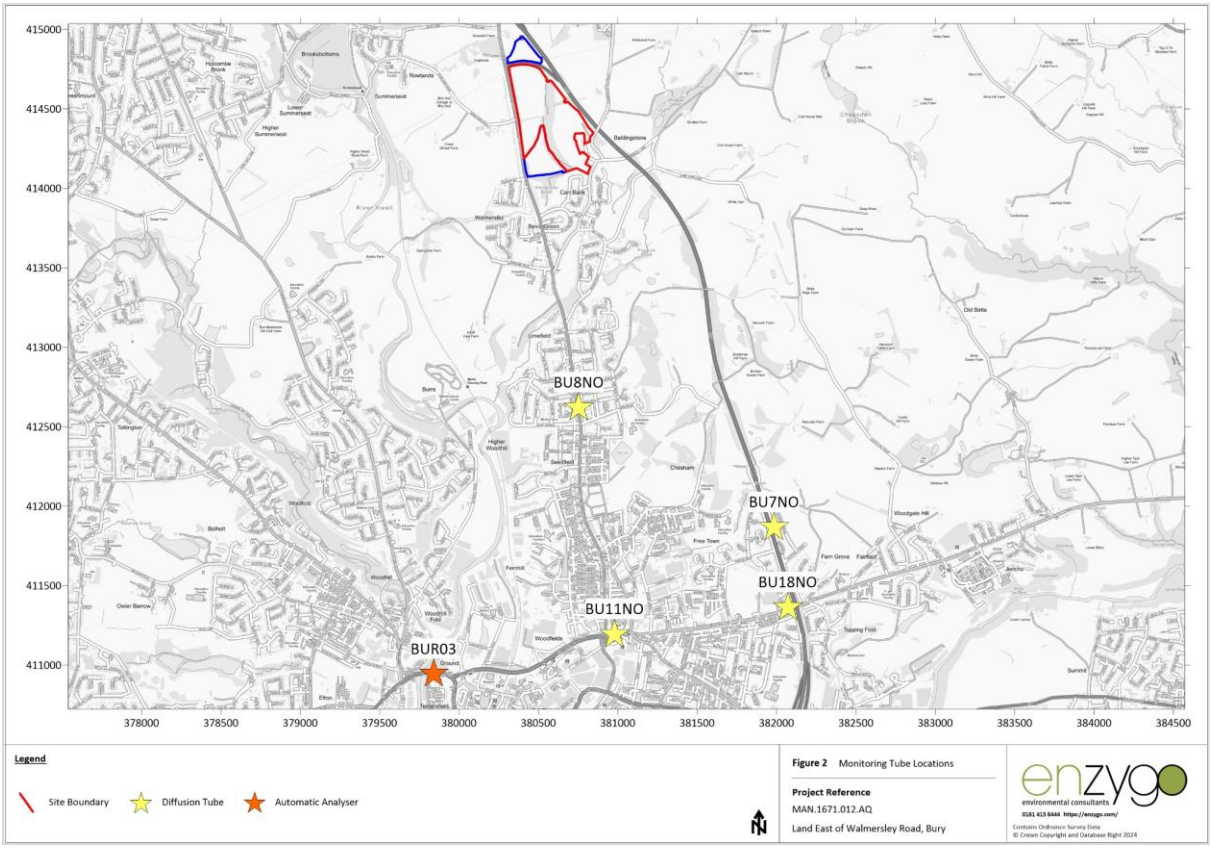
[11] Greater Manchester Local Air Quality Management NO2 diffusion Tube Results 2011-2024 –(https://cleanairgm.com/data-hub/monitoring-reports/)

**Table 5: Monitoring Results**

| Site ID and Name | Type | Distance to Site (m) | Annual Mean Concentration (µg/m³) | | | |
|---|---|---|---|---|---|---|
| | | | 2021 | 2022 | 2023 | 2024 |
| BUR03 – Bury Bridge Analyser | Roadside | 1,859 | N/A | 22.6 | 22.3 | 20.7 |
| BU8NO – Walmersley Road | Roadside | 1,859 | 25.6 | 25.9 | 23.2 | 23.2 |
| BU7NO – Ferngrove | Roadside | 2,985 | 24.8 | 25.9 | 24.1 | 21.5 |
| BU2NO – Ramsbottom Lane | Roadside | 3,030 | 27.4 | 28.7 | 26.8 | 27.3 |
| BU11NO - Moorgate | Roadside | 3,303 | 33.5 | 34.7 | 31.4 | 27.7 |

4.4.2 Recent $NO_2$ diffusion tube monitoring results do not indicate exceedances of the annual mean AQO. Figure 2 presents the diffusion tube monitoring locations within the assessment extents.

**Figure 2: Monitoring Locations**




4.4.3 No representative $PM_{10}$ or $PM_{2.5}$ monitoring is carried out by GMCA or BMBC within the study area. In the absence of available monitoring data, DEFRA background concentrations have been relied upon in order to inform baseline PM concentrations.

## 4.5 DEFRA Background Concentrations

4.5.1 DEFRA[9] have produced background concentration maps for $NO_2$, $PM_{10}$ and $PM_{2.5}$. Predictions are based on a 1 km by 1 km grid basis across the entire UK with the Proposed Development located in NGR: 380500, 414500. Data for this grid square was downloaded for the baseline year of 2024 and the future assessment year of 2028. Table 6 presents the data.

**Table 6: DEFRA Background Pollutant Concentrations**

| Pollutant | Annual Mean Concentration (µg/m³) | |
|---|---|---|
| | 2024 | 2028 |
| $NO_2$ | 10.31 | 8.58 |

| Pollutant | Annual Mean Concentration (µg/m$^3$) | |
|---|---|---|
| | 2024 | 2028 |
| $PM_{10}$ | 11.61 | 11.41 |
| $PM_{2.5}$ | 6.39 | 6.19 |

4.5.2 Based on DEFRA predictions, background concentrations are not expected to exceed their relevant AQOs during the current or future year with all background concentrations predicted well below the AQOs. The data also indicates the concentrations are predicted to decrease further in future years and suggest an improvement to local air quality.

4.5.3 Based on recent $NO_2$ diffusion tube results and predicted background concentrations air quality conditions in the vicinity of the site are generally good. A summary of background concentrations used for modelling purposes are summarised in Appendix A.

## 4.6 Sensitive Receptors

4.6.1 A sensitive receptor is defined as any location which may be affected by changes in air quality as a result of a development. These have been defined for construction dust and road vehicle exhaust emissions impacts in the following sections.

### Construction Phase Sensitive Receptors

4.6.2 No national or European ecological designations are located within 50 m of the Site boundary, or 50 m from a route used by construction vehicles on the public highway (up to 250 m from the Site entrance). Therefore, the risk of dust effects at a nationally or European designated ecological receptor site from construction impacts is not considered further in this assessment.

4.6.3 Human receptors sensitive to potential dust impacts during earthworks and construction were identified from a desk-top study of the area up to 250 m from the development boundary. These are summarised in Section 5.1.

4.6.4 Reference should be made to Figure 3 and 4 within Appendix A for a graphical representation of construction phase dust buffer zones.

### Operational Phase Sensitive Receptors

4.6.5 A desktop study was undertaken to identify worst-case representative sensitive receptor locations adjacent to the affected road network. Receptors were selected based on the distribution of traffic generated by the Proposed Development, which affects the following roads:

- A56 (Walmersley Road)
- A56 (Manchester Road)
- M66 Motorway;
- A56 (Peel Way);
- A58 (Derby Way); and
- B6222 (Bell Lane)

4.6.6 Based on the distribution data, two distinct clusters of receptors were modelled; one around the site boundary and another between the A56 (Peel Way) and B6222 (Bell Lane) north of the Proposed Development.

4.6.7 These areas reflect locations where development traffic flows and baseline conditions are expected to be at their highest, ensuring that worst-case impacts are assessed. The receptor locations are summarised in Table 7 and presented in Figure 3 and Figure 4 .

**Table 7: Existing Sensitive Human Receptors**

| Receptor Name | | Land Use | NGR (m) | | Height (m) |
|---|---|---|---|---|---|
| | | | X | Y | |
| HR1 | 343 Manchester Road | Residential | 380191.1 | 415360.6 | 1.5 |
| HR2 | Bassfield Farm | Residential | 380263.3 | 414987.0 | 1.5 |
| HR3 | 400 Bass Lane | Residential | 380226.3 | 414991.0 | 1.5 |
| HR4 | 953 Walmersley Road | Residential | 380284.1 | 414701.5 | 1.5 |
| HR5 | 899 Walmersley Road | Residential | 380344.6 | 414377.7 | 1.5 |
| HR6 | 843 Walmersley Road | Residential | 380378.7 | 414140.9 | 1.5 |
| HR7 | 772 Walmersley Road | Residential | 380447.8 | 414033.1 | 1.5 |
| HR8 | 9 Bentley Lane | Residential | 381004.2 | 414171.4 | 1.5 |
| HR9 | Longcroft House | Residential | 380918.4 | 414439.2 | 1.5 |
| HR10 | 8 Bell Lane | Residential | 381149.8 | 411184.7 | 4.5 |
| HR11 | 6 Brick Street | Residential | 381287.8 | 411199.3 | 1.5 |
| HR12 | 81 Bell Lane | Residential | 381315.2 | 411222.3 | 1.5 |
| HR13 | 106 Rochdale Old Road | Residential | 382160.6 | 411373.5 | 1.5 |
| HR14 | 81 Rochdale Old Road | Residential | 382095.1 | 411374.6 | 1.5 |
| HR15 | 82 Rochdale Old Road | Residential | 382104.3 | 411351.2 | 1.5 |

4.6.8 Receptors modelled at 1.5 m to represent the average UK “breathing height” above ground level. Receptors modelled at heights above this level represent first floors and above.

**Figure 3: Modelled Receptor Locations - Site Surroundings**

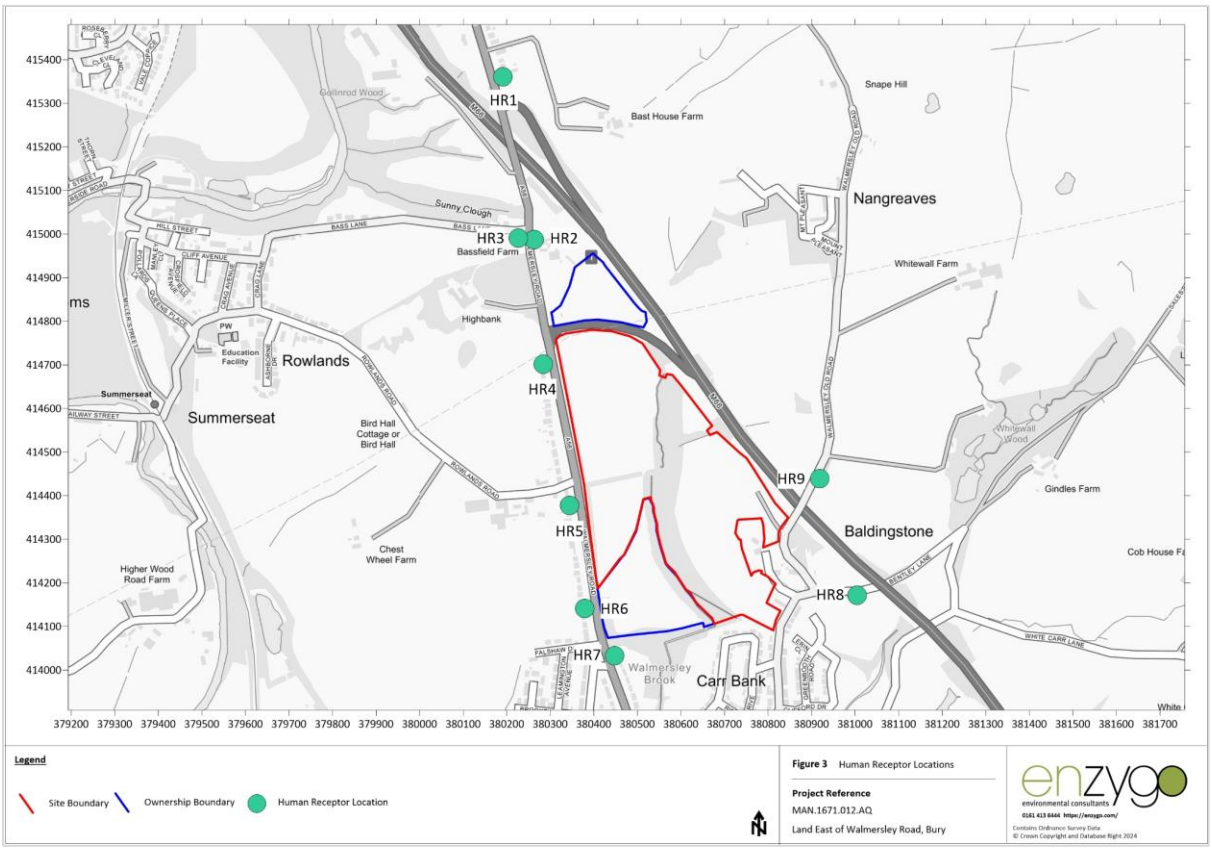
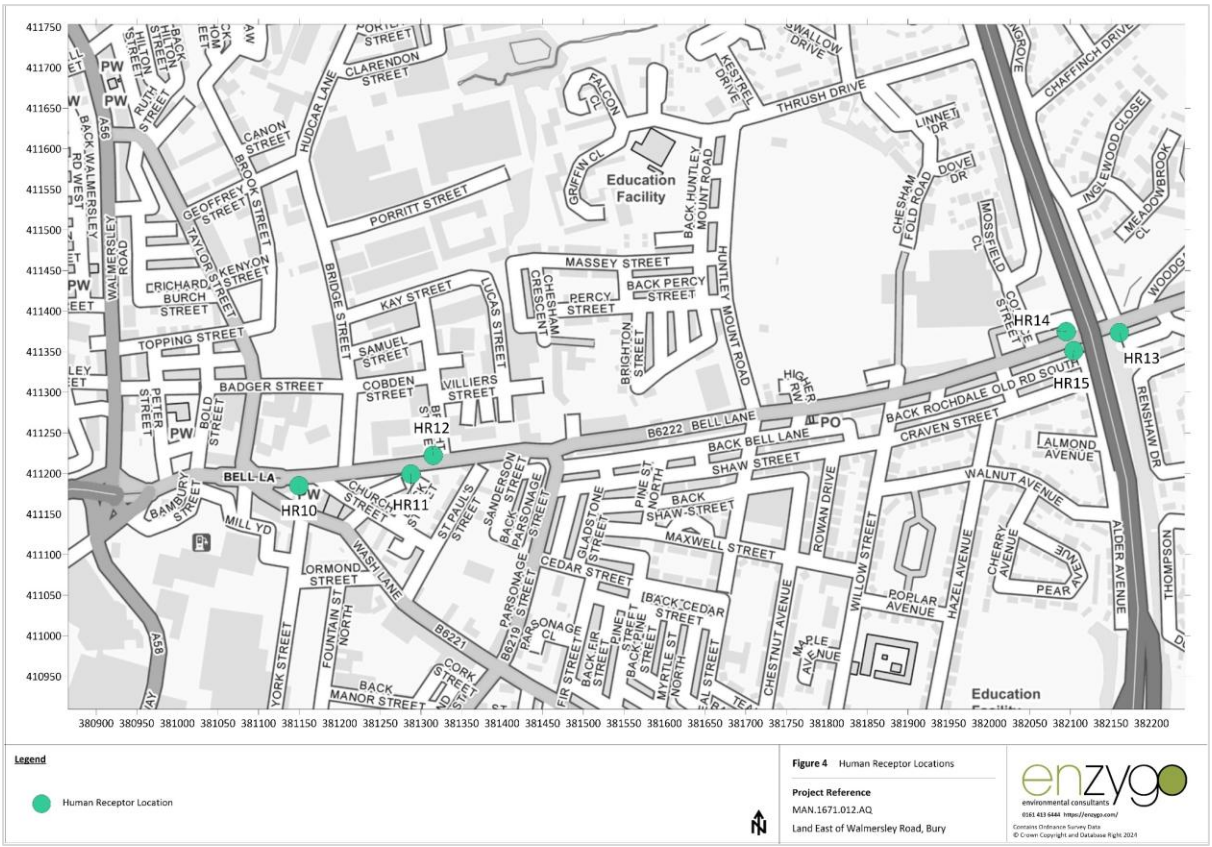



**Figure 4: Modelled Receptor Locations - A56 and B6222**



# 5.0 Assessment

## 5.1 Construction Phase Impact Assessment

5.1.1 A desk top screening assessment (Step 1) identified sensitive receptors within 250 m of the site boundary, and within 50 m of the anticipated trackout extending 250 m from the site access. Construction impacts on human receptors are summarised in Table 8.

**Table 8: Construction Phase Sensitive Receptor Counts**

| Distance from Site or Trackout Routes (m) | Approximate Number of Receptors |
|---|---|
| **Earthworks and Construction** | |
| Less than 20 | 10 – 100 |
| 20 – 50 | 10 – 100 |
| 50 – 100 | More than 100 |
| 100 – 250 | More than 100 |
| **Trackout** | |
| Less than 20 | 10 – 100 |
| 20 – 50 | 10 – 100 |

5.1.2 A detailed assessment of potential dust impacts was therefore required. This is described in the following sections. Figure 5 and Figure 6 provide maps of the construction and trackout buffer distances. Construction impacts from the full ownership boundary have been assessed to provide a robust assessment.

**Figure 5: Earthworks and Construction Buffer Distances**

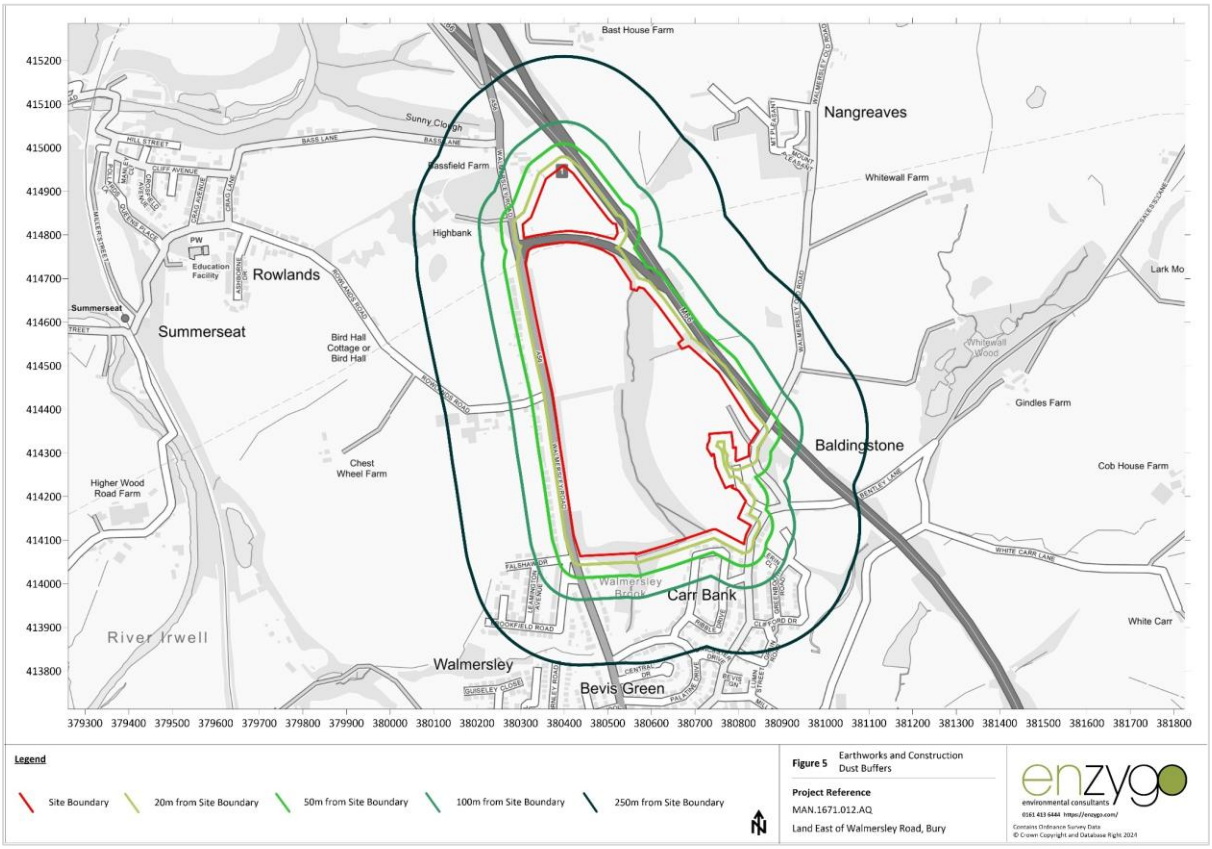
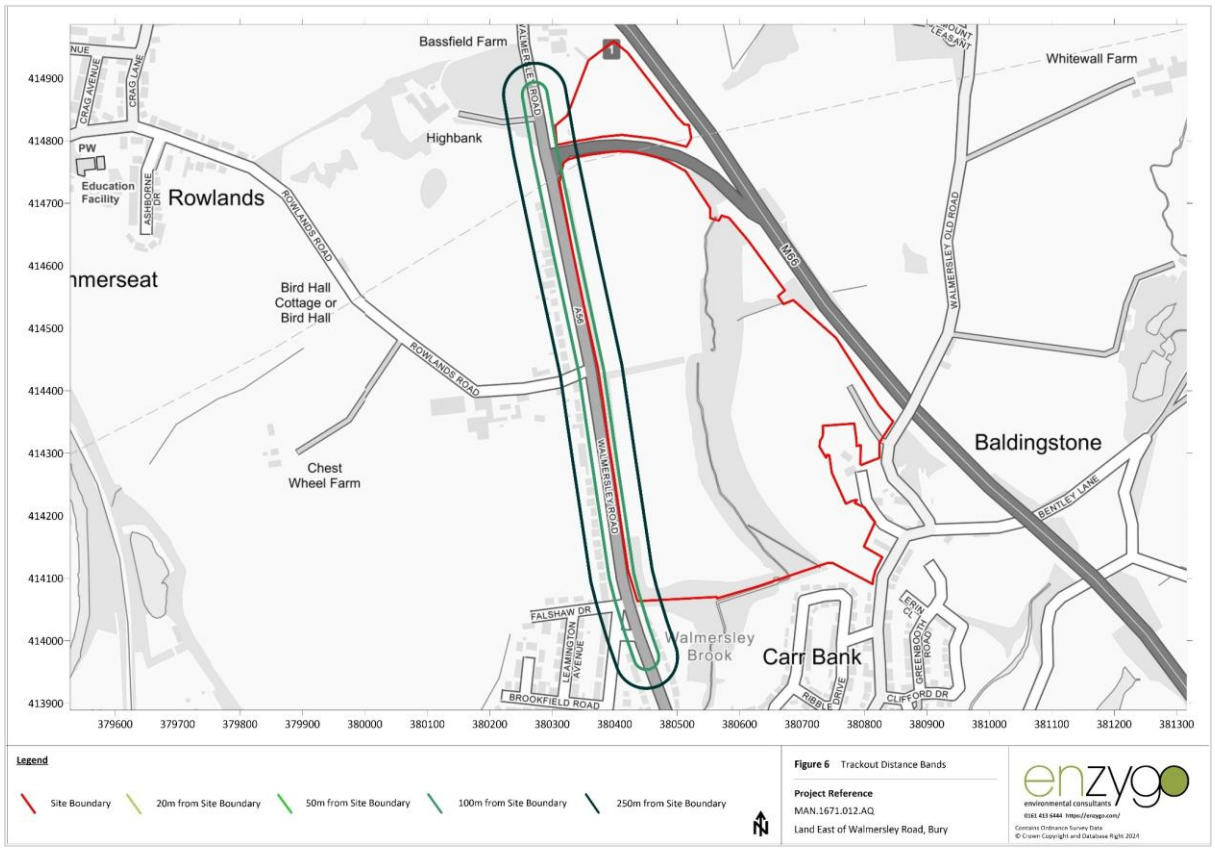


**Figure 6: Trackout Buffer Distances**




## Magnitude

5.1.3 The scale and nature of the works has been determined to assess the magnitude (Step 2A) of fugitive dust emissions arising from each construction phase activity. The determination of magnitude was based upon the criteria detailed in Appendix C.

Demolition

5.1.4 The site is currently vacant of existing structures and no demolition activities are required to prepare the site for construction. The magnitude of potential dust emissions related to demolition activities does therefore not require further consideration.

Earthworks

5.1.5 The Proposed Development site may require large imports and exports of materials to prepare the site for construction. Based on the estimated site area the magnitude of potential dust emissions related to earthwork activities is considered high (i.e. total site area over 110,000 $m^2$).

Construction

The Proposed Development comprises the construction of 300 dwellings, 2,500 $m^2$ of employment use and a 2,500 $m^2$ local community centre. Based on the proposed development, the magnitude of potential dust emissions related to construction activities is considered is high (i.e. total building volume >75,000 $m^3$).

Trackout

5.1.6 Information on the number of HDV trips generated during the construction phase was not available at the time of assessment. Based on the site area it is anticipated that the unpaved road length the magnitude of potential dust emissions related to trackout activities is considered large (i.e. unpaved road length greater than 100 m).

5.1.7 A summary of the construction phase magnitudes is detailed in Table 9.

**Table 9: Dust Emission Magnitude**

| Demolition | Earthworks | Construction | Trackout |
|---|---|---|---|
| - | Large | Large | Large |

### Sensitivity of the Area

5.1.8 The next step (Step 2B) determined the sensitivity of the surrounding area, based on the number, proximity, and type of receptors. To ensure a worse case assessment all receptors were assumed to be highly sensitive (e.g. residential).

Dust Soiling

5.1.9 Residential premises are located within the assessment area which presents a high receptor sensitivity. When combined with receptor counts provided in Table 8 the sensitivity of the surrounding area is high for earthworks and construction and medium for trackout activities.

Human Health

5.1.10 Predicted annual mean background concentrations of $PM_{10}$ within the vicinity of the site, as predicted by DEFRA, are 11.61 µg/$m^3$ (Table 6). Based on the receptor counts, the sensitivity of the surrounding area is high for earthworks, construction and trackout activities and negligible for demolition activities.

**Table 10: Summary of Area Sensitivity to Dust Impacts**

| Impact | Demolition | Earthworks | Construction | Trackout |
|---|---|---|---|---|
| Dust Soiling | - | High | High | High |
| Human Health | - | Low | Low | Low |

### Risk

5.1.11 The next stage of the assessment (Step 2C) combined the dust magnitude and receptor sensitivity defined above to determine the overall risk with no mitigation applied.

**Table 11: Summary of Unmitigated Dust Risk**

| Impact | Demolition | Earthworks | Construction | Trackout |
|---|---|---|---|---|
| Dust Soiling | - | High | High | High |
| Human Health | - | Low | Low | Low |

5.1.12 The Proposed Development has been determined as a 'high' risk for construction dust impacts.

5.1.13 Following the determination of risk for each activity, the final step (Step 3) detailed necessary mitigation measures to reduce impacts during the construction phase. These measures have been adapted for the Proposed Development and summarised in Section 6.1.

## 5.2 On-site Exposure

### Long Term Objectives

5.2.1 Pollutant concentrations were modelled across the Proposed Development. Results are presented in Table 12, which are maximum concentrations across the site at areas closest to the M66.

**Table 12: Predicted Annual Mean Concentrations Across the Site**

| Receptor Location | Maximum Concentration (µg/m$^3$) | | |
|---|---|---|---|
| | NO2 (AQO: 40 µg/m$^3$) | PM10 (AQO: 40 µg/m$^3$) | PM2.5 (AQO: 20 µg/m$^3$) |
| Site | 26.8 | 16.6 | 9.3 |

5.2.2 Modelled concentrations indicate compliance with national AQOs detailed in Table 1. Based on these results, on-site exposure is considered not significant with the entire site area suitable for residential use without the requirement of protective mitigation measures. Predictions at heights above first floor were not assessed, as pollutant concentrations are expected to reduce with increased height from the local road network.

5.2.3 Pollutant contour plots are provided in Figure 7, Figure 8 and Figure 9.

**Figure 7: Annual Mean $NO_2$ Contours**



**Figure 8: Annual Mean $PM_{10}$ Contours**




**Figure 9: Annual Mean $PM_{2.5}$ Contours**



### Short Term Objectives

5.2.4 1-hour $NO_2$ and 24-hour $PM_{10}$ exposure is relevant across the site but contours have not been produced. LAQM.TG222 states if annual mean $NO_2$ concentrations are below 60 µg/m$^3$ then it is unlikely that the 1-hour AQO will be exceeded. Similarly, if annual $PM_{10}$ concentrations are below 32 µg/m$^3$ then it is unlikely that the 24-hour AQO will be exceeded.

5.2.5 Annual mean $NO_2$ and $PM_{10}$ concentrations across the site are well below these thresholds and both 1 hour and 24-hour AQOs are not predicted to exceed the AQOs across the site. As such, the site area is suitable for employment use without the requirement of protective mitigation measures.

## 5.3 Road Traffic Exhaust Impacts

5.3.1 A dispersion modelling assessment was undertaken to quantify potential changes in pollutant concentrations at sensitive locations across the affected road network. Predicted impact significance at individual receptors on annual mean $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations, based on the criteria given in Table 3, are summarised in Table 13.

**Table 13: Summary of Operational Phase Impacts**

| Pollutant and Period | Receptors | Impact Descriptor |
|---|---|---|
| Annual Mean $NO_2$ | All Receptors | Negligible |
| Annual Mean $PM_{10}$ | All Receptors | Negligible |
| Annual Mean $PM_{2.5}$ | All Receptors | Negligible |

5.3.2 As shown in Table 13 the significance of impacts was predicted to be negligible at all sensitive receptors.

5.3.3 The overall significance of potential impacts was determined to be not significant in accordance with the EPUK and IAQM guidance[4]. Full assessment results and commentary can be found in Appendix B, with justifications summarised in Table 14.

**Table 14: Overall Road Emissions Impact Significance**

| Guidance | Comment |
|---|---|
| Number of properties affected by slight, moderate or substantial air quality impacts and a judgement on the overall balance | Impacts on $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations were predicted to be negligible at all sensitive receptors. These represent worst-case locations and therefore it is unlikely that any other receptors would be significantly affected by the Proposed Development. |
| Where new exposure is introduced into an existing area of poor air quality, then the number of people exposed to levels above the objective or limit value will be relevant | The Proposed Development will not result in any new sensitive exposure to pollutant concentrations above the AQOs at sensitive locations |
| The percentage change in concentration relative to the objective and the descriptions of the impacts at the receptors | The maximum changes in annual mean for $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations relative to their respective AQOs were predicted to range from:<br>• 0.13% to 1.18% for $NO_2$,<br>• 0.02% to 0.60% for $PM_{10}$; and<br>• 0.05% to 0.60% for $PM_{2.5}$.<br>Resultant impacts were therefore negligible at all receptor locations for each pollutant species |

| Guidance | Comment |
|---|---|
| Whether or not an exceedance of an objective is predicted to arise or be removed in the study area due to a substantial increase or decrease | There were no predicted exceedances of the annual mean AQOs for $NO_2$, $PM_{10}$ or $PM_{2.5}$ at any sensitive receptor location within the modelling extents |
| The extent to which an objective is exceeded e.g. an annual mean $NO_2$ concentration of 41µg/m$^3$ should attract less significance than an annual mean of 51 µg/m$^3$ | As above, there were no predicted exceedances at any receptor locations within the modelling extents, and impacts should attract less significance. |

5.3.4 Based on the above analysis the overall operational phase road traffic emission impacts were determined as not significant.

# 6.0 Mitigation

## 6.1 Construction Phase

6.1.1 The IAQM guidance[3] provides several control measures to reduce fugitive dust impacts during the construction phase. These measures have been adapted based on professional judgment for the Proposed Development site and summarised below.

### Communications

- The name and contact details of person(s) accountable for air quality and dust issues will be displayed on the site boundary alongside the head/regional office contact information;
- The contact information of the head or regional office will be displayed;
- A stakeholder communications plan will be developed and implement that includes community engagement before work commences on site; and
- A Dust Management Plan (DMP) will be developed and implement which may include measures to control other emissions, approved by the Local Authority.

### Site Management

- All dust and air quality complaints will be recorded. This will identify causes, and measures to reduce emissions will be undertaken in a timely manner;
- The complaints log will be made available to the local authority when asked; and
- Any exceptional incidents that cause dust and/or air emissions will be recorded and the action taken to resolve the situation will be recorded in the log book.

### Monitoring

- Regular site inspections will be undertaken to monitor compliance with the DMP
- Inspection results will be recorded, and made available to the local authority when asked; and
- Inspections will be increased when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

### Preparing & Maintaining Site

- The site layout will be planned so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Solid screens or barriers will be erected around dusty activities or the site boundary;
- Specific operations which have a high potential for dust production will be enclosed;
- Site runoff of water or mud will be avoided as far as practical;
- Site hoarding, barriers and scaffolding will be kept clean using wet methods;
- Materials that have a potential to produce dust will be removed from site as soon as possible, unless being re-used on site. If they are being re-used on-site stockpiles will be bunded and covered to prevent wind whipping and will be located as far away from existing receptors where possible; and

- Stockpiles will be covered when necessary to prevent wind whipping.

### Operating Vehicle/Machinery & Sustainable Travel

- All vehicle engines will be switched off when stationary to avoid idling;
- The use of diesel or petrol powered generators will be avoided where practicable;
- Vehicle trips to the site will be managed to reduce the number of movements to a minimum;
- All vehicles and machinery will be well maintained and regularly serviced;
- All vehicle waiting areas and hard standing to be cleaned regularly and sprayed if necessary;
- Vehicles speeds will be reduced on site, and If practicable, a site-specific and enforceable speed limit will be set;
- A Construction Logistics Plan will be produced to manage the sustainable delivery of goods and materials; and
- A travel plan encouraging sustainable transport will be implemented.

### Operations

- All existing roads will be kept clean and free from debris;
- Cutting of silica materials (bricks, blocks, concrete , tiles etc) will be carried out with mechanical saws fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction;
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation;
- Enclosed chutes, conveyors and covered skips will be used where possible;
- Drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised. If necessary fine water sprays on such equipment will be used; and
- Equipment to clean dry spillages and clean up spillages will be readily available on site.

### Waste Management

- Bonfires and burning of waste materials will be prohibited.

### Demolition

- No control measures are required.

### Earthworks & Construction

- Re-vegetate earthworks as soon as practicable, where not possible use hessian, mulches or trackifiers;
- Only remove the cover in small areas during work and not all at once;
- Scabbling (roughening of concrete surfaces) will be avoided;

- Should sand and other aggregates be stored on site, they will be bunded, covered and are not allowed to dry out;
- Bulk cement and other fine powder materials delivered to site will be enclosed and stored with appropriate emission control systems to prevent escape of material and overfilling during delivery; and
- Smaller supplies of fine power materials will be sealed after use and stored appropriately to prevent dust.

**Trackout**

- Water-assisted dust sweeper(s) will be used on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use;
- Sweeping of large dry areas will be avoided;
- Vehicles entering and leaving sites will be covered to prevent escape of materials during transport;
- On-site haul routes will be inspected for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
- Hard surfaced haul routes will be regularly damped down during specific weather conditions with a fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned;
- All inspections of haul routes and any subsequent action will be recorded in a site log book;
- A wheel washing system will be implemented with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable;
- An adequate area of hard surfaced road between the wheel wash facility and the site exit will be provided wherever site size and layout permits; and
- Access gates will be located at least 10 m from receptors where possible.

6.1.2 Assuming the relevant mitigation measures outlined in above are implemented, the residual effect from all dust generating activities (Step 4) is predicted to be negligible and therefore not significant in accordance with the IAQM guidance[3].

## 6.2 Operational Phase

6.2.1 The operational phase assessment concluded that associated development impacts are predicted to be not significant, as a result of negligible impacts at all locations. Additionally, no exceedances of the AQOs were predicted at any location identified in the assessment.

6.2.2 As such, no mitigation measures are required to reduce associated impacts. However principles of good practice listed in the IAQM Planning for Air Quality Guidance[4] are recommended to encourage sustainable travel from the Proposed Development including:

- Provision of electric vehicle charging infrastructure; and
- Provision of a detailed travel plan which sets out measures to encourage sustainable means of transport.

# 7.0 Conclusions

7.1.1 Enzygo Ltd was commissioned by Hollins Strategic Land LLP to produce an AQA in support of a planning application for a mixed-use development located on land at Walmersley Brook, Walmersley Road, Bury.

7.1.2 A qualitative construction dust risk assessment was undertaken in accordance with the IAQM methodology[3] to assess impact risk and define a suitable mitigation strategy. Assuming good practice and the implementation of recommended dust control measures residual impacts are predicted to be not significant.

7.1.3 Impacts during the operational phase of the development may occur due to exposure to elevated concentrations during occupation of the site and from additional $NO_2$ and fine PM emissions associated with vehicle movements generated during operation. Dispersion modelling was undertaken to quantify air quality impacts at both on and off-site sensitive locations. Results were verified using monitoring results obtained from GMCA.

7.1.4 Predicted impacts on $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations during the operational phase were predicted to be negligible at all sensitive receptor locations within the vicinity of the site. The overall significance of potential impacts was determined to be not significant, in accordance with the EPUK and IAQM guidance[4].

7.1.5 Site exposure modelling predicted that both annual and hourly mean concentrations across the site comply with the national AQOs. Further mitigation to protect future occupiers or users is not required and operational phase exposure was predicted to be not significant.

7.1.6 In summary, it is considered that on-site exposure and air quality impacts generated by the Proposed Development are not significant and should not form a constraint to planning permission.

# 8.0 Abbreviations

| | |
|---|---|
| AADT | Annual Average Daily Traffic |
| ADM | Atmospheric Dispersion Modelling |
| ADMS | Atmospheric Dispersion Modelling Software |
| AQA | Air Quality Assessment |
| AQAP | Air Quality Action Plan |
| AQMA | Air Quality Management Area |
| AQO | Air Quality Objective |
| AQS | Air Quality Strategy |
| ASR | Annual Status Report |
| BMBC | Bury Metropolitan Borough Council |
| CERC | Cambridge Environmental Research Consultants |
| DEFRA | Department for Environment, Food and Rural Affairs |
| DfT | Department for Transport |
| DM | Do Minimum |
| DMP | Dust Management Plan |
| DS | Do Something |
| EA | Environment Agency |
| EPUK | Environmental Protection UK |
| EV | Electric Vehicle |
| EU | European Union |
| GMCA | Greater Manchester Combined Authority |
| HDV | Heavy Duty Vehicle |
| IAQM | Institute of Air Quality Management |
| LA | Local Authority |
| LAQM | Local Air Quality Management |
| LDV | Light Duty Vehicle |
| NGR | National Grid Reference |
| $NO_2$ | Nitrogen Dioxide |
| $NO_x$ | Oxides of nitrogen |
| NPPF | National Planning Policy Framework |
| NPPG | National Planning Practice Guidance |
| $PM_{10}$ | Particulate Matter with an aerodynamic diameter less than 10 μm |
| $PM_{2.5}$ | Particulate Matter with an aerodynamic diameter less than 2.5 μm |
| TEMPro | Trip End Model Presentation Program |
| TG | Technical Guidance |
| UK | United Kingdom |
| $z_0$ | Roughness Length |

## Appendix A – Assessment Inputs

Dispersion modelling was undertaken using the ADMS-Roads dispersion model (version 5.1.0.2) which is developed by Cambridge Environmental Research Consultants (CERC) and is routinely used throughout the UK for the prediction of pollutant dispersion from road sources. The Environment Agency and DEFRA also widely accept modelling predictions from this software package.

The model requires input data that details the following parameters:

- Traffic flow data;
- Vehicle emission factors;
- Spatial co-ordinates of emissions;
- Street width;
- Meteorological data;
- Roughness length; and
- Monin-Obukhov length.

Traffic Flow Data

Baseline and future year traffic flows were provided by the Eddisons, the appointed traffic consultants for the application. Links not provided by the transport consultant, were obtained from the Department for Transport (DfT) database, which is referenced in DEFRA guidance LAQM.TG22[2] as being a suitable source of data for air quality assessments.

The Trip End Model Presentation Program (TEMPro) v8.1 growth factor for links obtained from DfT were used to convert the provided 2024 baseline data to 2027.

Vehicle speeds were estimated based on the free flow potential of each link and local speed limits. Assumptions account for speed reductions at junctions and peak hour congestion in line with LAQM.TG22[2]. Road widths were estimated from aerial and 3D photography provided by Google Earth Pro.

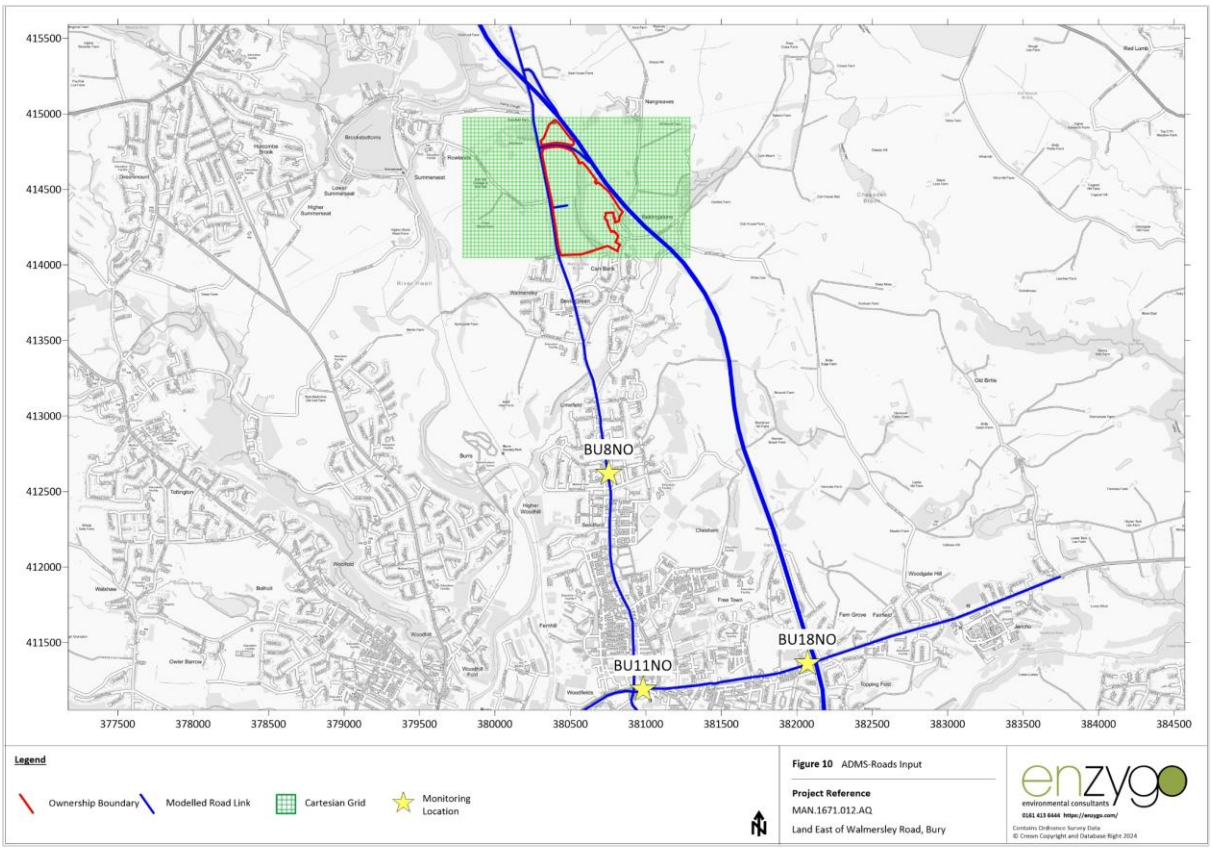
A summary of the traffic data used to inform each operation scenario is presented Table A1.

**Table A1: 24-hour AADT Traffic Data**

| Road Link | | Width (m) | Speed (km/h) | Verification Scenario 2024 | | DM Scenario 2027 | | DS Scenario 2027 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | AADT | HDV% | AADT | HDV% | AADT | HDV% |
| L1 | Site Access | 5 | 8 | 0 | 0.0 | 0 | 0.0 | 4,726 | 0.0 |
| L2 | A56 (Walmersley Road) - North of Site Access | 8.8 | 40 | 12,929 | 3.7 | 13,817 | 3.6 | 15,810 | 3.2 |
| L3 | A56 (Manchester Road) - South of M66 On-Slip | 9 | 40 | 17,198 | 5.2 | 18,500 | 4.9 | 20,132 | 4.5 |
| L4 | A56 (Manchester Road) - North of M66 On-Slip | 8 | 40 | 20,254 | 4.6 | 21,995 | 4.4 | 23,143 | 4.2 |
| L5 | M66 On-Slip - A56 Junction | 15 | 15 | 8,507 | 4.0 | 9,096 | 3.9 | 9,476 | 3.7 |
| L6 | M66 Junction 1 - On-Slip | 6 | 50 | 8,507 | 4.0 | 9,096 | 3.9 | 9,476 | 3.7 |
| L7 | M66 Off-Slip - A56 Junction | 7 | 50 | 6,964 | 6.5 | 7,457 | 6.2 | 7,819 | 5.9 |
| L8 | M66 Junction 1 - Off-Slip | 8 | 15 | 6,964 | 6.5 | 7,457 | 6.2 | 7,819 | 5.9 |
| L9 | A56 (Walmersley Road) - South of Site Access | 8 | 30 | 14,878 | 3.9 | 15,821 | 3.8 | 17,304 | 3.5 |
| L10 | A56 (Walmersley Road) - B622 Junction | 19 | 20 | 14,878 | 3.9 | 15,821 | 3.8 | 17,304 | 3.5 |
| L11 | A56 (Peel Way) - B6222 Junction | 22 | 20 | 37,551 | 1.6 | 38,955 | 1.6 | 39,450 | 1.6 |
| L12 | B6222 (Bell Lane) A56 Junction] | 25 | 20 | 17,993 | 1.9 | 18,666 | 1.9 | 19,161 | 1.8 |
| L13 | A58 (Derby Way) - B6222 Junction | 33 | 20 | 13,530 | 5.0 | 14,036 | 5.0 | 14,531 | 4.8 |
| L14 | A56 (Peel Way) | 16 | 40 | 37,551 | 1.6 | 38,955 | 1.6 | 39,450 | 1.6 |
| L15 | A58 (Derby Way) | 9 | 40 | 13,530 | 5.0 | 14,036 | 5.0 | 14,531 | 4.8 |
| L16 | B6222 (Bell Lane) | 8 | 40 | 17,993 | 1.9 | 18,666 | 1.9 | 19,161 | 1.8 |
| L17 | M66 Southbound (North of Junction 1) | 7.5 | 95 | 54,858 | 7.1 | 56,910 | 7.1 | 56,910 | 7.1 |
| L18 | M66 Southbound (South of Junction 1) | 7.5 | 95 | 65,754 | 8.7 | 68,213 | 8.7 | 68,593 | 8.6 |
| L19 | M66 Northbound (South of Junction 1) | 7.5 | 95 | 65,754 | 8.7 | 68,213 | 8.7 | 68,575 | 8.6 |
| L20 | M66 Northbound (North of Junction 1) | 7.5 | 95 | 54,858 | 7.1 | 56,910 | 7.1 | 56,910 | 7.1 |

Figure 10 presents the modelled road link locations used within the operational phase assessment.

**Figure 10: ADMS Road Inputs**




Emission Factors

Emission factors for each link were calculated using the traffic flows detailed in Table A1 and the Emissions Factor Toolkit (EfT) (version 13.1) released in March 2025, which incorporates updated COPERT v5.8 vehicle emissions factors for NOx and PM.

The 2027 future scenarios assume a reduction to future year emission factors guided by increasing EV fleets and future advancements to low emission technologies as provided by the EfT.

Assessment Area

Ambient concentrations were predicted at existing sensitive receptor locations presented in Figure 3.

Gridded outputs over the region NGR: 379790, 414050, 381290, 414975 were also predicted and combined with 2028 background concentrations to provide total pollutant concentrations across the site. Contours are displayed in Figure 7, Figure 8 and Figure 9.

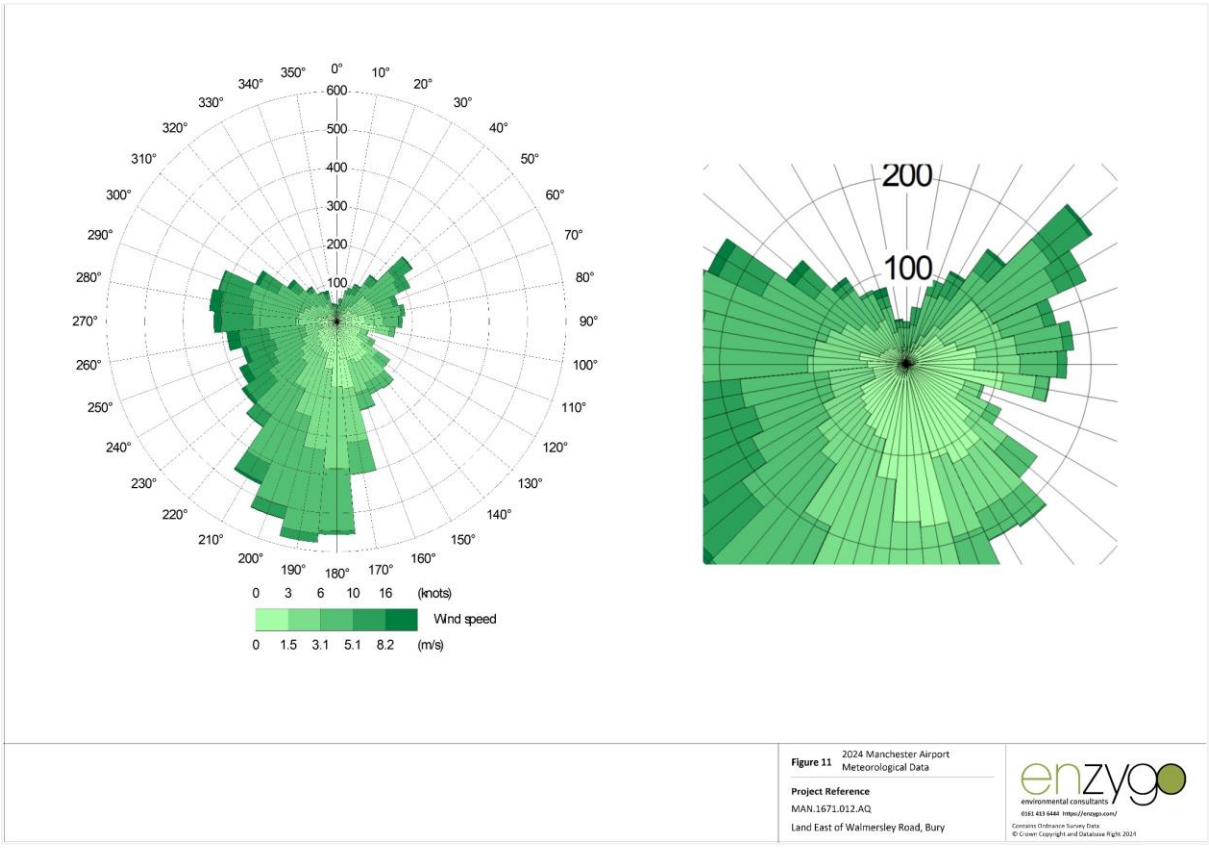
NOx to NO2 Conversion

Predicted annual mean $NO_x$ concentrations from the dispersion model were converted to $NO_2$ concentrations using the $NO_x$ to $NO_2$ Calculator (v.9.1) provided by DEFRA, which is the method detailed within LAQM.TG22[2].

Meteorological Data

Hourly sequential data for 2024 was obtained from Manchester Airport meteorological station, located approximately 29 km south of the Proposed Development. Figure 11 presents the 2024 wind rose.

**Figure 11: Meteorological Wind Rose**




The choice of data is considered suitable to represent meteorological conditions across the modelled domain. Meteorological data was supplied by ADM Ltd.

Meteorological Parameters

The specific roughness length ($z_0$) values specified with ADMS-Roads are summarised in Table A2.

**Table A2: Roughness Lengths**

| Scenario | Roughness Length (m) | ADMS Description |
|---|---|---|
| Site and Surroundings | 0.5 | Parkland, open suburbia |
| Met Station | 0.3 | Site and Surroundings |

The Monin-Obukhov length values are summarised in Table A3.

**Table A3: Monin-Obukhov Lengths**

| Scenario | Monin-Obukhov Length (m) | ADMS Description |
|---|---|---|
| All Assessment Scenarios and Met Station | 30 | Cities and Large Towns/ Mixed urban/industrial |

Background Concentrations

Table A4 details the specific background concentrations, as predicted by DEFRA, used to represent model verification sites.

**Table A4: Predicted 2024 Background Concentrations for Monitoring Locations**

| Monitoring Location | DEFRA Grid Square | Pollutant | Background Concentration (µg/m³) |
|---|---|---|---|
| BU8 | 380500, 412500 | $NO_x$ | 15.51 |
| | | $NO_2$ | 11.72 |

| Monitoring Location | DEFRA Grid Square | Pollutant | Background Concentration (µg/m³) |
|---|---|---|---|
| BU11 | 380500, 411500 | $NO_x$ | 21.86 |
| | | $NO_2$ | 15.87 |
| BU18 | 380500, 411500 | $NO_x$ | 17.11 |
| | | $NO_2$ | 12.81 |

Table A5 displays the predicted future background concentrations utilised in the operational phase to represent conditions at model sensitive receptor locations.

**Table A5: Predicted 2027 Background Concentrations at Sensitive Receptors**

| Receptor Location | DEFRA Grid Square | Pollutant | Background Concentration (µg/m³) |
|---|---|---|---|
| HR1 | 380500, 415500 | $NO_x$ | 10.30 |
| | | $NO_2$ | 8.03 |
| | | $PM_{10}$ | 10.88 |
| | | $PM_{2.5}$ | 6.01 |
| HR2 – HR9 | 380500, 414500 | $NO_x$ | 11.05 |
| | | $NO_2$ | 8.58 |
| | | $PM_{10}$ | 11.41 |
| | | $PM_{2.5}$ | 6.19 |
| HR10 - HR12 | 381500, 411500 | $NO_x$ | 16.19 |
| | | $NO_2$ | 12.17 |
| | | $PM_{10}$ | 12.02 |
| | | $PM_{2.5}$ | 7.00 |
| HR14 - HR15 | 382500, 411500 | $NO_x$ | 14.23 |
| | | $NO_2$ | 10.83 |
| | | $PM_{10}$ | 12.36 |
| | | $PM_{2.5}$ | 6.85 |

Similar to emission factors, background concentrations for 2027 were used to represent predicted background concentrations for the future year operation scenarios.

Verification

The predicted results from a dispersion model may differ from measured concentrations for many reasons, including:

- Estimates of background concentrations;
- Uncertainties in source activity data such as traffic flows and emission factors;
- Variations in meteorological conditions;
- Overall model limitations; and
- Uncertainties associated with monitoring data, including locations.

Model verification is the process by which these and other uncertainties are investigated and where possible minimised. In reality, the differences between modelled and monitored results are likely to be a combination of all of these aspects.

For the purpose of this assessment model verification was undertaken for 2024, using traffic data, meteorological data, and monitoring results from this year.

The verification process was undertaken at monitoring locations BU8, BU11, and BU18 and which were identified as representative of conditions at the modelled road network. BU7 was removed from the verification process due to significant overpredictions between monitored and modelled $NO_X$ concentrations which exceeded the accepted accuracy thresholds. This is likely due to the influence of a barrier between the monitor and the M66, which could not be accurately replicated in the modelled.

DEFRA guidance LAQM.TG22[2] advises that the verification should consider the performance of the model in predicting road sourced $NO_x$. Reasonable efforts were made to optimise the accuracy of modelling across the assessment extents. In accordance with LAQM.TG22[2] checks on traffic data, road widths, speed estimations were made to improve modelled roadside contributions.

Table A6 presents the adjusted model and comparison of monitored and predicted annual mean road $NO_x$ concentrations at the remaining locations.

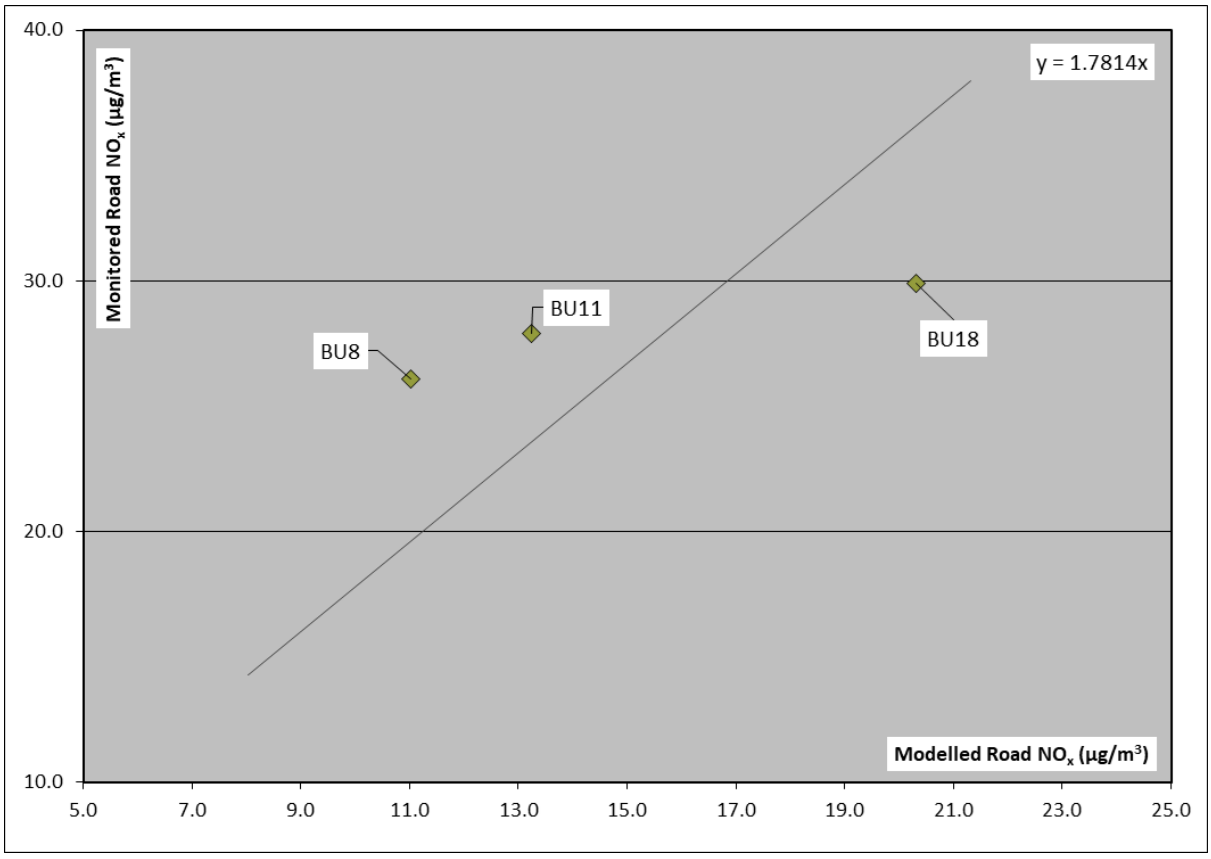
**Table A6: Initial Modelled $NO_x$ Results**

| Site ID | Monitored Road $NO_X$ Concentration (µg/m³) | Modelled Road NOx Concentration (µg/m³) | % Difference ((Modelled – Monitored)/Monitored)) * 100 |
|---|---|---|---|
| BU8 | 26.07 | 11.03 | -58% |
| BU11 | 27.89 | 13.24 | -53% |
| BU18 | 29.89 | 20.31 | -32% |

Modelled $NO_x$ results show an overall tendency to underpredict concentrations. As reasonable efforts were made to reduce inaccuracies, including checks on traffic data, vehicle speeds and the exact locations of the diffusion tubes, it was deemed appropriate to apply an adjustment factor to modelled concentrations to improve the overall accuracy of the model.

The monitored and modelled $NO_x$ road contributions were graphed and the equation of the trend line based on the linear progression through zero was calculated, as shown in Graph A1.

**Graph A1: Modelled and Monitored $NO_x$ Road Contributions**



The adjustment factor of 1.7814 was applied to the modelled road $NO_x$ contributions with adjusted results presented in Table A7.

**Table A7: Adjusted $NO_x$ Results**

| Site ID | Monitored Road $NO_x$ Concentration (µg/m³) | Adjusted Modelled Road $NO_x$ Concentration (µg/m³) | % Difference |
|---|---|---|---|
| BU8 | 26.07 | 19.64 | -25% |
| BU11 | 27.89 | 23.59 | -15% |
| BU18 | 29.89 | 36.18 | 21% |

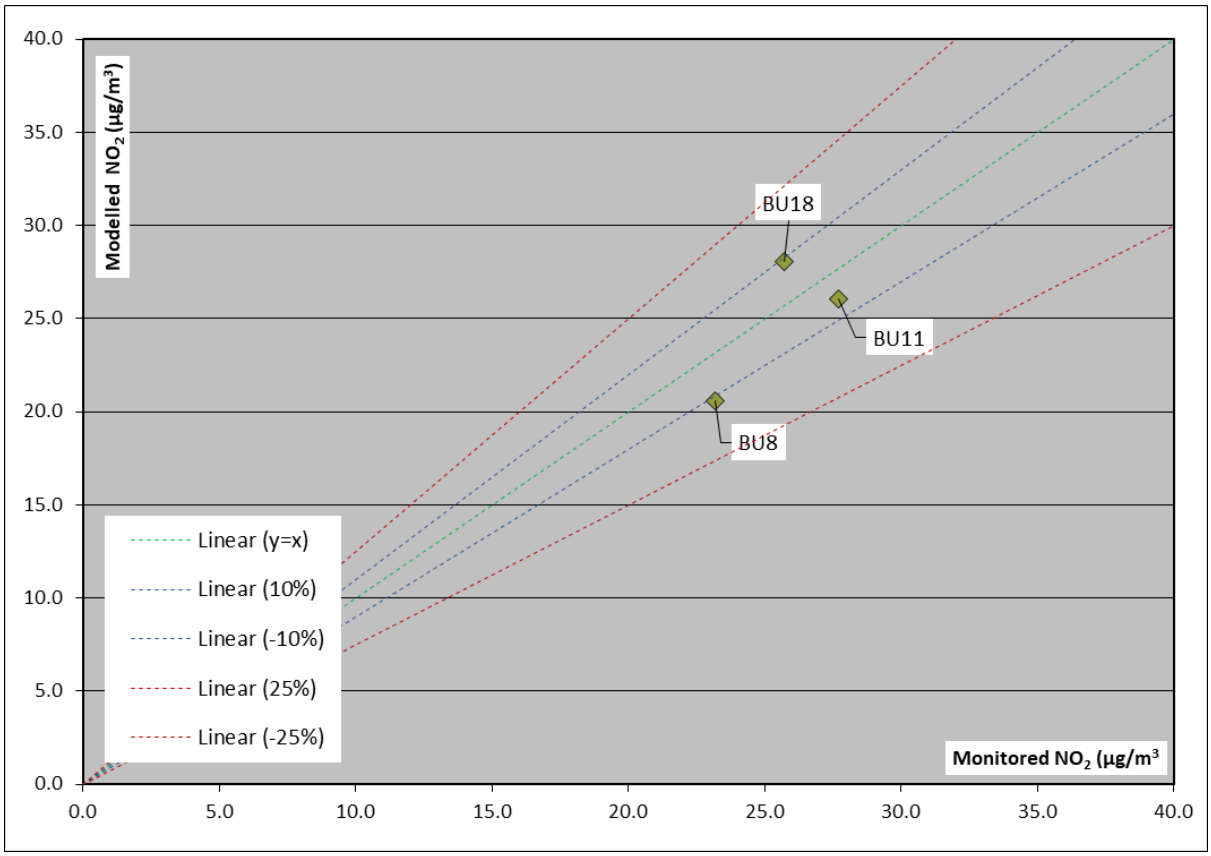
The adjusted modelled $NO_2$ concentrations are compared with the total monitored $NO_2$ concentrations in Table A8. LAQM.TG22[2] recommends that modelled concentrations should be within 25% of the monitored concentrations.

**Table A8: Adjusted Modelled and Monitored $NO_2$ Concentrations**

| Site ID | Monitored $NO_2$ Concentration (µg/m³) | Adjusted Modelled $NO_2$ Concentration (µg/m³) | % Difference |
|---|---|---|---|
| BU8 | 23.20 | 20.57 | -11% |
| BU11 | 27.70 | 26.03 | -6% |
| BU18 | 25.70 | 28.07 | 9% |

A graphical representation of the adjusted $NO_2$ concentrations is provided within Graph A2.

**Graph A2: Comparison of Monitored and Adjusted Modelled $NO_2$ Concentrations**




As demonstrated in Table A8 and Graph A2, modelled $NO_2$ concentrations following adjustment are well within 25% of monitored concentrations at all sites.

Additional methods for determining model performance are provided below in accordance with Box 7.21 of LAQM.TG22[2] are presented in Table A9. This includes correlation coefficient; root mean square error and fractional bias.

**Table A9: Model Performance**

| Method | Calculated Value | Ideal Value |
|---|---|---|
| Correlation Coefficient | 0.75 | 1.00 |
| Root Mean Square Error | 2.26 (5.66%) | 0.0 (<25%) |
| Fractional Bias | 0.03 | 0.0 |

The adjustments provide favourable values which adheres to the guidance provided in LAQM.TG22[2] and suggest further post adjustment is unnecessary.

As PM monitoring is not undertaken within the study area, the NOx adjustment factor of 1.7814 was used to adjust model predictions of PM in accordance with the guidance provided within LAQM.TG22[2].

# Appendix B - Assessment Results

## PREDICTED CONCENTRATIONS AT SENSITIVE RECEPTORS

Nitrogen Dioxide ($NO_2$)

**Table B1: Predicted Annual Mean Concentrations**

| Potential Impact | | Predicted Annual Mean Concentration (µg/m$^3$) | | |
|---|---|---|---|---|
| | | DM | DS | Change |
| HR1 | 343 Manchester Road | 18.45 | 18.65 | 0.20 |
| HR2 | Bassfield Farm | 17.63 | 18.08 | 0.45 |
| HR3 | 400 Bass Lane | 13.39 | 13.58 | 0.19 |
| HR4 | 953 Walmersley Road | 12.03 | 12.30 | 0.27 |
| HR5 | 899 Walmersley Road | 11.93 | 12.40 | 0.47 |
| HR6 | 843 Walmersley Road | 11.96 | 12.17 | 0.21 |
| HR7 | 772 Walmersley Road | 13.84 | 14.19 | 0.35 |
| HR8 | 9 Bentley Lane | 15.51 | 15.56 | 0.05 |
| HR9 | Longcroft House | 17.58 | 17.65 | 0.07 |
| HR10 | 8 Bell Lane | 17.13 | 17.25 | 0.12 |
| HR11 | 6 Brick Street | 16.34 | 16.43 | 0.09 |
| HR12 | 81 Bell Lane | 19.52 | 19.69 | 0.17 |
| HR13 | 106 Rochdale Old Road | 27.18 | 27.31 | 0.13 |
| HR14 | 81 Rochdale Old Road | 28.66 | 28.84 | 0.18 |
| HR15 | 82 Rochdale Old Road | 27.21 | 27.35 | 0.14 |

As indicated in Table B1, annual mean concentrations were below the relevant AQO at all receptor locations considered. Predicted impacts are summarised in Table B2.

**Table B2: Predicted Impacts**

| Potential Impact | | % Change in Concentration Relative to AQO | Long Term Average Concentration | IAQM Impact Descriptor |
|---|---|---|---|---|
| HR1 | 343 Manchester Road | 0.50 | 75% or Less | Negligible |
| HR2 | Bassfield Farm | 1.13 | 75% or Less | Negligible |
| HR3 | 400 Bass Lane | 0.47 | 75% or Less | Negligible |
| HR4 | 953 Walmersley Road | 0.68 | 75% or Less | Negligible |
| HR5 | 899 Walmersley Road | 1.18 | 75% or Less | Negligible |
| HR6 | 843 Walmersley Road | 0.52 | 75% or Less | Negligible |
| HR7 | 772 Walmersley Road | 0.87 | 75% or Less | Negligible |
| HR8 | 9 Bentley Lane | 0.13 | 75% or Less | Negligible |
| HR9 | Longcroft House | 0.18 | 75% or Less | Negligible |
| HR10 | 8 Bell Lane | 0.30 | 75% or Less | Negligible |
| HR11 | 6 Brick Street | 0.23 | 75% or Less | Negligible |
| HR12 | 81 Bell Lane | 0.43 | 75% or Less | Negligible |
| HR13 | 106 Rochdale Old Road | 0.32 | 75% or Less | Negligible |
| HR14 | 81 Rochdale Old Road | 0.45 | 75% or Less | Negligible |

| Potential Impact | | % Change in Concentration Relative to AQO | Long Term Average Concentration | IAQM Impact Descriptor |
|---|---|---|---|---|
| HR15 | 82 Rochdale Old Road | 0.35 | 75% or Less | Negligible |

As indicated in Table B2 impacts on annual mean $NO_2$ concentrations as a result of road vehicle exhaust emissions associated with the development were predicted to be negligible at all receptor locations.

Particulate Matter ($PM_{10}$)

**Table B3: Predicted Annual Mean Concentrations**

| Potential Impact | | Predicted Annual Mean Concentration (µg/m³) | | |
|---|---|---|---|---|
| | | DM | DS | Change |
| HR1 | 343 Manchester Road | 14.47 | 14.57 | 0.10 |
| HR2 | Bassfield Farm | 15.14 | 15.38 | 0.24 |
| HR3 | 400 Bass Lane | 13.13 | 13.22 | 0.09 |
| HR4 | 953 Walmersley Road | 12.72 | 12.85 | 0.13 |
| HR5 | 899 Walmersley Road | 12.69 | 12.87 | 0.18 |
| HR6 | 843 Walmersley Road | 12.69 | 12.79 | 0.10 |
| HR7 | 772 Walmersley Road | 13.50 | 13.66 | 0.16 |
| HR8 | 9 Bentley Lane | 13.23 | 13.24 | 0.01 |
| HR9 | Longcroft House | 13.80 | 13.82 | 0.02 |
| HR10 | 8 Bell Lane | 14.38 | 14.44 | 0.06 |
| HR11 | 6 Brick Street | 13.98 | 14.03 | 0.05 |
| HR12 | 81 Bell Lane | 15.62 | 15.71 | 0.09 |
| HR13 | 106 Rochdale Old Road | 17.78 | 17.84 | 0.06 |
| HR14 | 81 Rochdale Old Road | 18.99 | 19.08 | 0.09 |
| HR15 | 82 Rochdale Old Road | 17.88 | 17.94 | 0.06 |

As indicated in Table B3 annual mean concentrations were below the relevant AQO at all receptor locations considered. Predicted impacts are summarised in Table B4.

**Table B4: Predicted Impacts**

| Potential Impact | | % Change in Concentration Relative to AQO | Long Term Average Concentration | IAQM Impact Descriptor |
|---|---|---|---|---|
| HR1 | 343 Manchester Road | 14.47 | 14.57 | 0.10 |
| HR2 | Bassfield Farm | 15.14 | 15.38 | 0.24 |
| HR3 | 400 Bass Lane | 13.13 | 13.22 | 0.09 |
| HR4 | 953 Walmersley Road | 12.72 | 12.85 | 0.13 |
| HR5 | 899 Walmersley Road | 12.69 | 12.87 | 0.18 |
| HR6 | 843 Walmersley Road | 12.69 | 12.79 | 0.10 |
| HR7 | 772 Walmersley Road | 13.50 | 13.66 | 0.16 |
| HR8 | 9 Bentley Lane | 13.23 | 13.24 | 0.01 |
| HR9 | Longcroft House | 13.80 | 13.82 | 0.02 |
| HR10 | 8 Bell Lane | 14.38 | 14.44 | 0.06 |

| Potential Impact | | % Change in Concentration Relative to AQO | Long Term Average Concentration | IAQM Impact Descriptor |
|---|---|---|---|---|
| HR11 | 6 Brick Street | 13.98 | 14.03 | 0.05 |
| HR12 | 81 Bell Lane | 15.62 | 15.71 | 0.09 |
| HR13 | 106 Rochdale Old Road | 17.78 | 17.84 | 0.06 |
| HR14 | 81 Rochdale Old Road | 18.99 | 19.08 | 0.09 |
| HR15 | 82 Rochdale Old Road | 17.88 | 17.94 | 0.06 |

As indicated in Table B4 impacts on annual mean $PM_{10}$ concentrations as a result of road vehicle exhaust emissions associated with the development were predicted to be negligible at all receptor locations.

Particulate Matter ($PM_{2.5}$)

**Table B5: Predicted Annual Mean Concentrations**

| Potential Impact | | Predicted Annual Mean Concentration (µg/m$^3$) | | |
|---|---|---|---|---|
| | | DM | DS | Change |
| HR1 | 343 Manchester Road | 8.03 | 8.08 | 0.05 |
| HR2 | Bassfield Farm | 8.21 | 8.33 | 0.12 |
| HR3 | 400 Bass Lane | 7.14 | 7.19 | 0.05 |
| HR4 | 953 Walmersley Road | 6.91 | 6.97 | 0.06 |
| HR5 | 899 Walmersley Road | 6.88 | 6.98 | 0.10 |
| HR6 | 843 Walmersley Road | 6.88 | 6.93 | 0.05 |
| HR7 | 772 Walmersley Road | 7.30 | 7.39 | 0.09 |
| HR8 | 9 Bentley Lane | 7.29 | 7.30 | 0.01 |
| HR9 | Longcroft House | 7.64 | 7.65 | 0.01 |
| HR10 | 8 Bell Lane | 8.24 | 8.28 | 0.04 |
| HR11 | 6 Brick Street | 8.04 | 8.06 | 0.02 |
| HR12 | 81 Bell Lane | 8.89 | 8.94 | 0.05 |
| HR13 | 106 Rochdale Old Road | 10.02 | 10.05 | 0.03 |
| HR14 | 81 Rochdale Old Road | 10.62 | 10.67 | 0.05 |
| HR15 | 82 Rochdale Old Road | 10.06 | 10.09 | 0.03 |

As indicated in Table B5 annual mean concentrations were below the relevant AQO at all receptor locations considered. Predicted impacts are summarised in Table B6.

**Table B6: Predicted Impacts**

| Potential Impact | | % Change in Concentration Relative to AQO | Long Term Average Concentration | IAQM Impact Descriptor |
|---|---|---|---|---|
| HR1 | 343 Manchester Road | 0.25 | 75% or Less | Negligible |
| HR2 | Bassfield Farm | 0.60 | 75% or Less | Negligible |
| HR3 | 400 Bass Lane | 0.25 | 75% or Less | Negligible |
| HR4 | 953 Walmersley Road | 0.30 | 75% or Less | Negligible |
| HR5 | 899 Walmersley Road | 0.50 | 75% or Less | Negligible |

| Potential Impact | | % Change in Concentration Relative to AQO | Long Term Average Concentration | IAQM Impact Descriptor |
|---|---|---|---|---|
| HR6 | 843 Walmersley Road | 0.25 | 75% or Less | Negligible |
| HR7 | 772 Walmersley Road | 0.45 | 75% or Less | Negligible |
| HR8 | 9 Bentley Lane | 0.05 | 75% or Less | Negligible |
| HR9 | Longcroft House | 0.05 | 75% or Less | Negligible |
| HR10 | 8 Bell Lane | 0.20 | 75% or Less | Negligible |
| HR11 | 6 Brick Street | 0.10 | 75% or Less | Negligible |
| HR12 | 81 Bell Lane | 0.25 | 75% or Less | Negligible |
| HR13 | 106 Rochdale Old Road | 0.15 | 75% or Less | Negligible |
| HR14 | 81 Rochdale Old Road | 0.25 | 75% or Less | Negligible |
| HR15 | 82 Rochdale Old Road | 0.15 | 75% or Less | Negligible |

As indicated in Table B6 impacts on annual mean $PM_{2.5}$ concentrations as a result of road vehicle exhaust emissions associated with the development were predicted to be negligible at all receptor locations.

It is therefore considered that the overall impacts as a result of the Proposed Development are not significant. Further justifications are discussed in Section 5.3 and Table 14.

## Appendix C – IAQM Construction Phase Methodology

There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined within the IAQM guidance[3]. Activities are divided into four types to reflect their different potential impacts. These are:

- Demolition
- Earthworks;
- Construction; and
- Trackout.

The potential for dust emissions was assessed for each activity that is likely to take place and considered three separate dust effects:

- Annoyance due to dust soiling;
- Harm to ecological receptors; and
- The risk of health effects due to a significant increase in exposure to $PM_{10}$ and $PM_{2.5}$.

The assessment steps are detailed below.

Step 1

Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 250m from the site boundary or 50m from the construction vehicle route up to 250m from the site entrance, then the assessment should proceed to Step 2. Additionally, should ecological receptors be identified within 50m of the boundary site or 50m from the construction vehicle route up to 250m from the site entrance, then the assessment should also proceed to Step 2.

Should sensitive receptors not be present within the relevant distances then negligible impacts would be expected and further assessment is not necessary.

Step 2

Step 2 assesses the risk of potential dust impacts. A site is allocated to a risk category based on two factors:

- The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large (Step 2A); and
- The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity (Step 2B).

The two factors are combined in Step 2C to determine the risk of dust impacts without mitigation applied. Step 2A defines the potential magnitude of dust emission through the construction phase. The relevant criteria are summarised in Table A1.

**Table A1: Construction Dust - Magnitude of Emission**

| Magnitude | Activity | Criteria |
|---|---|---|
| Large | Demolition | • Total building volume greater than 75,000m$^3$<br>• Potentially dusty construction material (e.g. concrete)<br>• On-site crushing and screening<br>• Demolition activities >12m above ground level |

| Magnitude | Activity | Criteria |
|---|---|---|
| | Earthworks | • Total site area >110,000m$^2$<br>• Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size)<br>• >10 heavy earth moving vehicles active at any one time<br>• Formation of bunds >6m in height |
| | Construction | • Total building volume >75,000m$^3$<br>• On site concrete batching or sandblasting |
| | Trackout | • >50 HDV outward trips per day<br>• Potentially dusty surface material (e.g. high clay content)<br>• Unpaved road length >100m |
| Medium | Demolition | • Total building volume 12,000m$^3$ to 75,000m$^3$<br>• Potentially dusty construction material<br>• Demolition activities 6 to 12m above ground level |
| | Earthworks | • Total site area 18,000m$^2$ to 110,000m$^2$<br>• Moderately dusty soil type (e.g. silt)<br>• 5 to 10 heavy earth moving vehicles active at any one time<br>• Formation of bunds 3m to 6m in height |
| | Construction | • Total building volume 12,000m$^3$ to 75,000m$^3$<br>• Potentially dusty construction material (e.g. concrete)<br>• On site concrete batching |
| | Trackout | • 20 to 50 HDV outward trips per day<br>• Moderately dusty surface material (e.g. high clay content)<br>• Unpaved road length 50m to 100m |
| Small | Demolition | • Total building volume under 12,000m$^3$<br>• Construction material with low potential for dust release (e.g. metal cladding or timber)<br>• Demolition activities less <6m above ground level<br>• Demolition during wetter months |
| | Earthworks | • Total site area less than 18,000m$^2$<br>• Soil type with large grain size (e.g. sand)<br>• <5 heavy earth moving vehicles active at any one time<br>• Formation of bunds <3m in height |
| | Construction | • Total building volume <12,000m$^3$<br>• Construction material with low potential for dust release (e.g. metal cladding or timber) |
| | Trackout | • <20 HDV outward movements in any one day<br>• Surface material with low potential for dust release<br>• Unpaved road length <50m |

Step 2B defines the sensitivity of the area around the development site for construction, earthworks and trackout. The factors influencing the sensitivity of the area are shown in Table A2.

**Table A2: Examples of Factors Defining Sensitivity of an Area**

| Sensitivity | Receptors | |
|---|---|---|
| | Human | Ecological |
| High | **Dust Soiling**<br>• Users can reasonably expect enjoyment of a high level of amenity;<br>• The appearance, aesthetics or value of their property would be diminished by soiling; and<br>• The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land.<br>• Indicative examples include dwellings, museums and other culturally important collections, medium and long term car parks and car showrooms.<br>**Health Effects**<br>• Locations where members of the public are exposed over a time period relevant to the air quality objective for $PM_{10}$ (in the case of the 24-hour objectives, a relevant location would be one where individuals maybe exposed for eight hours or more in a day).<br>• Indicative examples include residential properties. Hospitals, schools, and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment. | • Internationally or nationally designated site e.g. Special Area of Conservation |
| Medium | **Dust Soiling**<br>• Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or<br>• The appearance, aesthetics or value of their property could be diminished by soiling; or<br>• The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.<br>• Indicative examples include parks and places of work.<br>**Health Effects**<br>• Locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM10 (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).<br>• Indicative examples include office and shop workers, but will generally not include workers occupationally exposed to $PM_{10}$ , as protection is covered by Health and Safety at Work legislation. | • Nationally designated site e.g. Sites of Special Scientific Interest |
| Low | **Dust Soiling**<br>• Enjoyment of amenity would not reasonably be expected<br>• Property would not be expected to be diminished in appearance, aesthetics, or value by soiling<br>• There is transient exposure, where the people or property would reasonably be expected to be present | • Locally designated site e.g. Local Nature Reserve |

| Sensitivity | Receptors | |
|---|---|---|
| | Human | Ecological |
| | only for limited periods of time as part of the normal pattern of use of the land.<br>• Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short term car parks and roads.<br>**Health Effects**<br>• Locations where human exposure is transient.<br>• Indicative examples include public footpaths, playing fields, parks and shopping streets. | |

The sensitivity of the area to dust soiling effects on people and property is shown in Table A3.

**Table A3: Sensitivity of the Area to Dust Soiling Effects on People and Property**

| Receptor Sensitivity | Number of Receptors | Distance from the Source (m) | | | |
|---|---|---|---|---|---|
| | | <20 | <50 | <100 | <250 |
| High | >100 | High | High | Medium | Low |
| | 10 - 100 | High | Medium | Low | Low |
| | 1 - 10 | Medium | Low | Low | Low |
| Medium | >1 | Medium | Low | Low | Low |
| Low | >1 | Low | Low | Low | Low |

Table A4 outlines the sensitivity of the area to human health impacts.

**Table A4: Sensitivity of the Area to Human Health Impacts**

| Sensitivity | Annual Mean $PM_{10}$ Concentration | Number of Receptors | Distance from the Source (m) | | | |
|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <250 |
| High | >32µg/m$^3$ | >100 | High | High | High | Medium |
| | | 10 - 100 | High | High | Medium | Low |
| | | 1 - 10 | High | Medium | Low | Low |
| | 28 - 32µg/m$^3$ | >100 | High | High | Medium | Low |
| | | 10 - 100 | High | Medium | Low | Low |
| | | 1 - 10 | High | Medium | Low | Low |
| | 24 - 28µg/m$^3$ | >100 | High | Medium | Low | Low |
| | | 10 - 100 | High | Medium | Low | Low |
| | | 1 - 10 | Medium | Low | Low | Low |
| | <24µg/m$^3$ | > 100 | Medium | Low | Low | Low |
| | | 10 - 100 | Low | Low | Low | Low |
| | <24µg/m$^3$ | > 100 | Medium | Low | Low | Low |
| | | 10 - 100 | Low | Low | Low | Low |
| | | 1 - 10 | Low | Low | Low | Low |
| Medium | >32µg/m$^3$ | >10 | High | Medium | Low | Low |
| | | 1 - 10 | Medium | Low | Low | Low |
| | 28 - 32µg/m$^3$ | > 10 | Medium | Low | Low | Low |
| | | 1 - 10 | Low | Low | Low | Low |
| | 24 - 28µg/m$^3$ | >10 | Low | Low | Low | Low |

| Sensitivity | Annual Mean $PM_{10}$ Concentration | Number of Receptors | Distance from the Source (m) | | | |
|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <250 |
| | | 1 - 10 | Low | Low | Low | Low |
| | <24µg/m$^3$ | > 10 | Low | Low | Low | Low |
| | | 1 - 10 | Low | Low | Low | Low |
| Low | - | >1 | Low | Low | Low | Low |

Table A5 outlines the sensitivity of the area to ecological impacts.

**Table A5: Sensitivity of the Area to Ecological Impacts**

| Receptor Sensitivity | Distance from the Source (m) | |
|---|---|---|
| | <20 | <50 |
| High | High | Medium |
| Medium | Medium | Low |
| Low | Low | Low |

Step 2C combines the dust emission magnitude with the sensitivity of the area to determine the risk of unmitigated impacts. Table A6 outlines the risk category from demolition activities.

**Table A6: Dust Risk Category from Demolition**

| Receptor Sensitivity | Dust Emission Magnitude | | |
|---|---|---|---|
| | Large | Medium | Small |
| High | High | Medium | Medium |
| Medium | High | Medium | Low |
| Low | Medium | Low | Negligible |

Table A7 outlines the risk category from earthworks and construction activities.

**Table A7: Dust Risk Category from Earthworks and Construction**

| Receptor Sensitivity | Dust Emission Magnitude | | |
|---|---|---|---|
| | Large | Medium | Small |
| High | High | Medium | Low |
| Medium | Medium | Medium | Low |
| Low | Low | Low | Negligible |

Table A8 outlines the risk category from trackout.

**Table A8: Dust Risk Category from Trackout**

| Receptor Sensitivity | Dust Emission Magnitude | | |
|---|---|---|---|
| | Large | Medium | Small |
| High | High | Medium | Low |
| Medium | Medium | Medium | Low |
| Low | Low | Low | Negligible |

Step 3

Step 3 requires the identification of site-specific mitigation measures within the IAQM guidance to reduce potential dust impacts based upon the relevant risk categories identified in Step 2. For sites with negligible risk mitigation measures beyond those required by legislation are not required. However, additional controls may be applied as part of good practice.

Step 4

Once the risk of dust impacts has been determined and the appropriate mitigation measures identified, the final step is to determine the significance of any residual impacts. For almost all construction activity, the aim should be to control effects using effective mitigation.

Experience shows that this is normally possible. Hence the residual effect will normally be not significant.



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# APPENDIX 8 – NOISE IMPACT ASSESSMENT (ENZYGO)

enzygo
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# Noise Impact Assessment

Land to the East of Walmersley Road, Bury

**Hollins Strategic Land LLP**

MAN.1671.012.NO.R.002

'Experience and expertise working in union'

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# Noise Impact Assessment

| | |
|---|---|
| Project: | Land to the East of Walmersley Road, Bury |
| For: | Hollins Strategic Land LLP |
| Status: | Submission Version – Final |
| Date: | March 2026 |
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# 1 Introduction

## 1.1 Project Introduction

1.1.1 Enzygo Limited has been commissioned by Hollins Strategic Land LLP to undertake a noise impact assessment for a proposed mixed use development on land to the east of Walmersley Road, Bury.

1.1.2 The assessment presented in this report draws on the results of a baseline noise survey and noise modelling and considers potential impacts in accordance with relevant British Standards and guidance.

1.1.3 Details of the assessment methodology employed, together with the results of the surveys, predictions, assessment, and conclusions are presented in this report.

## 1.2 Site Location

1.2.1 The proposed mixed use development site is located on land to the east of Walmersley Road, Bury.

1.2.2 The site is bordered by the M66 (and junction 1's slip road) to the north and east, with open arable space beyond. To the south, there is a residential area. The site is bordered by Walmersley Road (A56) to the west, with residential properties fronting the west side of the road.

1.2.3 The site and monitoring locations are shown in Figure 1-1 overleaf.

## 1.3 Proposed Scheme

1.3.1 Outline planning application with all matters reserved other than access for mixed use development for up to 350 dwellings (Use Class C3), up to 2,500 sq mts employment/commercial uses (Use Classes E(c), E(d), E(e), E(f), E(g)(ii) and E(g)(iii)), a local centre comprising up to 249 sq mts of retail floorspace (Use Class E(a)), mobility hub, public open space and associated infrastructure.

1.3.2 The proposed concept development plan is shown in Figure 1-2.

**Figure 1-1: Site Location & Layout Plan**

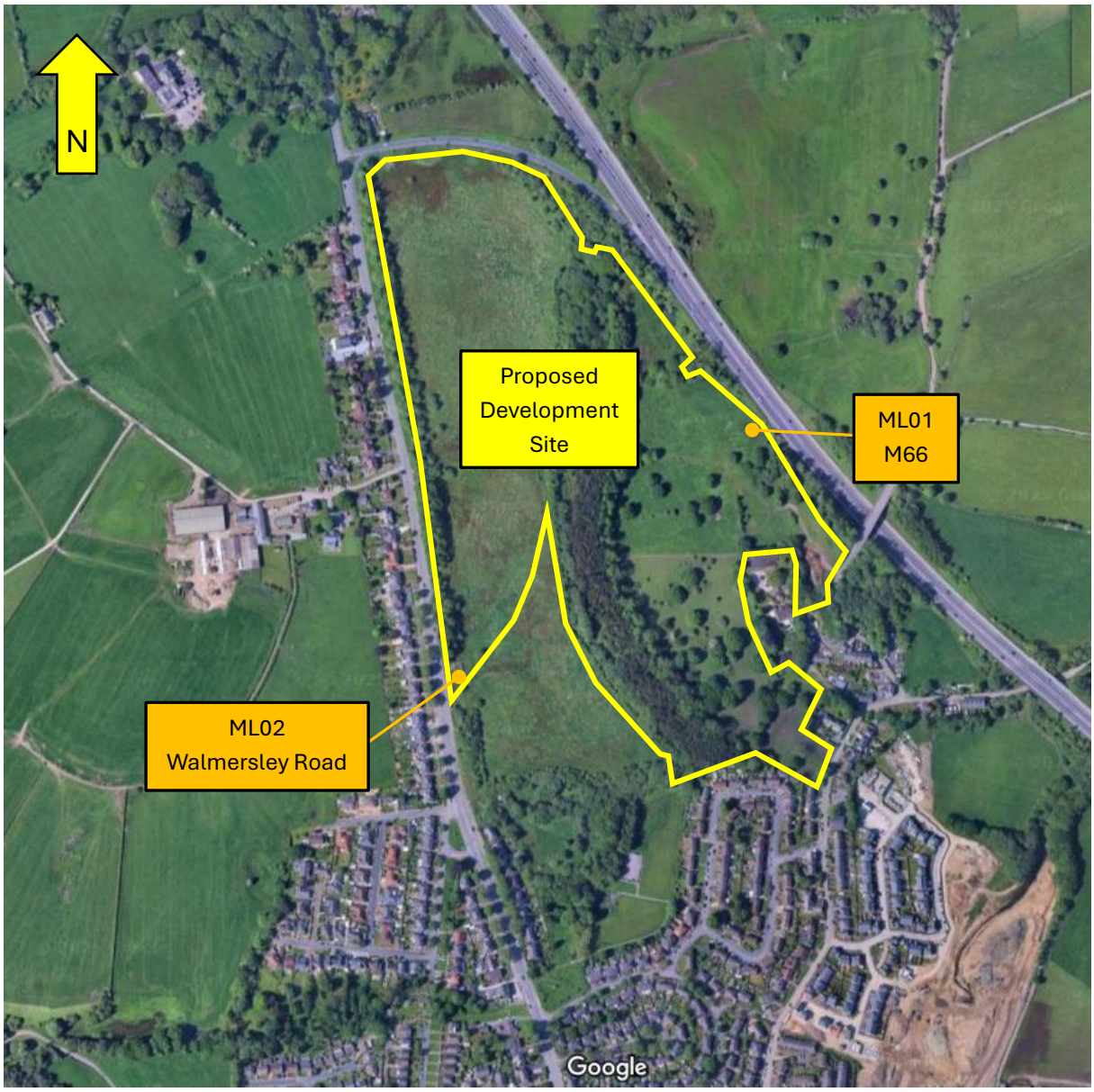


**Figure 1-2: Proposed Concept Plan**



# 2 Standards and Guidance

2.1.1 The assessment of potential noise impact at the development site has been informed by relevant British Standards and guidance documents relating to noise. A summary of the relevant standards and guidance documents referenced in this assessment is presented below.

2.1.2 This report does not provide detailed assessment of any requirements under the building regulations, i.e., Approved Document E or Approved Document O. It does provide outline commentary on the likely suitability of a reliance on openable windows for compliance with the Overheating requirements outlined in Approved Document O for information purposes only. However, detailed thermal modelling would still need to be undertaken at detailed design stage.

## 2.2 Professional Practice Guidance on Planning and Noise

2.2.1 The Professional Practice Guidance (ProPG) on Planning and Noise (May 2017) provides guidance on transport noise affecting new residential developments. The guidance was prepared by a working group formed from members of the Institute of Acoustics (IoA), the Association of Noise Consultants (ANC) and the Chartered Institute of Environmental Health (CIEH). It has no formal planning status but nevertheless represents industry good practice. It is specifically for assessing noise impact due to transportation sources on residential development, though can include industrial noise sources if they are not dominant.

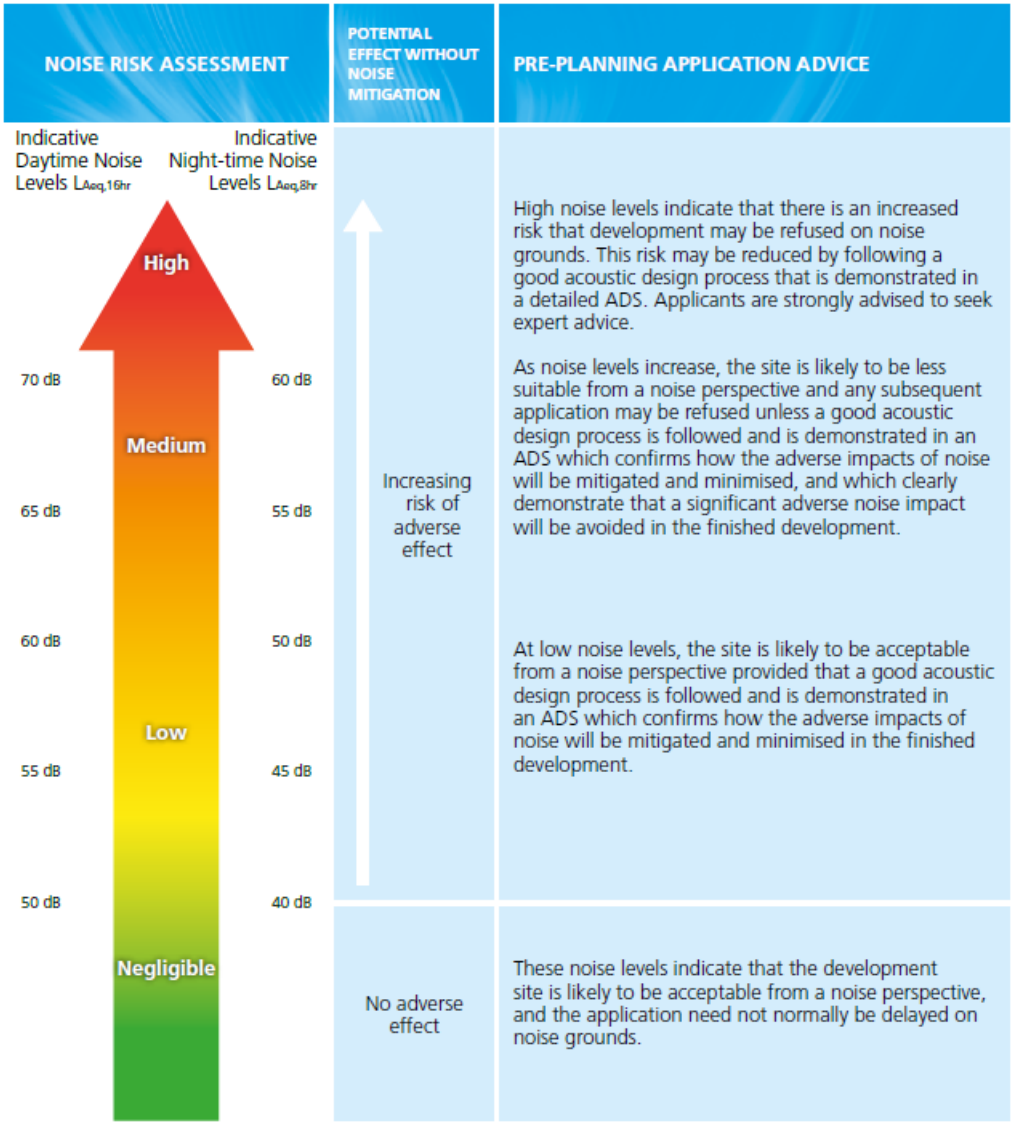
2.2.2 The guidance outlines a two staged approach to an assessment:

- Stage 1 – a noise risk assessment of the proposed site; and,
- Stage 2 – a more detailed consideration of the suitability of the development, including the adoption of good acoustic design principles, consideration of internal noise levels, noise levels in external amenity areas, and other issues.

2.2.3 The Stage 1 noise risk assessment, based on noise from transport sources is presented as an infographic in Figure 1 of the guidance document and is presented overleaf (Figure 2-1).

2.2.4 The Stage 1 assessment considers external noise levels incident in the development only and provides a qualitative assessment of likely impacts and potential design considerations.

**Figure 2-1: ProPG Stage 1 Risk Assessment**




2.2.5 The Stage 1 assessment demonstrates that rising $L_{Aeq,T}$ noise levels relate to an increased risk of noise impacts.

2.2.6 Notes to the figure include a caveat that more than 10 noise events exceeding 60 dB $L_{AFmax}$ during the night would put the site above the negligible risk category.

2.2.7 The ProPG states the following in Paragraph 2.22, in relation to openable windows:

*'Using fixed unopenable glazing for sound insulation purposes is generally unsatisfactory and should be avoided; occupants generally prefer the ability to have control over the internal environment using openable windows, even if the acoustic conditions would be considered unsatisfactory when open.'*

2.2.8 The guidance further states:

*'Any reliance upon building envelope insulation with closed windows should be justified in supporting documents.'*

## 2.3 British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings

2.3.1 National guidance on noise limits for dwellings is set out in BS8233:2014. This sets limits in terms of two noise parameters: the ambient level $L_{Aeq}$ and the maximum level $L_{AFmax}$. The $L_{AFmax}$ is the highest noise level in each period and is determined by individual events such as a vehicle pass-bys. An $L_{AFmax}$ limit is usually only applied at night when sleep disturbance is more likely to be an issue. The $L_{Aeq}$ is defined as the steady-state noise level which has the same energy as the actual time-varying noise over the same period. It is effectively the energy average noise level.

2.3.2 Appropriate internal noise levels are recommended in BS8233:2014, shown in Table 2-1 below. These accord well with the values recommended in the World Health Organisation (WHO) Guidance "Guidelines for Community Noise", 1999.

**Table 2-1: BS8233 Indoor Ambient Noise Levels for Dwellings**

| Activity | Location | 07:00 to 23:00 Hours | 23:00 to 07:00 Hours |
|---|---|---|---|
| Resting | Living room | 35dB $L_{Aeq,16hr}$ | - |
| Dining | Dining room/area | 40dB $L_{Aeq,16hr}$ | - |
| Sleeping (daytime resting) | Bedroom | 35dB $L_{Aeq,16hr}$ | 30dB $L_{Aeq,8hr}$ |

2.3.3 The guidance values are generally taken as applying to noise sources without specific character, previously termed 'anonymous noise' in earlier versions of the standard.

2.3.4 Whilst it is considered desirable to achieve these internal noise levels with the windows open, it is not stipulated within the Standard which states:

*"If relying on closed windows to meet the guide values, there needs to be appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level."*

2.3.5 BS8233 also sets out a design-criteria for external noise in external amenity spaces such as gardens and patios stating:

*"it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments."*

## 2.4 ISO9613 Acoustics – Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors.

2.4.1 The noise levels generated by the operation of the proposed development have been predicted using the calculation methodology set out in ISO9613-2. The methodology considers the distance between the sources and the receptors and applies the amount of attenuation due to atmospheric absorption and other site-specific characteristics.

2.4.2 The methodology assumes downwind propagation, i.e., a wind direction that assists the propagation of noise from the source to all receptors.

# 3 Baseline Survey Information

## 3.1 Introduction

3.1.1 It is considered that the main sources of noise impacting upon the site would be from road traffic using the M66 and Walmersley Road. Therefore, baseline noise monitoring was undertaken for a 24-hour period at safe locations close to these roads.

3.1.2 The survey was undertaken on Monday 11th and Tuesday 12th August 2025 at the locations shown in Figure 1-1.

## 3.1 Weather Conditions

3.1.1 Weather conditions during set up of the monitoring equipment were noted and are detailed in Table 3-1.

**Table 3-1: Weather Conditions**

| Wind Speed & Direction | Rain | Ground Conditions | Cloud Cover | Temp |
|---|---|---|---|---|
| 0.8 m/s W | None | Dry | 5% | 20 °C |

## 3.2 Measuring Equipment

3.2.1 The noise monitoring equipment used during the surveys is shown in Table 3-1 and was set to record the $L_{Aeq,T}$, $L_{A90}$, $L_{A10}$ and $L_{Afmax}$ parameters.

3.2.2 The following set-up parameters were used on the sound level meter during all the noise measurements undertaken:

Time Weighting: Fast

Frequency Weighting: "A"

3.2.3 The sound level meters were field calibrated, using the acoustic calibrator, prior to commencement and upon completion of the overall survey. No drifts in calibration were noted.

**Table 3-2: Noise Monitoring Equipment**

| Location | Equip. Make & Model | Class | Calibration Level, dB | Serial No. | Calibration Date Prior to Survey |
|---|---|---|---|---|---|
| ML01 | RION NL-53 Sound Level Meter | 1 | 94.0 | 351948 | 06/05/2025 |
| | RION NC-75 Calibrator | 1 | - | 34356635 | 06/05/2025 |
| ML02 | RION NL-53 Sound Level Meter | 1 | 94.0 | 351949 | 06/05/2025 |
| | RION NC-75 Calibrator | 1 | - | 34456696 | 06/05/2025 |

The external calibration documentation for the equipment used is available upon request.

## 3.3 Survey Details and Results

3.3.1 The results of the baseline surveys are summarised in Table 3-3 below and can be found in full in Appendix A.

**Table 3-3: Summary of Baseline Survey Results**

| Location | Period | Duration hh:mm:ss | Average $L_{Aeq,T}$, dB | $L_{Afmax}$, dB | $L_{A90}$, dB | $L_{A10}$, dB |
|---|---|---|---|---|---|---|
| **ML01 M66** | Day | 16:00:00 | 71.9 | 97.8 | 67.2 | 73.9 |
| | Night | 08:00:00 | 67.1 | 78.6 ($10^{th}$ Highest) | 53.7 | 69.7 |
| **ML02 Walmersley Road** | Day | 16:00:00 | 68.4 | 102.2 | 49.4 | 72.1 |
| | Night | 08:00:00 | 60.7 | 83.6 ($10^{th}$ Highest) | 41.1 | 54.4 |

## 3.4 Subjective Observations

3.4.1 At ML01, the noise climate is entirely dominated by road traffic noise from the M66.

3.4.2 At ML02, Walmersley Road is dominant at this location. Secondary sources include people walking and talking along the path and birdsong. Traffic on the road consist of various forms of transport like cars, buses and tractors.

# 4 Noise Modelling

## 4.1 Introduction

4.1.1 The noise levels measured for the M66 and Walmersley Road have been used to inform a noise assessment, demonstrate noise propagation across the site and provide an indication of likely façade noise levels at the worst affected proposed properties.

4.1.2 A noise model has been constructed using the proprietary noise modelling software package CadnaA utilising Google Earth geo-referenced 1:1 scaled aerial photography, openstreetmap.org mapping data and the latest iteration of the site layout plan.

## 4.2 Foundations of the Noise Model

4.2.1 In the first instance, the measured survey data was used to inform the base model of the site, reflecting the existing noise climate across the site during the daytime and night-time periods. The following factors were included in the model.

**Table 4-1: CadnaA Noise Model Parameters**

| CadnaA Noise Model Parameters | |
|---|---|
| Calculation Methodology | ISO 9613-2 (2024)<br>Calculation of Road Traffic Noise (CRTN) |
| Noise Model Configuration | Ground Absorption set to G = 0.5<br>Order of Reflection = 2 |
| Meteorological Conditions | Temperature 10°C<br>Relative Humidity 70%<br>Wind and temperature gradient assisted sound propagation has been assumed to all receptors. |

# 5 ProPG Noise Assessment

## 5.1 Introduction

5.1.1 The assessment of noise across the site includes several elements. Initially, a site risk assessment has been undertaken in accordance with the guidance of the ProPG to establish the risk of noise impacts on the development.

## 5.2 Stage 1: Noise Risk Assessment

5.2.1 In the first instance, noise levels have been predicted from the M66 and Walmersley Road across a flattened site assuming all proposed buildings and structures are not in place. The contour plots are shown in Figure B-1 (daytime: 07:00 to 23:00 hours) and Figure B-2 (night-time: 23:00 to 07:00 hours) in Appendix B.

5.2.2 The contour plots are presented in the approximate colour bandings adopted in the ProPG infographic and indicate:

- During the daytime period the proposed developed area of the site falls within the negligible (green) and/or low (yellow/orange) risk banding
- During the night-time period the proposed developed area of the site falls within the negligible (green) and/or low (yellow/orange) risk banding.

***Green***

*'These noise levels indicate that the development site is likely to be acceptable from a noise perspective, and the application need not normally be delayed on noise grounds."*

***Yellow & Orange***

*'At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.'*

5.2.3 Overall, it is considered unlikely that the general noise climate in the vicinity would result in any significant restrictions on amenity, etc., though mitigation measures will likely be required, subject to a detailed assessment.

# 6 Ventilation and Overheating

6.1.1 The Building Regulations: Approved Document O highlights the importance of considering the potential for overheating and its implications on noise impacts.

6.1.2 Consideration of the overheating risk, in accordance with the toolkit described in the Good Homes Alliance document puts the risk of overheating at the site in the 'Low' risk category. This would indicate that overheating is likely to be a relatively infrequent occurrence and, as a result, residents are more likely to be tolerant of slightly higher noise levels when overheating does occur.

6.1.3 It is noted that these risk categories relate solely to the risk of overheating and do not relate to the levels of noise reported in the previous section.

6.1.4 Approved Document O establishes that a relaxation of the normal internal acoustic criteria is allowed for periods when overheating is a concern, i.e., peak summer months. During these periods, the approved document identifies that windows are likely to be closed during sleeping hours if internal noise levels exceed the following:

*40dB $L_{Aeq,8hr}$ between 23:00 and 07:00 hours; and*

*55dB $L_{AFmax}$ more than 10 times per night.*

6.1.5 A detailed overheating assessment, which should be undertaken by others at the detailed design stage, should assume that windows are closed at night at properties where the external night-time noise level exceeds 55dB $L_{Aeq,8hr}$ or 70dB $L_{AFmax}$.

# 7 Conclusion

7.1.1 Enzygo Limited has been commissioned by Hollins Strategic Land LLP to undertake a noise impact assessment for a proposed mixed-use development on land to the East of Walmersley Rd, Bury.

7.1.2 The assessment has been undertaken to assess the potential impacts of the existing noise levels incident on the site for the proposed residential use. The assessments have been undertaken in accordance with the relevant standards and guidance and have been informed by a baseline noise and vibration monitoring survey.

## 7.2 Noise Assessment

7.2.1 The noise monitoring survey data indicates that levels across the site would generally fall within the 'negligible' and 'low' risk categories according to the ProPG during the daytime and night-time periods.

7.2.2 Overall, the assessments presented in this report have demonstrated that, with appropriate consideration of mitigation (suitable glazing, ventilation strategy and garden fencing), external amenity space and internal noise criteria will likely be achieved.

# Glossary of Terminology

Noise is defined as unwanted sound. The range of audible sound is known to be from 0dB (threshold of hearing) to 140dB (threshold of pain). Examples of typical noise levels relating to 'everyday' occurrences are given in Table G-1 below.

**Table G-1: Typical Noise Levels**

| Source | Sound Pressure Level in dB(A) | Subjective Level |
|---|---|---|
| Gun shot | 160 | Perforation of eardrum |
| Military Jet take-off | 140 | Threshold of pain |
| Jet Aircraft at 100m | 120 | Very Loud |
| Rock Concert, front seats | 110 | Threshold of Sensation |
| Pneumatic Drill at 5m | 100 | Very Loud |
| Heavy goods vehicle from pavement | 90 | |
| Traffic at kerb edge | 70 – 85 | Loud |
| Vacuum Cleaner, Hair Dryer | 70 | |
| Normal conversation at 1m | 60 | Moderate |
| Typical Office | 50 – 60 | |
| Residential area at night | 40 | Quiet |
| Rural area at night, still air | 30 | |
| Leaves Rustling | 20 | |
| Rubbing together of fingertips | 10 | |
| | 0 | Threshold of hearing |

The frequency response of the human ear to noise is usually taken to be around 18Hz (number of oscillations per second) to 18,000Hz. However, the human ear does not respond equally to different frequencies at the same level; it is more sensitive in the mid-frequency range than lower and higher frequencies and, because of this when undertaking the measurement of noise, the low and high frequency components of any given sound are reduced in importance by applying a filtering (weighting) circuit to the noise measuring instrument. The weighting which is widely accepted to correlate best with the subjective nature of human response to noise and is most widely used to quantify this is the A-weighted filter set. This is an internationally accepted standard for noise measurement.

For variable noise sources within an area an increase of 3dB(A) would be the minimum perceptible to the human ear under normal conditions. It is generally accepted that an increase/decrease of 10dB(A) corresponds to a doubling or halving in perceived loudness. The 'loudness' of a noise is a purely subjective parameter, dependant not only upon the sound pressure of the event but also on the dynamics of the listener's ear, the time of the day and the general mood of the person.

With regards to environmental noise levels (in the open air), these are rarely steady but rise and fall according to the activities being undertaken within the surrounding area at any given time. Attempting to produce a figure that relates this variable nature of noise to human subjective response, various statistical noise metrics have been developed. These and other useful terminology and descriptors are presented in Table G-2 below.

**Table G-2: Terminology**

| Term | Definition |
|---|---|
| **Sound** | Pressure fluctuations in a fluid medium within the audible range of amplitudes and frequencies which stimulate the organs of hearing. |
| **Noise** | Unwanted sound emitted from a source and received by the sensitive receptor. |
| **Decibel (dB)** | Unit most often used to describe the sound pressure level. A logarithmic number, it correlates closely to the way in which humans perceive sound. Its wide range of values helps quantify sound pressures from a large variety of magnitudes. |
| **A-Weighting (dB(A))** | Human perception of sound is frequency dependant. A-weighting applies a range of corrections at each frequency to provide a 'human-averaged'. Can be frequency band or broadband values. |
| **Frequency (Hz)** | The number of cycles per second, for sound this is closely related (and often mistaken for) pitch. |
| **Frequency Spectrum** | A more detailed analysis of the frequency components that comprise a sound source. |
| **$L_{A10,T}$** | The 10$^{th}$ statistical percentile of a measurement period, i.e., the level that is exceeded for 10% of the measurement duration. Closely correlates with traffic sources, A-weighted. |
| **$L_{A90,T}$** | The 90$^{th}$ statistical percentile of a measurement period, i.e., the level that is exceeded for 90% of the measurement duration. Used to describe background sound levels, as this value is affected less by short, transient sound sources, A-weighted. |
| **$L_{Amax}$** | The root mean square (RMS) maximum sound pressure level within a measurement period, A-weighted. |
| **Ambient Sound** | The total sound climate of all noise sources incident at one location, both in the near- and far-field (*The ambient sound comprises the residual sound and the specific sound when present)*. |
| **Ambient Sound Level $L_a = L_{Aeq,T}$** | Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T. |
| **Background Sound Level $L_{A90,T}$** | A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels. |
| **Equivalent Continuous A-weighted Sound Pressure Level $L_{Aeq,T}$** | Value of the A-weighted sound pressure level in decibels of continuous steady sound that, within a specified time interval, $T = t_2 - t_1$, has the same mean-squared sound pressure as a sound that varies with time, and is given by the following equation: |

| Term | Definition |
|---|---|
| | $$L_{Aeq,T} = 10lg_{10}\left\{\left(\frac{1}{T}\right)\int_{t1}^{t2}\left[p_A\frac{(t)^2}{{p_0}^2}\right]dt\right\}$$<br>Where $p_0$ is the reference sound pressure (20µPA); and<br>$P_A(t)$ is the instantaneous A-weighted sound pressure level at time t. |
| **Measurement Time Interval $T_m$** | Total time over which measurements are taken (*This may consist of the sum of several non-contiguous, short-term measurement time intervals)* |
| **Rating level $L_{Ar,Tr}$** | Specific sound level plus any adjustment for the characteristic features of the sound, over time, T. |
| **Reference Time Interval, $T_r$** | Specified interval over which the specific sound level is determined (This is 1hr during the day from 07:00 to 23:00 hours and a shorter period of 15-min at night from 23:00 to 07:00 hours). |
| **Residual Sound** | Ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound. |
| **Residual sound level $L_r = L_{Aeq,T}$** | Equivalent continuous A-weighted sound pressure level of the residual sound in a given situation at the assessment location over a given time interval, T. |
| **Sound Pressure Level** | The level of fluctuation in air pressure, caused by airborne sound sources. Measured in Pascals (Pa). |
| **Sound Power Level** | The rate at which sound is radiated by a source. This parameter is useful as it describes sound energy before environmental or decay factors. Quantified in dB and notated usually as $L_w$ or SWL. |
| **Specific sound level $L_s = L_{Aeq,Tr}$** | Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given time interval, T. |
| **Specific Sound Source** | Sound source being assessed. |

## Statement of Uncertainty

This report is based upon a range of measurements, a system of calculations and noise predictions. As such, this report attempts to quantify fluctuations in air pressure and is subject to the effects of meteorology, physical and perceived anomalies, tolerances within the measuring and monitoring equipment and accuracy margins within the noise modelling software. In the interests of repeatability, this report must be considered as being affected by common factors involved in the measurement and calculation of noise propagation.

All measurement values, outcomes and assumptions are subject to a margin of uncertainty. This has been quantified and assessed as follows:

- Rounding errors – systemic tolerance of ±1dB;
- Meteorology – allowance of ±1.9dB; and
- CadnaA noise propagation modelling software – operational accuracy of ±2.1dB

The most influential uncertainty factors for the assessment of noise are deemed to be equipment tolerances, meteorology and software accuracy. A root-sum-square statistical average has been used to provide an overall margin of uncertainty of ±3dB.

# APPENDICES

# Appendix A Baseline Survey Data

**Table A-1: Baseline Measurements – ML01 Daytime**

| Date & Time | $L_{Aeq}$ (dB) | $L_{AFmax}$ (dB) | $L_{A90}$ (dB) | $L_{A10}$ (dB) |
|---|---|---|---|---|
| 11/08/2025 11:30 | 71.3 | 86.4 | 67.4 | 73.5 |
| 11/08/2025 11:45 | 71.1 | 80.3 | 67.3 | 73.3 |
| 11/08/2025 12:00 | 71.2 | 77.9 | 66.9 | 73.6 |
| 11/08/2025 12:15 | 71.6 | 78.1 | 67.5 | 73.8 |
| 11/08/2025 12:30 | 71.6 | 80.6 | 67.9 | 73.7 |
| 11/08/2025 12:45 | 71.1 | 80.1 | 66.9 | 73.3 |
| 11/08/2025 13:00 | 71.5 | 79.6 | 67.5 | 73.7 |
| 11/08/2025 13:15 | 71.4 | 78.9 | 67.0 | 73.8 |
| 11/08/2025 13:30 | 71.0 | 78.9 | 66.7 | 73.3 |
| 11/08/2025 13:45 | 72.9 | 97.8 | 66.9 | 73.9 |
| 11/08/2025 14:00 | 71.3 | 80.8 | 66.6 | 73.6 |
| 11/08/2025 14:15 | 71.9 | 82.2 | 68.2 | 73.9 |
| 11/08/2025 14:30 | 71.9 | 79.9 | 68.2 | 74.1 |
| 11/08/2025 14:45 | 71.7 | 83.1 | 68.1 | 73.6 |
| 11/08/2025 15:00 | 72.0 | 83.3 | 68.6 | 73.9 |
| 11/08/2025 15:15 | 71.9 | 80.9 | 68.8 | 73.8 |
| 11/08/2025 15:30 | 72.2 | 82.5 | 68.9 | 74.1 |
| 11/08/2025 15:45 | 72.6 | 83.0 | 69.9 | 74.2 |
| 11/08/2025 16:00 | 72.6 | 85.3 | 69.6 | 74.0 |
| 11/08/2025 16:15 | 73.2 | 78.8 | 70.9 | 74.7 |
| 11/08/2025 16:30 | 73.5 | 78.0 | 71.5 | 75.0 |
| 11/08/2025 16:45 | 73.5 | 83.9 | 70.7 | 75.1 |
| 11/08/2025 17:00 | 72.9 | 78.0 | 70.4 | 74.4 |
| 11/08/2025 17:15 | 72.8 | 83.4 | 70.1 | 74.4 |
| 11/08/2025 17:30 | 72.9 | 86.0 | 70.3 | 74.4 |
| 11/08/2025 17:45 | 72.6 | 76.7 | 70.0 | 74.3 |
| 11/08/2025 18:00 | 72.6 | 78.9 | 69.0 | 74.7 |
| 11/08/2025 18:15 | 72.3 | 78.9 | 68.6 | 74.3 |
| 11/08/2025 18:30 | 71.9 | 77.1 | 67.5 | 74.1 |
| 11/08/2025 18:45 | 71.8 | 80.9 | 67.4 | 74.2 |
| 11/08/2025 19:00 | 72.2 | 78.1 | 68.0 | 74.6 |
| 11/08/2025 19:15 | 71.8 | 79.1 | 67.2 | 74.1 |
| 11/08/2025 19:30 | 71.4 | 77.3 | 66.9 | 73.8 |
| 11/08/2025 19:45 | 70.9 | 78.5 | 65.9 | 73.4 |
| 11/08/2025 20:00 | 70.9 | 81.8 | 65.4 | 73.5 |
| 11/08/2025 20:15 | 71.3 | 83.7 | 65.3 | 74.1 |
| 11/08/2025 20:30 | 70.6 | 81.3 | 65.3 | 73.4 |
| 11/08/2025 20:45 | 69.6 | 77.1 | 63.6 | 72.4 |
| 11/08/2025 21:00 | 68.9 | 81.9 | 61.6 | 71.9 |
| 11/08/2025 21:15 | 68.7 | 82.2 | 61.3 | 71.7 |
| 11/08/2025 21:30 | 68.9 | 76.4 | 60.7 | 72.2 |
| 11/08/2025 21:45 | 69.0 | 76.2 | 60.3 | 72.3 |

| Date & Time | $L_{Aeq}$ (dB) | $L_{AFmax}$ (dB) | $L_{A90}$ (dB) | $L_{A10}$ (dB) |
|---|---|---|---|---|
| 11/08/2025 22:00 | 68.9 | 80.9 | 59.5 | 72.1 |
| 11/08/2025 22:15 | 69.4 | 77.2 | 61.7 | 72.6 |
| 11/08/2025 22:30 | 68.1 | 76.4 | 58.7 | 71.6 |
| 11/08/2025 22:45 | 67.7 | 77.0 | 56.9 | 71.4 |
| 12/08/2025 07:00 | 73.7 | 79.7 | 70.5 | 75.7 |
| 12/08/2025 07:15 | 73.2 | 79.9 | 70.0 | 75.2 |
| 12/08/2025 07:30 | 73.3 | 78.3 | 70.0 | 75.1 |
| 12/08/2025 07:45 | 73.2 | 79.0 | 70.1 | 75.2 |
| 12/08/2025 08:00 | 73.7 | 81.6 | 70.4 | 75.7 |
| 12/08/2025 08:15 | 73.2 | 80.0 | 69.5 | 75.2 |
| 12/08/2025 08:30 | 73.1 | 79.3 | 69.8 | 75.1 |
| 12/08/2025 08:45 | 72.4 | 78.3 | 68.5 | 74.7 |
| 12/08/2025 09:00 | 72.1 | 79.2 | 68.3 | 74.3 |
| 12/08/2025 09:15 | 71.7 | 78.7 | 67.9 | 73.9 |
| 12/08/2025 09:30 | 71.9 | 78.5 | 68.2 | 74.2 |
| 12/08/2025 09:45 | 71.7 | 79.9 | 67.8 | 73.9 |
| 12/08/2025 10:00 | 71.9 | 78.7 | 68.0 | 74.2 |
| 12/08/2025 10:15 | 72.1 | 78.5 | 67.8 | 74.3 |
| 12/08/2025 10:30 | 72.2 | 79.1 | 68.2 | 74.4 |
| 12/08/2025 10:45 | 71.9 | 80.2 | 67.9 | 74.3 |
| 12/08/2025 11:00 | 71.4 | 78.3 | 67.1 | 73.8 |
| 12/08/2025 11:15 | 72.3 | 78.7 | 68.5 | 74.5 |
| 12/08/2025 11:30 | 72.1 | 78.3 | 67.8 | 74.5 |
| **Summary** | **71.9** | **97.8** | **67.2** | **73.9** |

**Table A-2: Baseline Measurements – ML01 Night-time**

| Date & Time | $L_{Aeq}$ (dB) | $L_{AFmax}$ (dB) | $L_{A90}$ (dB) | $L_{A10}$ (dB) |
|---|---|---|---|---|
| 11/08/2025 23:00 | 67.3 | 76.4 | 56.7 | 71.0 |
| 11/08/2025 23:15 | 67.2 | 85.6 | 52.9 | 70.9 |
| 11/08/2025 23:30 | 66.1 | 76.9 | 52.4 | 70.0 |
| 11/08/2025 23:45 | 65.9 | 77.3 | 54.9 | 69.8 |
| 12/08/2025 00:00 | 64.8 | 75.9 | 50.9 | 68.9 |
| 12/08/2025 00:15 | 65.7 | 85.7 | 50.0 | 69.5 |
| 12/08/2025 00:30 | 63.8 | 76.3 | 49.6 | 68.5 |
| 12/08/2025 00:45 | 63.4 | 75.8 | 48.2 | 68.2 |
| 12/08/2025 01:00 | 64.4 | 75.3 | 50.2 | 68.9 |
| 12/08/2025 01:15 | 63.4 | 75.4 | 48.4 | 68.0 |
| 12/08/2025 01:30 | 63.8 | 75.5 | 47.2 | 68.6 |
| 12/08/2025 01:45 | 62.7 | 75.6 | 42.3 | 67.6 |
| 12/08/2025 02:00 | 64.2 | 76.9 | 49.9 | 68.8 |
| 12/08/2025 02:15 | 62.7 | 75.6 | 48.7 | 67.6 |
| 12/08/2025 02:30 | 62.1 | 75.3 | 45.0 | 66.9 |
| 12/08/2025 02:45 | 62.5 | 76.9 | 48.2 | 67.1 |
| 12/08/2025 03:00 | 61.8 | 75.0 | 44.9 | 66.4 |
| 12/08/2025 03:15 | 64.1 | 76.8 | 52.2 | 68.6 |
| 12/08/2025 03:30 | 63.7 | 75.7 | 48.6 | 68.4 |
| 12/08/2025 03:45 | 63.8 | 78.8 | 51.0 | 67.9 |
| 12/08/2025 04:00 | 63.4 | 75.9 | 48.1 | 68.0 |
| 12/08/2025 04:15 | 63.9 | 75.9 | 52.1 | 68.0 |
| 12/08/2025 04:30 | 65.8 | 80.3 | 52.7 | 69.7 |
| 12/08/2025 04:45 | 65.7 | 76.6 | 56.3 | 69.6 |
| 12/08/2025 05:00 | 66.4 | 77.0 | 56.6 | 70.6 |
| 12/08/2025 05:15 | 67.8 | 77.8 | 60.3 | 71.2 |
| 12/08/2025 05:30 | 68.9 | 78.7 | 62.7 | 71.9 |
| 12/08/2025 05:45 | 69.7 | 86.5 | 62.9 | 72.5 |
| 12/08/2025 06:00 | 70.7 | 83.0 | 66.1 | 73.1 |
| 12/08/2025 06:15 | 72.2 | 80.4 | 68.6 | 74.6 |
| 12/08/2025 06:30 | 72.6 | 78.6 | 68.7 | 74.9 |
| 12/08/2025 06:45 | 73.6 | 79.3 | 70.2 | 75.6 |
| **Summary** | **67.1** | **78.6 (10th Highest)** | **53.7** | **69.7** |

**Table A-3: Baseline Measurements – ML02 Daytime**

| Date & Time | $L_{Aeq}$ (dB) | $L_{AFmax}$ (dB) | $L_{A90}$ (dB) | $L_{A10}$ (dB) |
|---|---|---|---|---|
| 11/08/2025 11:30 | 67.7 | 81.1 | 45.9 | 72.2 |
| 11/08/2025 11:45 | 68.8 | 81.5 | 49.2 | 73.4 |
| 11/08/2025 12:00 | 68.4 | 85.2 | 50.3 | 72.9 |
| 11/08/2025 12:15 | 68.0 | 86.3 | 48.3 | 72.2 |
| 11/08/2025 12:30 | 68.7 | 86.1 | 50.4 | 72.9 |
| 11/08/2025 12:45 | 68.0 | 85.5 | 47.8 | 72.3 |
| 11/08/2025 13:00 | 69.2 | 86.9 | 51.0 | 73.3 |
| 11/08/2025 13:15 | 68.3 | 84.0 | 46.5 | 72.7 |
| 11/08/2025 13:30 | 69.5 | 93.3 | 52.6 | 73.3 |
| 11/08/2025 13:45 | 68.4 | 85.9 | 49.5 | 72.6 |
| 11/08/2025 14:00 | 69.2 | 85.4 | 49.9 | 73.3 |
| 11/08/2025 14:15 | 69.1 | 84.8 | 48.5 | 73.3 |
| 11/08/2025 14:30 | 72.1 | 97.2 | 50.6 | 73.8 |
| 11/08/2025 14:45 | 68.5 | 82.9 | 48.4 | 72.9 |
| 11/08/2025 15:00 | 68.1 | 83.7 | 47.5 | 72.4 |
| 11/08/2025 15:15 | 71.9 | 102.2 | 45.5 | 73.3 |
| 11/08/2025 15:30 | 68.6 | 81.6 | 48.0 | 73.1 |
| 11/08/2025 15:45 | 68.8 | 82.8 | 49.4 | 73.0 |
| 11/08/2025 16:00 | 68.8 | 83.2 | 54.0 | 73.2 |
| 11/08/2025 16:15 | 69.3 | 86.0 | 52.6 | 73.2 |
| 11/08/2025 16:30 | 69.4 | 86.3 | 52.8 | 73.7 |
| 11/08/2025 16:45 | 69.5 | 83.5 | 53.3 | 73.7 |
| 11/08/2025 17:00 | 69.6 | 84.2 | 48.8 | 74.0 |
| 11/08/2025 17:15 | 71.3 | 100.0 | 52.9 | 73.9 |
| 11/08/2025 17:30 | 68.6 | 84.1 | 50.9 | 73.1 |
| 11/08/2025 17:45 | 68.6 | 82.5 | 49.1 | 73.2 |
| 11/08/2025 18:00 | 68.9 | 88.9 | 49.5 | 73.7 |
| 11/08/2025 18:15 | 68.1 | 86.2 | 44.8 | 72.8 |
| 11/08/2025 18:30 | 67.8 | 81.2 | 48.2 | 72.4 |
| 11/08/2025 18:45 | 67.1 | 83.1 | 46.1 | 71.8 |
| 11/08/2025 19:00 | 67.5 | 83.0 | 46.8 | 72.1 |
| 11/08/2025 19:15 | 67.1 | 81.3 | 47.5 | 71.6 |
| 11/08/2025 19:30 | 66.6 | 82.2 | 47.0 | 71.1 |
| 11/08/2025 19:45 | 66.5 | 84.2 | 48.3 | 70.6 |
| 11/08/2025 20:00 | 66.8 | 86.4 | 48.6 | 71.0 |
| 11/08/2025 20:15 | 66.6 | 82.4 | 49.6 | 71.2 |
| 11/08/2025 20:30 | 66.2 | 82.9 | 49.8 | 70.6 |
| 11/08/2025 20:45 | 66.4 | 81.4 | 49.5 | 70.7 |
| 11/08/2025 21:00 | 64.6 | 85.1 | 48.1 | 68.4 |
| 11/08/2025 21:15 | 64.6 | 81.2 | 47.7 | 68.9 |
| 11/08/2025 21:30 | 63.6 | 80.2 | 47.6 | 67.6 |
| 11/08/2025 21:45 | 63.9 | 81.3 | 47.6 | 67.5 |
| 11/08/2025 22:00 | 63.2 | 79.7 | 46.4 | 67.5 |
| 11/08/2025 22:15 | 64.7 | 87.5 | 47.5 | 68.7 |

| Date & Time | $L_{Aeq}$ (dB) | $L_{AFmax}$ (dB) | $L_{A90}$ (dB) | $L_{A10}$ (dB) |
|---|---|---|---|---|
| 11/08/2025 22:30 | 68.2 | 95.0 | 45.5 | 65.2 |
| 11/08/2025 22:45 | 61.2 | 79.5 | 45.4 | 62.3 |
| 12/08/2025 07:00 | 69.0 | 86.4 | 54.3 | 73.4 |
| 12/08/2025 07:15 | 69.3 | 85.8 | 52.3 | 73.8 |
| 12/08/2025 07:30 | 69.4 | 83.1 | 51.4 | 74.0 |
| 12/08/2025 07:45 | 69.4 | 85.9 | 50.4 | 73.9 |
| 12/08/2025 08:00 | 69.6 | 86.7 | 53.9 | 73.7 |
| 12/08/2025 08:15 | 68.9 | 87.2 | 53.4 | 73.0 |
| 12/08/2025 08:30 | 69.6 | 87.9 | 52.4 | 73.6 |
| 12/08/2025 08:45 | 69.5 | 84.5 | 52.0 | 73.8 |
| 12/08/2025 09:00 | 68.5 | 81.8 | 50.3 | 72.9 |
| 12/08/2025 09:15 | 69.1 | 84.8 | 50.3 | 73.4 |
| 12/08/2025 09:30 | 69.0 | 83.3 | 47.9 | 73.3 |
| 12/08/2025 09:45 | 68.2 | 83.3 | 46.9 | 72.7 |
| 12/08/2025 10:00 | 68.7 | 85.5 | 47.7 | 73.0 |
| 12/08/2025 10:15 | 69.0 | 88.0 | 49.7 | 73.2 |
| 12/08/2025 10:30 | 67.3 | 80.8 | 49.5 | 71.9 |
| 12/08/2025 10:45 | 68.9 | 89.5 | 51.1 | 72.9 |
| 12/08/2025 11:00 | 68.1 | 84.3 | 49.1 | 72.5 |
| 12/08/2025 11:15 | 68.7 | 88.2 | 51.8 | 72.7 |
| 12/08/2025 11:30 | 68.7 | 84.0 | 50.3 | 73.1 |
| **Summary** | **68.4** | **102.2** | **49.4** | **72.1** |

**Table A-4: Baseline Measurements – ML02 Night-time**

| Date & Time | $L_{Aeq}$ (dB) | $L_{AFmax}$ (dB) | $L_{A90}$ (dB) | $L_{A10}$ (dB) |
|---|---|---|---|---|
| 11/08/2025 23:00 | 60.5 | 83.6 | 44.0 | 61.4 |
| 11/08/2025 23:15 | 58.3 | 79.7 | 42.7 | 54.8 |
| 11/08/2025 23:30 | 60.0 | 82.4 | 42.9 | 57.8 |
| 11/08/2025 23:45 | 57.9 | 80.4 | 42.1 | 53.4 |
| 12/08/2025 00:00 | 58.2 | 84.2 | 40.7 | 49.0 |
| 12/08/2025 00:15 | 57.3 | 78.7 | 40.2 | 54.7 |
| 12/08/2025 00:30 | 55.6 | 78.6 | 38.5 | 50.1 |
| 12/08/2025 00:45 | 55.7 | 79.0 | 35.5 | 48.9 |
| 12/08/2025 01:00 | 55.5 | 78.7 | 37.0 | 48.1 |
| 12/08/2025 01:15 | 51.3 | 77.0 | 34.7 | 43.8 |
| 12/08/2025 01:30 | 54.0 | 76.8 | 35.7 | 46.9 |
| 12/08/2025 01:45 | 56.4 | 83.6 | 35.9 | 46.6 |
| 12/08/2025 02:00 | 60.7 | 90.2 | 36.7 | 50.8 |
| 12/08/2025 02:15 | 59.1 | 85.4 | 37.3 | 51.0 |
| 12/08/2025 02:30 | 52.1 | 76.3 | 35.5 | 46.4 |
| 12/08/2025 02:45 | 57.4 | 85.6 | 36.2 | 48.4 |
| 12/08/2025 03:00 | 53.6 | 80.8 | 36.2 | 45.5 |
| 12/08/2025 03:15 | 55.0 | 83.1 | 36.9 | 47.1 |
| 12/08/2025 03:30 | 55.7 | 80.4 | 37.6 | 52.3 |
| 12/08/2025 03:45 | 52.2 | 73.7 | 39.1 | 47.3 |
| 12/08/2025 04:00 | 46.4 | 71.1 | 37.3 | 45.8 |
| 12/08/2025 04:15 | 56.4 | 80.1 | 39.2 | 49.6 |
| 12/08/2025 04:30 | 56.4 | 80.5 | 40.0 | 51.5 |
| 12/08/2025 04:45 | 52.3 | 76.5 | 41.1 | 48.4 |
| 12/08/2025 05:00 | 60.7 | 82.5 | 43.1 | 59.4 |
| 12/08/2025 05:15 | 61.7 | 83.7 | 46.4 | 63.7 |
| 12/08/2025 05:30 | 64.5 | 86.5 | 47.5 | 67.8 |
| 12/08/2025 05:45 | 65.3 | 83.6 | 49.0 | 69.0 |
| 12/08/2025 06:00 | 65.5 | 85.1 | 49.9 | 68.1 |
| 12/08/2025 06:15 | 66.2 | 84.4 | 51.7 | 70.5 |
| 12/08/2025 06:30 | 65.7 | 81.8 | 52.4 | 70.3 |
| 12/08/2025 06:45 | 67.8 | 82.8 | 53.7 | 72.4 |
| **Summary** | **60.7** | **83.6 (10th Highest)** | **41.1** | **54.4** |

# Appendix B Noise Contour Plots

**Figure B-1: ProPG Assessment Daytime**

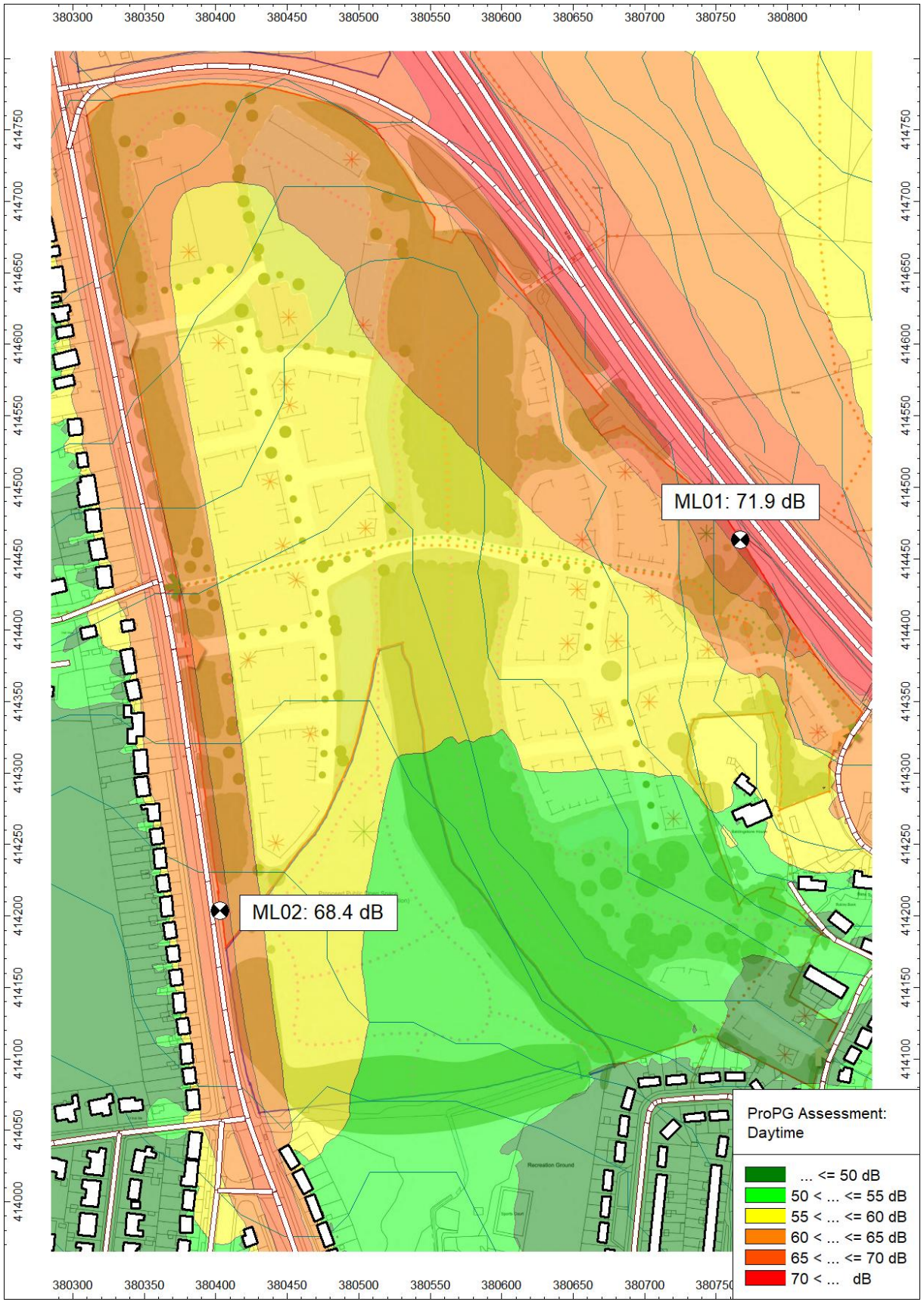
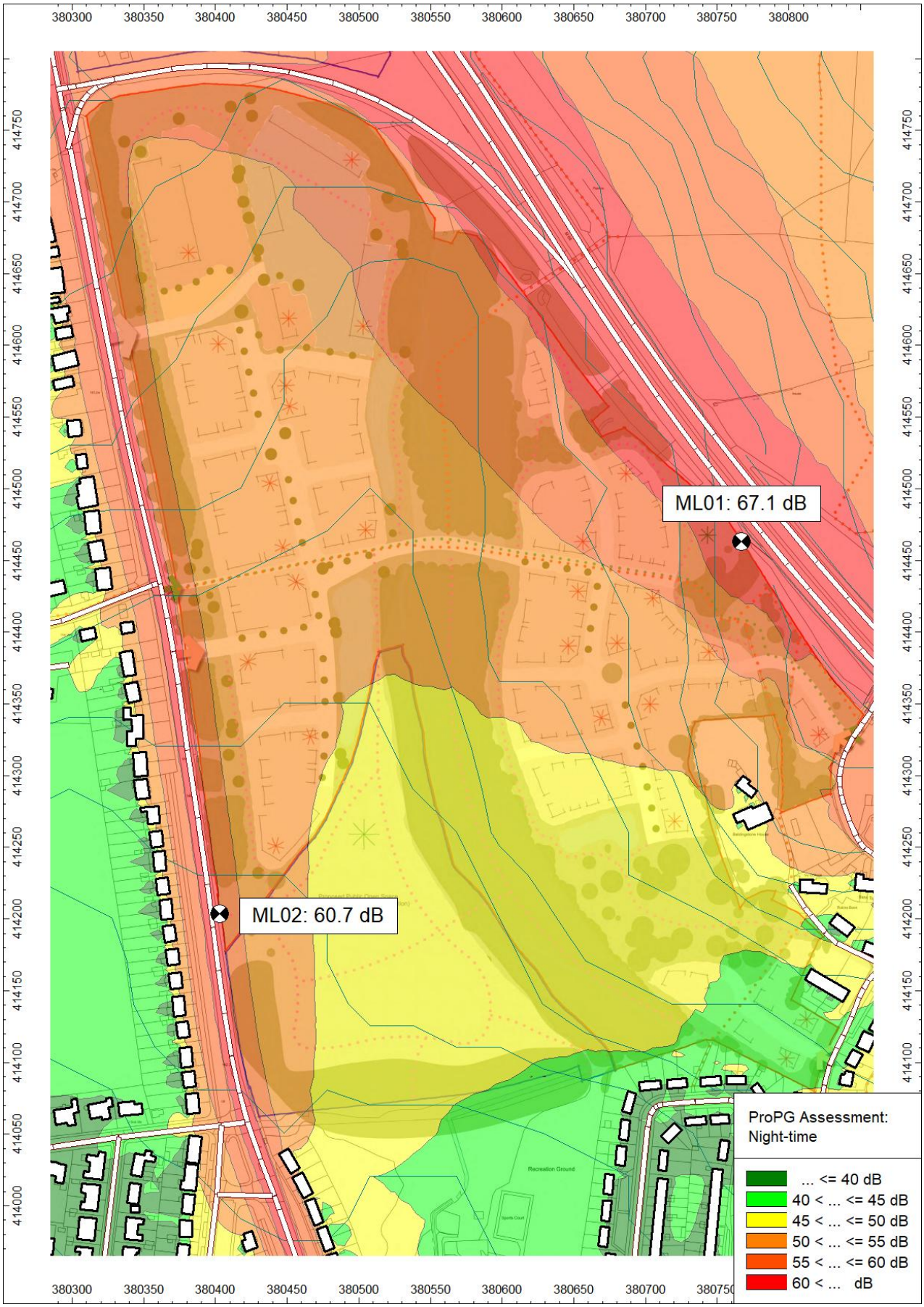


**Figure B-2: ProPG Assessment Night-time**



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# APPENDIX 9 – PLANNING STATEMENT (SATPLAN)



# Planning Statement

*on behalf of:*

Hollins Strategic Land LLP, Maldune Ltd and Belbeck investments Ltd

Outline planning application with all matters reserved other than access for mixed use development for up to 350 dwellings, up to 2,500 sq mts employment/commercial uses, a local centre comprising up to 249 sq mts of retail floorspace, mobility hub, public open space and associated infrastructure

Land East of Walmersley Road, Bury

April 2026

*Prepared by*

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# 1. INTRODUCTION

1.1 This Planning Statement has been prepared by SATPLAN LTD, on behalf of Hollins Strategic Land (HSL), Maldune Ltd and Belbeck Investments Ltd in support of an outline planning application at Land East of Walmersley Road, Bury for mixed use development for up to 350 dwellings (including 40% affordable), employment/ commercial, local retail centre, mobility hub, public open space and associated infrastructure. Access is applied for in detail, all other matters are reserved for future determination.

1.2 This Statement sets out the background to the proposals, identifies the relevant planning policies and justifies the overriding reasons why planning permission should be granted for the proposed development.

1.3 This statement should be read in conjunction with other supporting documentation which comprises:

| | |
|---|---|
| ▪ Application forms and Certificate | |
| ▪ Drawing Package | The Urbanists |
| ▪ Design & Access Statement | The Urbanists |
| ▪ Flood Risk Assessment & Drainage Strategy | Betts Associates |
| ▪ Topographical Survey | JLP |
| ▪ Transport Assessment | Eddisons Croft |
| ▪ Landscape and Visual Assessment | Influence |
| ▪ Ecological Impact Appraisal & BNG Assessment | ERAP |
| ▪ Arboricultural Report | AWA Tree Consultants |
| ▪ Energy & Carbon Statement | Complete Sustainability |
| ▪ Phase 1 Geo- Environmental Investigation Report | Brownfield Solutions |
| ▪ Noise Assessment | enzygo |
| ▪ Air Quality Assessment | enzygo |
| ▪ Heritage Statement | Kathryn Sather & Associates |
| ▪ Archaeology | CFA Archaeology |
| ▪ Crime Impact Statement | GMP Design for Security |
| ▪ Retail assessment | Profectus |
| ▪ Statement of Community Involvement | HSL |
| ▪ Health Impact Statement | SATPLAN |

1.4 The remainder of this statement is structured as follows:

- **Section 2 - Site Context -** provides a description of the application Site and describes the context of the location.
- **Section 3 - Proposed Development -** provides a description of the proposed development.
- **Section 4 - Planning Policy Framework -** identifies the policies at a national, and local level, relevant to the Site and the proposed development.
- **Section 5 - Key Planning Considerations -** addresses the principal issues to consider when determining the application for the proposed development.
- **Section 6 – Summary of Technical Reports**
- **Section 7 – Planning Balance**
- **Section 8 - Summary and Conclusions -** draws out the main considerations considering all the information presented, demonstrating that the proposed development is acceptable and that planning permission should be granted.

# 2. SITE CONTEXT

2.1. The Site is located to the north east of Bury and is well-contained on all sides by existing infrastructure and development. A Site Location Plan included at **Appendix 1**.

2.2. The Site is irregular in shape, is approximately 19.9 hectares and is bounded by the M66 motorway, Walmersley Road, open land and residential developments. The M66 runs alongside the eastern boundary, and Walmersley Road runs along the western boundary.

2.3. Walmersley Brook runs from north to south through the proposal site. Public Rights of Way cross the Site in north-south and east-west directions. A Grade II Listed Building, Baldingstone House is adjacent to the south eastern boundary and is well screened by mature boundary hedges.

2.4. The site is in a highly sustainable location with excellent public transport connections. Bus routes pass directly along Walmersley Road and Walmersley Old Road adjacent to the site to the west and east respectively, with services running north to Ramsbottom and Nangreaves and south to Bury town centre.

### Planning History

2.5. A previous application Reference 37948 for a 9 hole golf course, pitch and putt course, car parking and a shelter was refused in April 2002.

### Pre-Application Advice

2.6. Pre-Application Advice was sought from Bury Council and a final response was received in November 2025. The Council has confirmed that the site is designated as Green Belt but is considered to fall within the definition of *grey belt land* under paragraph 155 of the NPPF. It is therefore regarded as *not inappropriate for development in principle*, subject to compliance with the NPPF 'Golden Rules'. The Council considers that development of the site would not fundamentally undermine the purposes of the wider Green Belt and that there is a demonstrable unmet need for both housing and certain types of employment development. The site is also considered to be in a sustainable location with good access to local services and public transport.

2.7. The Council supports the principle of a mixed-use development comprising residential development (circa 350 dwellings), employment uses, a local centre, public open space and associated infrastructure. An affordable housing provision of 40% is required in accordance with the Golden Rules, alongside potential contributions to infrastructure, education, health, transport mitigation, recreation and biodiversity net gain.

2.8. The Council advise that the key matters to be addressed at application stage include landscape impact, Green Belt, highways and transport (including sustainable travel and air quality impacts), ecology and biodiversity net gain, flood risk and drainage, heritage and archaeology, residential amenity, and detailed design and layout. Subject to addressing these matters and securing appropriate planning obligations, the Council considers that the proposals have the potential to comply with national and local planning policy.

# 3. PROPOSED DEVELOPMENT

3.1. The proposed development seeks outline planning permission for mixed use development for up to 350 dwellings (including 40% affordable), employment/ commercial, local retail centre, mobility hub public open space and associated infrastructure. Access is applied for in detail, all other matters are reserved for future determination.

3.2. The proposals are formed by a number of development parcels, of varying sizes, providing a net developable area of approximately 9.7 hectares. The proposed open space on Site comprises 10.8 hectares with the existing woodland accounting for 3.8 hectares. The total size of the site is 19.9 hectares.

3.3. The Site layout will seek to retain, protect and enhance key landscape features within the site and incorporate them into the development.

3.4. A small local retail centre is proposed to the north of the Site to provide a local convenience shopping facility for residents of the development along with local employment opportunities and a mobility hub. The Public Open Space is positioned through the centre of the Site and a green infrastructure network connects with existing leisure routes. The existing PRoWs will be retained and improved providing excellent permeability across the Site.

3.5. New vehicular access points are proposed from Walmersely Road (A56) and from Walmersley Old Road and a new bridleway will link Walmersley Road to Walmersley Old Road, providing a safe route for horses and their riders.

3.6. The accompanying Design and Access Statement (DAS) provides the design rationale to the pattern of development parcels, streets and green spaces.

### Community Consultation

3.7. As part of its commitment to early and meaningful engagement, Hollins Strategic Land (HSL) carried out a consultation exercise in accordance with national guidance in the National Planning Policy Framework (NPPF) and policy set out in the Places for Everyone Joint Development Plan Document, both of which emphasise the importance of early and meaningful community engagement. Engagement comprised formal pre-application discussions with Bury Metropolitan Borough Council, the distribution of approximately 1,300 consultation leaflets to nearby households and

businesses, and the launch of a dedicated project website hosting details of the emerging proposals and an online feedback form.

3.8. The consultation ran from 28 August to 14 September 2025 and generated a total of 148 responses, including online submissions, emails and postal correspondence, predominantly from residents living in close proximity to the site

3.9. Feedback raised a range of issues, including traffic and highway capacity, pressure on local services and infrastructure, the scale of development, environmental and ecological impacts, flood risk, and the loss of perceived green space. Respondents also identified elements they considered important, notably public open space, pedestrian and cycle connectivity, biodiversity enhancements and infrastructure improvements, while acknowledging the need for new housing, including affordable homes.

3.10. HSL has carefully reviewed all representations received and has responded to the key matters raised. As a direct result of consultation feedback, the proposals have been amended prior to submission, including an increase in public open space provision, the consolidation of built development areas, the replacement of the previously proposed park and ride with a smaller mobility hub, a reduction in the scale of the retail provision, and a reduction in the number of vehicular access points onto Walmersley Road. Enhanced pedestrian, cycle and bridleway connections have also been incorporated.

3.11. The Statement concludes that the scope and extent of consultation undertaken is proportionate and appropriate for the outline stage of the proposals and accords with relevant planning policy guidance. Matters raised by the community will be addressed further through the submission of supporting technical assessments and statements alongside the planning application, and additional public consultation will be undertaken by the local planning authority during the application determination process.

# 4. PLANNING POLICY FRAMEWORK

4.1. Section 38(6) of the Planning and Compulsory Purchase Act 2004 and Section 70(2) of the Town and Country Planning Act 1990 requires that applications for planning permission must be determined in accordance with the statutory development plan unless material considerations indicate otherwise.

### Statutory Development Plan

4.2. The Development Plan for the area comprises the saved polices of the Bury Unitary Development Plan and the adopted Places for Everyone Joint Plan. The Council are currently progressing a Draft Local Plan for Bury which was subject to Regulation 18 consultation in March – May 2025.

4.3. In addition to the statutory development plan, the following documents should be given due weight in the planning assessment:

- National Planning Policy Framework (NPPF), updated December 2024[1].
- Consultation Draft of the NPPF December 2025
- National Design Guide (Updated 2021).
- Supplementary Planning Documents (SPDs) prepared by the Council to expand upon existing Local Plan policies.

### National Planning Policy Framework (NPFF)

4.4. A revised version of the National Planning Policy Framework (NPPF) was published on the 12th of December 2024 and sets out the Government's planning policies for England and how these are expected to be applied. The NPPF forms a powerful material consideration in the determination of this planning application.

4.5. Those elements of NPPF identified as most relevant to this application are discussed in more detail below.

4.6. The clear expectation running throughout NPPF is that sustainable development should be positively embraced to deliver the necessary economic growth and housing needed to create inclusive and mixed communities. Local Planning Authorities (LPAs) are therefore encouraged to approach decisions on proposed developments in a positive manner and should apply a presumption in favour

[1] Additional Minor modifications / clarifications made to NPPF in February 2025.

of sustainable development and approve development proposals that accord with an up-to-date development plan without delay (Paragraphs 11 & 39).

4.7. Section 4 of NPPF provides further policies for the determination of planning applications. It outlines that local planning authorities should approach decisions for proposed development in a positive and creative way. Decisions on applications should be made as quickly as possible, and within statutory timescales unless a longer period has been agreed by the applicant in writing.

Housing Development

4.8. To support the Government's objective of "significantly boosting the supply of homes", paragraph 61 of the Framework reiterates the importance of ensuring that a sufficient amount and variety of land can come forward where it is needed, that the needs of groups with specific housing requirements are addressed and that land with planning permission is developed without delay. Paragraph 63 of the NPPF states that the size, type and tenure of housing needed for different groups in the community should be assessed and reflected in planning policies.

4.9. Paragraph 64 of the Framework sets out that where a need for affordable housing is identified, planning policies should specify the type of affordable housing required and expect it to be met on-site unless off-site provision or an appropriate financial contribution in lieu can be robustly justified and the agreed approach contributes to the objective of creating mixed and balanced communities.

4.10. Paragraphs 78 to 81 of the Framework provide policy direction regarding maintaining the supply and delivery of housing to assist the Government in significantly boosting supply. In particular, the Framework requires LPAs to identify and update annually a supply of specific deliverable sites sufficient to provide a minimum of five years' worth of housing against their housing requirement set out in adopted strategic policies, or against their local housing need where the strategic policies are more than five years old (unless these strategic policies have been reviewed and found not to require updating).

4.11. Paragraph 148 and 155 sets out policy and requirements when considering the release of grey belt land where it is necessary to release Green Belt Land for development and where development would utilise grey belt land and would not fundamentally undermine the purposes (taken together) of the remaining Green Belt across the area of the plan.

4.12. The planning policy framework set out above provides the context against which this proposed development should be assessed. Section 5 of this report considers the key planning considerations and identifies why the proposed development is considered to comply with the planning policy that has been outlined in this section of the report.

## Adopted Local Plan

4.13. The polices set out below are relevant to this application. Section 5 of the planning statement sets out the key planning issues and considers the weight that should be attributed to the relevant policies.

4.14. The relevant polices within the Saved Bury UDP include:

- EC6/1 New Business, Industrial and Commercial
- H1/2 Further Housing Development
- H2/1 The Form of New Residential Development
- H2/2 The Layout of New Residential Development
- H4/1 Affordable Housing
- H4/2 Special Needs Housing
- EN1/2 Townscape and Built Design
- EN1/4 Street Furniture
- EN1/5 Crime Prevention
- EN1/7 Throughroutes and Gateways
- EN2/3 Listed Buildings
- EN3/1 Impact of Development on Archaelogical Sites
- EN3/2 Development Affecting Archaeological Sites
- EN6/3 Features of Ecological Value
- EN7/1 Atmospheric Pollution
- EN7/4 Groundwater Protection
- EN7/5 Waste Water Management
- EN8/1 Tree Preservation Orders
- EN8/2 Woodland and Tree Planting
- OL1/2 New Buildings in the Green Belt
- OL1/5 Mineral Extraction and Other Development in the Green Belt
- RT1/1 Protection of Recreation Provision in the Urban Area
- RT1/2 Improvement of Recreation Facilities
- RT2/1 Provision of New Recreation Sites
- RT2/2 Recreation Provision in New Housing Development
- RT3/2 Additional Provision for Recreation in the Countryside
- RT3/3 Access to the Countryside
- RT3/4 Recreational Routes
- RT4/4 Tourism Support Facilities
- S2/1 All New Retail Proposals: Assessment Criteria
- S2/6 Food and Drink
- S4/2 Assessing Out-Of-Centre Retail Development
- HT2/4 Car Parking and New Development
- HT5/1 Access For Those with Special Needs
- HT6/1 Pedestrian and Cyclist Movement
- HT6/3 Cycle Routes
- CF1/1 Location of New Community Facilities

### Supplementary Planning Documents

- SPD 1 – Open space, sport and recreation provision in new housing development
- SPD 5 – Affordable housing provision
- SPD 7 – Managing the Supply of Housing land in Bury
- SPD 8 – New buildings and associated development in the Green Belt
- SPD 11 – Parking standards
- SPD 16 – Design and layout of new development

### Greater Manchester Places for Everyone Joint DPD

- JP-S1 Sustainable Development
- JP-S2 Carbon and Energy
- JP-S4 Flood Risk and the Water Environment
- JP-S5 Clean Air
- JP-H2 Affordability of New Housing
- JP-H3 Type, Size and Design of New Housing
- JP-H4 Density of New Housing
- JP-G1 Landscape Character
- JP-G2 Green Infrastructure Network
- JP-G3 River Valleys and Waterways
- JP-G7 Trees and Woodland
- JP-G8 A Net Enhancement of Biodiversity and Geodiversity
- JP-G9 The Green Belt
- JP-P1 Sustainable Places
- JP-P2 Heritage
- JP-P3 Cultural Facilities
- JP-P5 Education, Skills and Knowledge
- JP-P6 Health
- JP-P7 Sport and Recreation
- JP-C2 Digital Connectivity
- JP-C3 Our Public Transport
- JP-C5 Streets For All
- JP-C6 Walking and Cycling
- JP-C8 Transport Requirements of New Development

### Emerging Bury Draft Local Plan

4.15. Following the adoption of the Places for Everyone Joint Plan (PfE) on 21 March 2024, the Council is now moving forward with a new Local Plan for Bury. The Plan will provide a more detailed set of locally specific planning policies and will replace the saved policies in the current Unitary Development Plan. A public consultation was held in Spring 2025 and a publication version of the Plan is expected in Spring 2026. The relevant policies with the draft Local Plan are set out below.

- Policy LP-H1: Housing land provision
- Policy LP-H2: Windfall housing development
- Policy LP-H3: Housing mix
- Policy LP-H4: Affordable housing provision

- Policy LP-E1: Employment floorspace requirements
- Policy LP-E2: Business, industrial and warehousing development
- Policy LP-E3: Office development –
- Policy LP-E4: Employment Generating
- Policy LP-E5: Employment sites outside Employment Generating Areas – sets criteria for employment development elsewhere.

- Policy LP-TC1: Hierarchy and role of centres
- Policy LP-TC2: Managing the location and scale of main town centre
- Policy LP-TC4: Local and neighbourhood
- Policy LP-TC5: Local shops and services

- Policy LP-GI1: Green and blue infrastructure
- Policy LP-GI2: Protected open space, sport and recreation
- Policy LP-GI3: Open space, sport and recreation provision in new housing
- Policy LP-GI4: Strategic recreation routes
- Policy LP-GI5: Biodiversity assets and LP-GI6

- Policy LP-TR1: Sustainable transport
- Policy LP-TR2: Walking, wheeling and cycling
- Policy LP-TR3: Public transport
- Policy LP-TR4: Travel hubs
- Policy LP-TR5: Highways
- Policy LP-TR6: Parking provision and drop-off facilities
- Policy LP-TR7: Electric vehicle charging infrastructure

# 5. KEY PLANNING CONSIDERATIONS

5.1. Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires applications to be determined in accordance with the Development Plan unless material considerations indicate otherwise. Paragraph 11 of the NPPF establishes a presumption in favour of sustainable development, and for decision-taking this means approving development proposals that accord with an up-to-date development plan, without delay.

5.2. Several policies of the Local Plan should no longer be considered up to date at this time, given that they pre-date the NPPF and there is a very considerable ***[with emphasis]*** shortfall in deliverable housing land supply against the standard method calculation for local housing need – a position that is acknowledged by the Council.

The following section assesses the suitability of the Site for the proposed development having regard to national and local planning policies and identifies other material considerations that should be considered as part of the determination process.

Principle of Development (Residential/ Employment/ Retail)

5.3. The site is designated as Green Belt under Places for Everyone Policy JP-G9. Paragraph 152 of the National Planning Policy Framework (NPPF) states that inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances.

5.4. NPPF Paragraph 153 states that when considering any planning application, local planning authorities should ensure that substantial weight is given to any harm to the Green Belt. 'Very special circumstances' will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations. Paragraph 154 of the NPPF makes it clear that development in the Green Belt is inappropriate unless one of eight exceptions apply, however the proposal does not meet any of these exceptions. Paragraph 155 of the NPPF states that development in the Green Belt should also not be regarded as inappropriate where all the following apply:

a. The development would utilise grey belt land and would not fundamentally undermine the purposes (taken together) of the remaining Green Belt across the area of the plan;
b. There is a demonstrable unmet need for the type of development proposed;
c. The development would be in a sustainable location, with particular reference to paragraphs 110 and 115 of this Framework; and

d. Where applicable the development proposed meets the 'Golden Rules' requirements set out in paragraphs 156-157.

5.5. Grey belt is defined by the NPPF as "land in the Green Belt comprising previously developed land and/or any other land that, in either case, does not strongly contribute to any of purposes (a), (b), or (d) in paragraph 143. 'Grey belt' excludes land where the application of the policies relating to the areas or assets in footnote 7 (other than Green Belt) would provide a strong reason for refusing or restricting development."

5.6. The application site does not impact assets referred to in footnote 7. As such, the first test is to determine whether the land does or does not contribute strongly to any purposes (a), (b) or (d) of paragraph 143. Paragraph 143 of the NPPF states that Green Belt serves 5 purposes:

a. to check the unrestricted sprawl of large built-up areas; and
b. to prevent neighbouring towns merging into one another.
c. to assist in safeguarding the countryside from encroachment
d. to preserve the setting and special character of historic towns; and
e. to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

5.7. The purposes that are relevant to this proposal are a, b and d. The paragraphs below provide a comprehensive assessment and evaluate the Site against the grey belt tests set out in NPPF and Planning Practice Guidance (PPG). In addition to NPPF and PPG the assessment draws on local assessments, and evidence base documents prepared during previous stages of the Local Plan process. The analysis is further supported by recent site visits, topographical evaluation, a Landscape and Visual Assessment (LVA), and a Heritage Assessment which is summarised in the technical section below.

5.8. When considering whether a Site is grey belt or not, the Site must be considered alongside purposes a, b and d of paragraph 143 of NPPF. The section below sets out the relevant site context and setting followed by an assessment of the Site alongside purposes a, b and d.

Site Context and Setting

5.9. The site extends to approximately 19.9 hectares and is located to the east of Walmersley Road, on the northern edge of the existing Walmersley urban area. The site is well contained by permanent physical infrastructure, with Walmersley Road (A56) forming the western boundary; the M66

motorway forming the eastern boundary; existing residential development and open land to the south; and Motorway infrastructure and associated landscaping limiting connectivity to the wider countryside to the north. Overhead electricity transmission lines and tall steel pylons run east to west across the northern part of the site further urbanizing the site context.

5.10. Walmersley Brook runs north–south through the site, creating a strong internal green corridor and dividing the land into eastern and western parcels. While predominantly greenfield, the site has a history of development and engineering works associated with the former Gin Hall Reservoir to the south, which was decommissioned, infilled and restored in the late 20th century.

5.11. The site occupies a transitional edge-of-settlement location and, due to its containment by infrastructure and limited relationship with the wider countryside, has a strong functional and visual relationship with the existing urban area.

**Purpose A: To Check the Unrestricted Sprawl of Large Built-Up Area**

5.12. The site is immediately adjacent to the existing built-up area of Walmersley and is tightly defined by robust, permanent physical features. The M66 motorway and its embankments form a clear and defensible eastern boundary, while Walmersley Road and existing housing beyond defines the western edge. The Illustrative Masterplan demonstrates a contained and logical extension of the existing settlement, rather than sporadic or isolated development. Development would be visually and physically enclosed, preventing outward sprawl into the wider countryside.

5.13. The site therefore makes a **weak contribution** to Purpose A. The containment, proximity to existing development, and lack of visual or spatial encroachment support its suitability for development under the grey belt classification.

**Purpose B: To Prevent Neighbouring Towns Merging into One Another**

5.14. The site does not function as a strategic gap between neighbouring towns. Development of the site would not result in the physical or visual coalescence of Bury with Ramsbottom or any other settlement. Substantial separation would remain, reinforced by topography, infrastructure, and intervening land.

5.15. The site therefore makes a **weak contribution** to Purpose B considering the limited visual and experiential impact on the perceived gap between settlements.

Purpose D: To Preserve the Setting and Special Character of Historic Towns

5.16. There are no historic towns within Bury whose setting is protected by the Green Belt for this purpose. While the Grade II listed Baldingstone House lies adjacent to the south-eastern boundary, both the DAS and the Pre-Application Response confirm that the site does not form part of the setting of the listed building.

5.17. The Illustrative Masterplan includes appropriate landscape buffers and layout measures to ensure that the setting of Baldingstone House is preserved and the submitted Heritage Assessment concludes there will not be any detrimental impact on the building as a result of the proposed development.

5.18. The site therefore **makes no contribution** to Purpose D. The lack of any relationship to the town's historic core or setting removes any heritage-based objection to development.

Compliance with Paragraph 155 of NPPF

5.19. Paragraph 155 confirms the development of homes (along with other forms of development) in the Green Belt should not be regarded as inappropriate development in the Green Belt where four criteria apply.

Paragraph 155(a) Green Belt Purposes

Criterion (a): Impact on the Remaining Green Belt

5.20. Paragraph 155(a) requires consideration of whether releasing the Site would fundamentally undermine Green Belt purposes (when taken together) across the wider plan area, including Purposes C and E.

5.21. While development would represent an encroachment into the countryside (purpose (c)), the effect would be limited and contained. The loss of Green Belt land is small relative to the wider Green Belt extent, and the development would be enclosed by the A56 and M66, preventing further outward expansion.

5.22. The proposed landscape-led masterplan, substantial green infrastructure, and buffers ensure that the wider Green Belt continues to function effectively.

5.23. With respect to Purpose E (supporting urban regeneration), the development would not prejudice the reuse of brownfield sites or conflict with regeneration objectives elsewhere in the Borough. The

Site is self-contained, visually discreet and framed by durable physical features. Releasing it would not introduce pressure for further incursions into the Green Belt.

5.24. Accordingly, the development of the Site would not fundamentally undermine the Green Belt purposes across the plan area and therefore satisfies paragraph 155(a).

**Criterion (b): Demonstrable Unmet Need**

Housing Land Supply

5.25. The National Planning Policy Framework (NPPF - 2024), confirms that Local Planning Authorities must maintain a minimum five-year supply of deliverable housing land to support the Government's objective of significantly boosting the supply of homes. Paragraphs 73 to 78 of the NPPF require that, where strategic policies are over five years old, the standard method be used to calculate local housing need.

5.26. The Council's most recently published position (November 2025), identifies a deliverable housing land supply of **4.3 years**. This represents a shortfall, thereby triggering the presumption in favour of sustainable development under paragraph 11(d) of NPPF.

5.27. The joint Places for Everyone Plan was adopted with effect from 21 March 2024 and sets the up-to-date housing requirement for Bury against which the deliverable supply of housing land must be assessed. PfE Policy JP-H1 sets the following stepped targets for Bury:

- 246 homes per year from 2022-2025
- 452 homes per year from 2025-2030; then
- 520 homes per year from 2030-2039

5.28. Bury's Strategic Housing Land Availability Assessment (2024) sets out the latest housing supply position, which is made up of sites that have an extant planning permission and sites that have potential to obtain planning permission in the future. This shows that there are a number of sites within the Borough with the potential to deliver a significant amount of housing. However, not all of these sites will contribute to the deliverable land supply calculations as many sites will take longer than five years to come forward and be fully developed. The joint Places for Everyone Plan allocates significant strategic sites for housing within Bury and will accelerate housing delivery within the Borough to meet housing needs.

Delivery Test

5.29. The National Planning Policy Framework also sets out the Housing Delivery Test (HDT), which is an assessment of net additional dwellings provided over the previous three years against the homes required. Where the test indicates that the delivery of housing was substantially below (less than 75%) the housing requirement over the previous years, this needs to be taken into account in the decision-taking process. The latest results published by the Government (the 2023 measurement published on 12 December 2024) show that Bury has a HDT result of less than 75%, and therefore, this needs to be treated as a material factor when determining applications for residential development.

5.30. NPPF paragraph 80 requires the latest published HDT results to be used. However, the Government is currently operating to a delayed publication timetable for the HDT, and although the latest published results for 2023 are below 75%, officers advised through the pre application process, that based on the current HDT rulebook, Bury's result for 2024 will be above 75% and the tilted balance will no longer be triggered by the housing delivery test result.

5.31. Paragraph 11(d) of the National Planning Policy Framework states that where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, planning permission should be granted unless:

5.32. The application of policies in the Framework that protect areas, or assets of particular importance, provide a strong reason for refusing the development proposed; or ii. Any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the Framework, having particular regard to key policies for directing development to sustainable locations, making effective use of land, securing well-designed places and providing affordable homes, individually or in combination.

5.33. As a result of the latest published HDT result the 'tilted balance' applies and planning permission should be granted unless the above points Para 11(d) i or ii apply. In this case, the site is located within the Green Belt so therefore paragraph 11 (d)(i) applies and the proposal needs to be assessed against Green Belt policies.

5.34. Conclusion- The latest published HDT result for Bury also means that NPPF paragraph 155(b) is triggered, and there is a demonstrable **unmet need for the type of development proposed.**

### Paragraph 155(c) - Development within a sustainable location

5.35. Paragraph 155(c) requires that development be directed to sustainable locations regarding paragraphs 110 and 115 of the Framework.

5.36. Paragraph 110 requires the planning system to actively manage patterns of growth, ensuring that significant development is focussed on locations which are or can be made sustainable. There is a requirement to limit the need to travel by way of a genuine choice of transport modes. There is recognition that opportunities to maximise sustainable transport solutions will vary between urban and rural areas.

5.37. Turning to paragraph 115, the requirements build upon paragraph 110, where sustainable transport modes are prioritised, safe and suitable access, the design of streets, parking areas and other transport elements should reflect national guidance. In terms of any significant impacts arising from the development (in terms of the transport network), these need to be cost effectively mitigated to an acceptable degree through a vision-led approach.

5.38. In terms of the application Site, it is highly accessible and sustainably located. The Site is approximately 10 minutes' walk from Walmersley local centre and directly served by frequent bus services on Walmersley Road. It is connected to Bury town centre and the Metrolink network. In addition, existing PRoWs and proposed walking and cycling routes integrate the site with the wider area. The submitted Illustrative Masterplan prioritises active travel, public transport, and a mobility hub, reducing reliance on the private car.

5.39. Technical assessments confirm the suitability of access arrangements and the adequacy of surrounding infrastructure.

5.40. The Site is therefore clearly a sustainable location for new residential development and meets the requirements of paragraph 155(c).

### Paragraph 155 (d) Golden Rules

5.41. Paragraph 155 (d) (for a development of the type proposed in this submission) requires compliance with the 'Golden Rules' as set out at Paragraphs 156 and 157.

5.42. Paragraph 156 sets out three contributions (a-c) (the 'Golden Rules') that should be made, each of these are explored below alongside the development proposals.

5.43. **Contribution (a)** requires the provision of affordable housing to reflect either: (i) development plan policies produced in accordance with paragraphs 67-68 of the Framework; or (ii) until such policies are in place, proposals need to be in accordance with paragraph 157 of the Framework.

5.44. The proposals seek to provide 40% affordable housing and as such, the proposals comply with Paragraph 156(a) of the Framework.

5.45. **Contribution (b)** requires necessary improvements to local or national infrastructure. The proposals are capable of delivering necessary infrastructure improvements, including transport and green infrastructure as required and as set out in the illustrative masterplan.

5.46. **Contribution (c)** requires the provision of new, or improvements to existing green spaces that are accessible to the public. The thrust of contribution (c) seeks to ensure residents can access good quality green spaces within a short walk of their home, either through on-site provision or through access to offsite spaces.

5.47. The application Site includes 10.8 hectares of public open space and will also retain the existing 3.48 hectares of woodland of the Site. The applicant is also proposing additional accessible open space on the former reservoir to the south of the site. This forms part of a separate planning application but is intended to be linked with the proposals. The land can provide open space which is well related to the development and required BNG credits to ensure 10% BNG net gain is provided.

5.48. The requirements of contribution (c) are met, the proposed development is therefore in accordance with the requirements of Paragraph 156(c).

### Golden Rules – Summary

5.49. This statement has demonstrated the proposals adhere to the requirements of paragraph 156 of the Framework and therefore complies with the Golde Rules. As such, and in accordance with paragraph 158 of the Framework, significant weight in favour of the grant of permission should be ascribed to the proposed development.

### Additional Considerations and Site Suitability

5.50. The site is not affected by constraints listed in Footnote 7 of the NPPF (2024), such as flood risk, protected designations, or heritage sensitivity.

5.51. The potential risk posed by surface water to and resulting from the proposals can be adequately mitigated for through appropriate levels design and the implementation of a sustainable surface water management strategy. The Site is not within a conservation area and contains no designated or non-designated heritage assets. A Heritage statement supports the application.

Principle of Employment Development

5.52. The proposed employment uses are located in the north of the site. At outline application stage the following range of employment uses are proposed:

*E(c) Provision of:*

*E(c)(i) Financial services,*

*E(c)(ii) Professional services (other than health or medical services), or*

*E(c)(iii) Other appropriate services in a commercial, business or service locality*

*E(d) Indoor sport, recreation or fitness (not involving motorised vehicles or firearms or use as a swimming pool or skating rink,)*

*E(e) Provision of medical or health services (except the use of premises attached to the residence of the consultant or practitioner)*

*E(f) Creche, day nursery or day centre (not including a residential use)*

*E(g) Uses which can be carried out in a residential area without detriment to its amenity:*

*E(g)(ii) Research and development of products or processes*

*E(g)(iii) Industrial processes*

5.53. Given the green belt location of the Site, paragraph 155(a) of the NPPF, Criteria B (unmet need) is relevant. The mixed use nature of the proposals seek to deliver a smaller and locally accessible employment site in terms of quality and location in Bury which is not already available in the area and consequently a demonstrable qualitative unmet need for the type of employment development is evident. The proposal aims to contribute to delivery of PfE Policy JP-J2 in terms of location, scale, type and cost to justify the release of Green Belt land in this location.

5.54. The range of Class E uses, will offer opportunities for a number of businesses, including start-ups, firms seeking to expand, and large-scale inward investment, which will help to tackle inequalities and provides the opportunity to deliver a more diverse employment site in terms of quality and location in Bury.

5.55. It is critical to differentiate between the proposed type of employment proposals and various strategic employment allocations across the Greater Manchester area which are critical to delivering the

identified need for strategic office, industrial and warehouse floorspace across the plan period (PfE policies JP-J3 and JP-J4 ). The scale and profile of such strategic allocations are likely to generate opportunities for nationally and internationally significant inward investment and indigenous growth for some larger local businesses, it will not necessarily be suitable for all local businesses, particularly those that may require smaller, more affordable accommodation in a location that is more accessible to their existing workforce.

5.56. The mixed use nature of the proposals on the Site presents an opportunity to deliver a more diverse employment site in terms of quality and location. It was the Council's view during pre application discussions that there is currently a poor spatial distribution of employment land in Bury with very limited supply in the north of the Borough. Existing employment sites are increasingly comprising older premises in secondary locations, with some beyond their economic life. The proposal would diversity the small-scale local offer in the north of the Borough, providing scope for local businesses to start- up and/or re-locate and for people to work close to where they live, thus potentially reducing travel distances and reliance on the private car as a way of travelling to work.

5.57. The employment element of the proposals are therefore consistent with PfE Policy JP-J2 and draft Bury Local Plan Policy LP-E1. A qualitative unmet need can be very clearly demonstrated.

Principle of Retail Development/ Local Centre

5.58. The scheme includes a small neighbourhood centre with a convenience store (up to 249sqm), employment space, a mobility hub, and public open space. As the proposed retail element constitutes a "main town centre use" in an out-of-centre location, the assessment applies the sequential test in line with national (NPPF) and local policy. A Sequential Assessment supports the application and demonstrates that the convenience store is intended to serve the day-to-day needs of the new residential community and has a clear locational requirement to be integrated within the site.

5.59. A review of nearby centres (Walmersley Old Road, Walmersley Road, Walmersley Road Precinct, and Chesham Road) found no suitable or available in-centre or edge-of-centre sites capable of accommodating the proposed scale and format of development. Constraints included insufficient site size, lack of availability, policy designations (e.g. protected open space), and operational limitations.

5.60. The assessment concludes that there are no sequentially preferable sites and that the proposal complies with the sequential test. As the retail floorspace is below the impact threshold, no retail

impact assessment is required. The proposals are therefore consistent with the Saved UDP policies S1 and S4 and is also consistent with the emerging Draft Bury Local Plan Policies LP-TC1, LP-TC2 and LP-TC5. It satisfies the requirement to apply the sequential test for out-of-centre retail development and supports the provision of local shops and services that meet day-to-day needs of communities.

## Other Key Planning Considerations

### Design, Type & Mix

5.61. PfE Policy JP-H3 seeks to provide an appropriate mix of dwellings within developments in terms of their type, size and design. The applicant acknowledges that any future reserved matters application must comply with the Nationally Described Space Standards (NDSS) and be built to the 'accessible and adaptable standard in Part M4(2) of Building Regulations unless specific site conditions make this impracticable.

5.62. In terms of density, PfE Policy JP-H4 requires new housing development to be delivered at a density appropriate to the location and sets out minimum densities that should be considered. The application site falls in an area where a minimum density of 35 dwellings per hectare applies. The submitted illustrative masterplan identifies indicative parcels for all types of development proposed. Subsequently the illustrative proposals at outline stage, ensure the proposed density is consistent with PfE Policy JP-H4.

### Affordable Housing, Tenure and Mix

5.63. The Outline Planning Application seeks to provide 40% affordable housing provision. Based on development of up to 350 dwellings, this would equate to up to 140 dwellings. As set out above, this approach is consistent with the 'Golden Rules' set out in NPPF. Further to the pre application advice from the LPA, the applicant is aware that any subsequent reserved matters application will expect the affordable units to be spread throughout the residential development and seek to avoid clusters of tenure to deliver mixed communities to ensure the development is in accordance with saved PfE Policy JP-H2 and Bury SPG5. The affordable housing mix will need to reflect the full range of house types and sizes proposed as part of the reserved matters application and have regard to the most up to date Housing Need and Demand Assessment evidence at the time.

### Public Open Space

5.64. Saved UDP Policy RT2/2 requires all proposals for new housing consisting of 10 units or more to make provision for the recreational needs of the prospective residents by providing and laying out recreational open space within or adjacent to the development, equivalent to a standard of 2.4 hectares per 1,000 population. The outline planning application does not contain a specific mix and size of homes on the Site, however it would be sensible to assume a standard household size of 2.3–2.4 persons per dwelling. Based on this assumption (350 homes x 2.35 average persons) would provide an approximate population of 822.50 people and require open space provision amounting to 2.0 hectares

5.65. The proposed open space on Site comprises 10.8 hectares with the existing woodland accounting for 3.8 hectares. Therefore, the proposed quantum of open space provided on the Site exceeds the Saved Policy requirement of 2.4 hectares per 1,000 population.

5.66. The applicant also notes Bury's SPD1 - Open Space, Sport and Recreation Provision in New Housing. This outlines that '*on-site recreation provision will only be considered in exceptional circumstances. In cases of onsite provision for new housing, provision will be required to be of a high qualitative standard and there will be a need for arrangements to be made regarding the future maintenance and management of the site in perpetuity.*'

5.67. The applicant is also proposing additional accessible open space on the former reservoir to the south of the site. This forms part of a separate planning application but is intended to be linked with the proposals. The land can provide open space which is well related to the development and the required BNG credits to ensure 10% BNG net gain is provided. The applicant is keen to work with Bury Council to provide the correct type, location and quantity of open space and management arrangements.

### Health & Wellbeing Statement

5.68. Policy JP-P6 requires new developments to be supported by a Health Impact Assessment where due to their location, nature or proximity to sensitive receptors, are likely to have a notable impact on health and wellbeing. The applicant considers the development will have a positive health impact and a Health Impact Statement has been submitted to support the outline application. It demonstrates the potential health and wellbeing impacts for new residents and concludes that the proposals will not have a detrimental impact on the health and wellbeing of residents living near the Site.

### Digital Connectivity

5.69. PfE Policy JP-C2 supports the provision of high quality digital infrastructure within new developments. There are no known constraints to digital connectivity in the location of the application site. A future Reserved Matters Application will provide additional details although all major housebuilders are able and keen to demonstrate operational and immediately accessible digital connections for future occupiers.

# 6. SUMMARY OF TECHNICAL REPORTS

### Transport & Accessibility

6.1. The application is accompanied by a Transport Assessment (TA) undertaken by Eddisons which assesses the sustainability of the Site, the suitability of the access arrangements and car parking and the impact of the development upon the surrounding highway network. The TA has been undertaken in accordance with national and local policy and in consultation with Bury Council, Transport for Greater Manchester and National Highways.

6.2. The proposed development comprises up to 350 dwellings (including affordable housing), up to 2,500 sq.m of employment floorspace and up to 249 sq.m of local centre uses, with access considered in detail and all other matters reserved. Vehicular access will be taken from Walmersley Road via two new priority junctions, supplemented by secondary access points onto Walmersley Old Road for limited residential use and active travel connections. These access arrangements are designed in accordance with current highway design standards and are considered safe and suitable for all users.

6.3. The site is well connected to the local and strategic highway network, with direct access to the A56 and proximity to Junction 1 of the M66. Detailed junction modelling has been undertaken for both opening year (2027) and future year (2033) scenarios, incorporating committed development and background traffic growth. The assessment demonstrates that all assessed junctions will continue to operate within capacity, with only modest increases in traffic flows and no material impact on network operation or highway safety. No junction is predicted to experience severe residual cumulative impacts, in accordance with the National Planning Policy Framework (NPPF).

6.4. The development has been designed around a strong vision for sustainable travel. The site is highly accessible by non-car modes, benefiting from continuous footways along Walmersley Road, nearby signalised crossings, and a network of retained and enhanced Public Rights of Way. A wide range of local services, schools, bus stops and community facilities are located within comfortable walking distance. Cycle access is supported by existing and proposed infrastructure, with links to local and national cycle routes and direct connections to Bury town centre.

6.5. Public transport accessibility is strong, with frequent bus services available within approximately 290 metres of the centre of the site, providing direct connections to Bury, Ramsbottom, Blackburn and Burnley. Bury Metrolink stop is readily accessible by bus or cycle, offering wider sustainable travel opportunities across Greater Manchester. A Framework Travel Plan will be secured to encourage

walking, cycling, public transport use and other sustainable travel behaviours by residents, employees and visitors.

6.6. The proposals also include a new local centre incorporating a Mobility Hub, which may provide cycle facilities, electric vehicle charging, car club provision, real-time public transport information and co-working space. This facility will further reduce reliance on private car ownership and support the creation of a walkable, inclusive and low-carbon neighbourhood in line with local and national transport objectives.

6.7. An analysis of five years of recorded personal injury collision data confirms that the surrounding highway network does not suffer from an abnormal accident record, with no recorded collisions in the vicinity of the proposed site accesses. The proposed development is therefore not expected to give rise to any highway safety concerns.

6.8. Overall, the Transport Assessment demonstrates that the site is located in a sustainable and accessible location, that safe and suitable access can be achieved for all users, and that the development can be accommodated on the local and strategic highway network without resulting in unacceptable transport or highway safety impacts. The proposals are fully compliant with the NPPF, the Places for Everyone Joint Development Plan and Bury's local transport policies, and are considered acceptable in transport terms.

### Landscape and Visual Appraisal

6.9. A Landscape and Visual Appraisal (LVA) has been undertaken by influence and concludes that the land east of Walmersley Road is visually contained by strong vegetated boundaries, an internal woodland belt and surrounding landform, with limited intervisibility from the wider landscape. The site lies within the Pennine Foothills landscape character type, in a context already influenced by settlement edges and major infrastructure, notably the M66, which forms a clear physical and perceptual boundary.

6.10. While development would result in a localised change to the character of the site itself, effects would be moderated through retention of existing woodland, boundary vegetation and watercourse features, alongside additional structural planting and public open space. Views from Public Rights of Way are generally filtered or partial, and where the site is visible it is experienced within a broader semi-rural and suburban context.

6.11. Overall, the proposed mixed-use development is considered capable of being assimilated into the surrounding landscape without giving rise to significant adverse landscape or visual effects, and would be representative of the evolving landscape character on the edge of Bury.

### Ecology

6.12. The application is supported by an Ecological Survey and Assessment (EcIA) and a dedicated Results of Breeding Bird Surveys 2025 report. The submitted ecological assessments demonstrate that the site has been subject to appropriate baseline survey, including a detailed ecological appraisal and six breeding bird surveys undertaken during the 2025 breeding season. These confirm that the site supports a range of habitats of ecological interest, including woodland, scrub, hedgerows, grassland and the Walmersley Brook corridor, together with a notable breeding bird assemblage. However, the reports conclude that the proposed development can be delivered without significant ecological constraint, provided that the identified mitigation and enhancement measures are secured. In particular, the scheme has been informed by the retention of key habitat features, measures to safeguard nesting birds, and habitat enhancement proposals including new planting and bird-box provision.

6.13. The site does not support any statutory or non-statutory designated nature conservation sites, and no irreplaceable habitats are present. Ecological value is primarily associated with woodland, hedgerows and habitat connectivity, which have been retained and incorporated into the scheme design in accordance with the mitigation hierarchy. Potential impacts on protected and Priority Species, including bats, nesting birds and badger, can be effectively managed through standard best practice measures, further targeted surveys where required, and the implementation of a Construction Environmental Management Plan. T

### Biodiversity Net Gain

6.14. The Proposed Development has been informed by a comprehensive Biodiversity Net Gain (BNG) assessment undertaken in accordance with the Statutory Biodiversity Metric (Natural England, 2025). The scheme adopts the mitigation hierarchy, prioritising the retention and enhancement of higher value habitats, including areas of lowland mixed deciduous woodland and Walmersley Brook, alongside the creation of new habitats such as species-rich grassland, SuDS features, native hedgerows and strategic tree planting.

6.15. The assessment demonstrates that the proposals will deliver a significant net gain in hedgerow units (+24.16%) and watercourse units (+11.36%). However, a residual deficit in area-based habitat units (–13.80%) remains at this outline stage. Accordingly, the development will secure the required minimum 10% BNG through a combination of on-site refinement at detailed design stage and, if necessary, off-site habitat enhancement or the use of biodiversity credits, in line with national policy and the statutory BNG framework.

### Arboriculture

6.16. The accompanying Arboricultural Survey and Assessment has been undertaken by AWA Tree Consultants Ltd. The survey identified 222 tree features, comprising 174 individual trees and 48 tree groups or hedgerows, across the site. These were categorised as follows:

- 36 Category A trees (high quality and high amenity value),
- 69 Category B trees and groups (moderate quality and value),
- 103 Category C trees and groups (low quality/value), and
- 14 Category U trees which are unsuitable for long-term retention due to condition or limited life expectancy

6.17. The significant tree cover within the site consists mainly of large woodland groups stretching along the centre of the site and along the boundaries. The site also has a large number of individual pasture trees to the east. Species diversity at the site is good. The dominant species are Oak and Scots Pine, with several Sycamore, Willow, Lime and Hawthorn.

6.18. The most significant trees on site are the early mature and mature category 'A' Oak trees within the eastern pasture grassland, these provide a high level of arboricultural value. There are a number of trees and tree groups form a line of street trees which run along the western edge of the site along Walmersley Road.

6.19. The design of the scheme has considered to ensure the information identified within the tree survey and Tree Constraints Plan was used to inform the design process, suitable trees are retained and integrated into the design proposals where feasible, ensuring that trees and buildings can coexist successfully.

6.20.

### Flood Risk and Drainage

6.21. A site-specific Flood Risk Assessment (FRA) has been prepared by Betts Hydro to support the outline planning application for residential development, employment uses and a local centre on land east of Walmersley Road, Bury. The proposed development is classified as *More Vulnerable* development in accordance with the National Planning Policy Framework (NPPF) and is located entirely within Flood Zone 1, where such development is considered appropriate.

6.22. The FRA confirms that the site is at low risk of flooding from all sources. The nearest Main River, Pigs Lee Brook, is located approximately 200m from the site and poses a negligible flood risk due to its distance and intervening topography. An Ordinary Watercourse, Walmersley Brook, runs through the site; however, its catchment is small and no historical flooding has been identified. The proposed development is set back from the watercourse, and fluvial flood risk from this source is assessed as low.

6.23. Surface water flood risk mapping indicates some localised areas of ponding in low-lying parts of the site, particularly near existing watercourses. To address this, detailed site-specific surface water modelling has been undertaken, incorporating site levels, highway drainage infrastructure and climate change allowances. The modelling demonstrates that surface water flows are generated within the site itself, that built development avoids areas at higher surface water risk, and that any residual risk can be effectively mitigated through appropriate site levels and drainage design.

6.24. Overall, the FRA concludes that the proposed development will be safe for its lifetime, will not increase flood risk on or off site, and fully accords with the requirements of the NPPF and Planning Practice Guidance.

### Drainage Management Strategy.

6.25. A comprehensive Drainage Management Strategy has been prepared to support the outline application. The strategy has been undertaken in accordance with the National Planning Policy Framework (NPPF), Planning Practice Guidance (PPG) and the National Standards for Sustainable Drainage Systems (June 2025), with the overarching objective of ensuring that the proposed development does not increase flood risk on-site or elsewhere.

6.26. Desk-based assessments indicate that infiltration is unlikely to provide a viable site-wide drainage solution due to underlying ground conditions. As such, the proposed surface water strategy seeks to replicate the existing drainage regime, with surface water runoff discharged to Walmersley Brook in

accordance with the SuDS hierarchy. Surface water runoff from the development will be managed through a combination of below-ground pipe networks and above-ground attenuation basins, with additional below-ground storage where required. The drainage system will be designed to accommodate rainfall events up to and including the 1 in 100-year event, with a 45% allowance for climate change. Discharge rates will be restricted to greenfield runoff rates, calculated at 58.2 l/s for the Eastern Parcel and 94.7 l/s for the Western Parcel, subject to agreement with the Lead Local Flood Authority.

6.27. The proposals incorporate Sustainable Drainage Systems (SuDS) wherever practicable, including permeable surfaces and green infrastructure, to provide additional benefits in terms of water quality, biodiversity and amenity. Where infiltration is not feasible, these features will be positively drained to the main surface water system while still managing initial rainfall at source.

6.28. Foul drainage will be discharged to the existing public sewer network, with separate connections proposed to Walmersley Road and Walmersley Old Road due to the site being divided by Walmersley Brook. Pumped solutions are anticipated for both parcels, subject to detailed design and agreement with United Utilities.

6.29. Overall, the Drainage Management Strategy demonstrates that the site can be developed safely and sustainably, without increasing flood risk, and in full accordance with national and local planning policy JP-S4.

### Ground Conditions

6.30. A Phase I Geo-Environmental Assessment has been undertaken by Brownfield Solutions Ltd. The site comprises predominantly undeveloped land with areas of historic inert landfill to the north and a former reservoir/landfill located off-site to the south-west. Desk study review, site walkover and assessment of historical mapping indicate no evidence of significant contaminative land uses associated with the proposed development footprint.

6.31. The overall risk to future residential and commercial end users from land contamination is assessed as moderate to low, with risks considered manageable and capable of being addressed through standard planning conditions. The principal potential constraint relates to ground gas, arising from historic landfill activity on-site and on adjacent land; however, this is a well-understood issue and can be appropriately assessed and mitigated through a Phase II intrusive investigation and gas risk assessment, where required.

6.32. Risks to controlled waters, including Walmersley Brook and underlying secondary aquifers, are assessed as moderate to low, with underlying low-permeability soils and proposed redevelopment expected to provide an overall environmental betterment. No significant risks associated with coal mining, radon or unexploded ordnance have been identified.

6.33. The report concludes that the site is suitable for redevelopment, subject to further site investigation secured by planning condition, and that no abnormal or insurmountable ground or contamination constraints exist that would preclude the proposed development.

Noise

6.34. A Noise Impact Assessment has been undertaken by Enzygo Ltd in support of the proposals. The assessment was informed by a 24-hour baseline noise monitoring survey undertaken in August 2025 at representative locations adjacent to the M66 and Walmersley Road, the principal sources of environmental noise affecting the site. The survey data were used to establish the existing noise climate and to inform predictive noise modelling across the site.

6.35. The assessment was carried out in accordance with relevant national standards and guidance, including BS 8233:2014 and the Professional Practice Guidance on Planning and Noise (ProPG). Noise contour modelling was undertaken using CadnaA software and the ISO 9613-2 methodology to predict daytime and night-time noise levels across the proposed development area. The ProPG Stage 1 Noise Risk Assessment identifies that the majority of the site falls within the *negligible* to *low* risk categories for both daytime and night-time periods. In accordance with ProPG, this indicates that the site is suitable for residential development from a noise perspective, subject to the application of appropriate acoustic design principles.

6.36. The assessment demonstrates that, with standard mitigation measures incorporated at detailed design stage — including suitable façade glazing specifications, appropriate ventilation strategies and the use of boundary treatments where necessary — internal noise levels can be designed to achieve the guideline criteria set out in BS 8233:2014. External private amenity spaces can also be provided at acceptable noise levels. The assessment further confirms that the site has a low risk of overheating, and that any interaction between overheating mitigation and noise control can be appropriately managed through design in accordance with Approved Document O at the detailed design stage.

6.37. Overall, the Noise Impact Assessment concludes that there are no noise-related constraints that would preclude the proposed development. Subject to appropriate mitigation secured through

design, the development is considered acceptable in noise and amenity terms and raises no objections on planning noise grounds.

### Air Quality

6.38. An Air Quality Assessment (AQA) has been undertaken by Enzygo Ltd. The assessment has been undertaken in accordance with the National Planning Policy Framework (NPPF), DEFRA Local Air Quality Management guidance, and relevant IAQM and EPUK guidance. Baseline conditions indicate that air quality within the wider area is generally good, with no exceedances of national air quality objectives identified at nearby monitoring locations. While the site lies adjacent to the Greater Manchester Air Quality Management Area associated with the M66, monitored and modelled background concentrations of nitrogen dioxide ($NO_2$) and particulate matter ($PM_{10}$ and $PM_{2.5}$) are well below the relevant objectives and are predicted to improve in future years.

6.39. Potential construction phase impacts were assessed qualitatively in accordance with IAQM guidance. The site was identified as having a high unmitigated dust risk due to the scale of earthworks and construction activities. However, with the implementation of standard best-practice mitigation measures through a Dust Management Plan, residual construction phase impacts are predicted to be negligible and not significant.

6.40. Operational phase impacts were assessed using detailed dispersion modelling of road traffic emissions. Predicted changes in annual mean concentrations of $NO_2$, $PM_{10}$ and $PM_{2.5}$ at all assessed sensitive receptors were negligible, with no exceedances of air quality objectives identified. The development would not introduce new exposure to unacceptable air quality conditions, nor would it materially worsen existing conditions within the AQMA.

6.41. On-site exposure modelling demonstrates that pollutant concentrations across the proposed development are within national air quality objectives for both residential and employment uses. As such, the site is considered suitable for the proposed end uses without the need for additional mitigation during occupation

6.42. Overall, the assessment concludes that the proposals are consistent with Policy JP-S5 (Clean Air ) and the proposed development would result in no significant air quality effects during either the construction or operational phases.

### Heritage

6.43. A Heritage Statement supports the outline application and assesses the historical development of the site, the significance of nearby heritage assets, and the contribution the application site makes to their setting. Baldingstone House is a Grade II listed building which lies to the southeast of the proposal site. To the north of the development site is Bassfield Farm, House and Cottage which has been nominated to be included on the Bury Council local list of buildings of special architectural or historic interest. As buildings of local interest they could be considered non-designated heritage assets, and with reference to heritage impact assessment guidance the buildings would be afforded a low level of significance.

6.44. The assessment concludes that the application site does not make a meaningful contribution to the setting or significance of either heritage asset. Baldingstone House is well screened by mature vegetation and is primarily experienced from within its own grounds, with no significant intervisibility with the site. Bassfield Farm, House and Cottage is physically and visually separated from the site by the M66 slip road and dense vegetation.

6.45. The proposed development has been designed to retain key landscape features, including mature trees and vegetation, and to avoid intrusion into important views or settings. As a result, the proposals would result in a negligible magnitude of change and a neutral impact on the significance and setting of nearby heritage assets. The development therefore accords with national and local planning policy, including the NPPF, and preserves the setting of designated and non-designated heritage assets in line with statutory duties.

### Archaeology

6.46. An Archaeological Desk-Based Assessment has been undertaken by CFA Archaeology in support of the proposals. The assessment confirms that there are no designated heritage assets within the site, and no Scheduled Monuments, Conservation Areas or Listed Buildings would be directly affected by the proposals.

6.47. Four non-designated heritage assets of local value were identified: the heavily truncated remains of the 19th-century Gin Hall farmstead, the largely demolished remains of Stones Farm, the infilled Gin Hall Reservoir (located offsite), and two small stone structures with a retaining wall associated with the former reservoir. These assets are all assessed as being of low heritage importance, with limited evidential value due to their poor survival and past disturbance.

6.48. The western part of the site has been substantially disturbed by the associated construction and subsequent infilling of the offsite late-19th-century reservoir and later landfill activity. As a result, the assessment concludes that there is negligible potential for surviving archaeological remains in this area. The eastern part of the site, comprising sloping pastureland adjacent to Walmersley Brook, is assessed as having low archaeological potential, with no evidence for significant earlier settlement or activity

6.49. Overall, the proposed development is not expected to result in significant adverse effects on archaeological or heritage assets. Any requirement for further archaeological evaluation or mitigation will be agreed with the Greater Manchester Archaeological Advisory Service prior to commencement of development, in accordance with national and local planning policy.

### Energy & Carbon Statement

6.50. The Energy and Carbon Statement undertaken by Complete Sustainability Solutions demonstrates how the scheme will align with national and local sustainability policy, including the NPPF (2024), the Places for Everyone Joint Development Plan (2024) and GMCA energy and carbon standards. The development will adopt the energy hierarchy of *Be Lean, Be Clean and Be Green*, with a fabric-first approach to minimise energy demand and ensure compliance with Building Regulations Part L 2021. Low-carbon technologies, including air source heat pumps and solar photovoltaic panels, will be incorporated where appropriate, while unsuitable technologies such as CHP have been robustly assessed and discounted.

6.51. As the design progresses, a comprehensive suite of assessments will be undertaken, including SAP, TM54 operational energy modelling, TM59 overheating analysis (Part O), and a Whole Life Carbon Assessment in accordance with EN 15978 and RICS guidance. These will quantify both operational and embodied carbon emissions and inform opportunities for further carbon reduction. The scheme will report performance through the GMCA Energy and Carbon Proforma, ensuring transparency and consistency with Greater Manchester's net zero ambitions.

6.52. Overall, the development establishes a clear and policy-compliant framework for delivering an energy-efficient, climate-resilient and low-carbon community and are accordance with Policy JP-S2: Carbon and Energy.

### Crime Impact Statement

6.53. The supporting Crime Impact Statement (prepared by Greater Manchester Police) supports the principle of the proposed mixed-use development. The report identifies that the surrounding area experiences relatively low crime rates compared to regional and national averages. The report identifies typical risks associated with residential, retail and employment uses and provides design-led recommendations to mitigate these, focusing on natural surveillance, secure access, defensible space, lighting, and adherence to Secured by Design principles. It concludes that, subject to incorporating these measures at the detailed design stage, the development can be delivered safely and securely.

# 7. PLANNING BALANCE

7.1. This planning statement has set out in detail the reasons why the development Site is suitable for residential development. Our primary case is that the Site is grey belt and we meet the grey belt policy tests and therefore the development is not inappropriate in the Green Belt. It is the applicants' view the tilted balance is engaged under paragraph 11(d) of the Framework and we also benefit from significant weight given to the compliance with the Golden Rules as per paragraph 158 (in addition to weight given to the benefits as set out already in section 5 of this statement).

7.2. This section of the report undertakes a comprehensive assessment of the key material considerations, applies weight to each, and concludes on whether the planning balance supports the granting of outline planning permission.

7.3. Bury Council cannot currently demonstrate a five-year supply of deliverable housing land. The latest published 5 year Deliverable Housing land Report in November 2025 records a supply of 4.3 years. This triggers the 'tilted balance' in favour of granting planning permission unless any adverse impacts would significantly and demonstrably outweigh the benefits when assessed against the policies in the NPPF as a whole.

7.4. **Interim Conclusion:** Given the housing shortfall, those policies within the current Local Plan must be considered out of date and therefore the 'tilted balance' is engaged. Given the out-of-date status of key development plan policies the principle of residential development attracts **very substantial weight in favour** of the proposal.

7.5. The proposed development would deliver up to 350 homes, of which 40% would be affordable housing. This level of affordable provision exceeds the adopted policy requirement and makes a meaningful contribution towards meeting identified local housing needs[2]. The development would help address the significant housing shortfall in the borough and support the Government's objective of significantly boosting the supply of homes.

7.6. **Interim Conclusion:** The affordable housing contribution of 40 % on the Site, addresses a critical local need and is more than local policy requirements in both quantum and quality. It attracts **significant weight in favour** of the proposal.

7.7. The site is sustainably located and easily accessible. The Site is approximately 10 minutes' walk from Walmersley local centre and directly served by frequent bus services on Walmersley Road. It is

[2]

connected to Bury town centre and the Metrolink network. In addition, existing PRoWs and proposed walking,cycling and bridleway routes integrate the site with the wider area. The submitted Illustrative Masterplan prioritises active travel, public transport, and a mobility hub, reducing reliance on the private car.

7.8. A full Transport Assessment demonstrates that the Site can be safely accessed and that any additional traffic can be accommodated without causing severe impacts on the local road network. Walking and cycling connections are integrated into the scheme, promoting modal shift and reducing car dependency.

7.9. **Interim Conclusion:** The development supports sustainable transport modes and minimises dependence on private vehicles. This attracts **moderate to significant weight in favour**.

7.10. Although the Site is currently designated as Green Belt, it has been assessed as performing weakly against the purposes of Green Belt, particularly in relation to checking unrestricted urban sprawl, preventing neighbouring towns from merging, and preserving the setting of historic towns. The Site is visually contained by strong vegetated boundaries, an internal woodland belt and surrounding landform, with limited intervisibility from the wider landscape. The site lies within the Pennine Foothills landscape character type, in a context already influenced by settlement edges and major infrastructure, notably the M66, which forms a clear physical and perceptual boundary.

7.11. The proposal satisfies the criteria for the release of 'grey belt' land as set out in paragraph 155 of the NPPF and is consistent with the Government's strategy for identifying and allocating sustainable, deliverable sites. The scheme is supported by a comprehensive Landscape and Visual Appraisal which confirms that any landscape or visual effects will be localised and are capable of being mitigated through a landscape-led approach.

7.12. **Interim Conclusion:** While the development will result in development in the Green Belt and will therefore cause a change to local character, this is not considered unacceptable when assessing the Site in grey belt terms. The Site is visually contained and given the mitigation proposed, landscape effects attract **limited weight against** the proposal.

7.13. The proposal includes substantial green infrastructure, new planting, and biodiversity enhancements, including a minimum 10% biodiversity net gain to be delivered.

7.14. **Interim Conclusion:** The Site can deliver ecological enhancements which will contribute both to biodiversity and to the Site 's character and amenity. This attracts **moderate weight in favour**.

7.15. Technical assessments confirm there are no overriding constraints to development. Matters relating to ecology, noise, air quality, drainage, flood risk, and ground conditions have been assessed and found to be acceptable, subject to appropriate mitigation. No significant residual impacts have been identified. The development has also been designed to respect existing trees and hedgerows and includes extensive new planting that will reinforce local character and contribute to the Site's integration within the wider landscape.

7.16. **Interim Conclusion:** The proposal is acceptable on a number of technical matters as outlined above. This is **neutral** in the planning balance.

7.17. Community consultation has been undertaken in a transparent and proactive manner. While a range of concerns were raised, the application responds positively to these through the provision of affordable housing, open space design and ecological enhancements. The applicant has committed to continued community engagement throughout the planning process.

7.18. **Interim Conclusion:** The proposal has been subject to local community consultation to ensure an inclusive and sustainable development. This is **neutral** in the planning balance.

7.19. In summary, the application site offers a suitable and sustainable location for residential development. It will deliver a high-quality, landscape-led scheme that meets an identified housing need and provides significant social, environmental, and economic benefits. The proposal accords with national and local planning policy, particularly in light of the presumption in favour of sustainable development. Any potential adverse impacts are limited and can be mitigated through the detailed design and planning conditions. When considered as a whole, the benefits of the development clearly outweigh any harm, and planning permission should be granted accordingly.

# 8. SUMMARY AND CONCLUSIONS

8.1. This Planning Statement demonstrates that the development of land at to the East of Walmersley Road, Bury, constitutes a sustainable, landscape-led and policy compliant proposal capable of delivering up to 350 new homes including 40% affordable housing, local employment opportunities and a small local retail centre in an area facing a shortage of deliverable housing land. The evidence confirms that the Site performs weakly in Green Belt terms, is physically and visually contained, is sustainably located, and presents no technical or environmental constraints that would preclude development.

8.2. The Applicant's primary position is that the Site meets the definition of grey belt as set out in the revised National Planning Policy Framework (NPPF, 2024). The Site performs weakly against Green Belt purposes a, b, and d, (paragraph 143) and its release would not fundamentally undermine the purposes of the Green Belt when considered across the wider plan area. The Site is visually enclosed by the A56 and M66, and the combination of containment, context and limited openness mean that development here would not amount to inappropriate development under paragraph 155 of the Framework.

8.3. The proposals also meet all four criteria in paragraph 155, including full compliance with the **Golden Rules** in paragraph 156. In particular:

- The development will deliver **40% affordable housing**, satisfying paragraph 156(a).
- Contributions to local infrastructure will be secured via Section 106 in accordance with paragraph 156(b).
- High-quality green space enhancements, significant on site open space, connecting paths/ access to the existing PRoW on the Site and new bridleway ensure compliance with paragraph 156(c).

The Site lies in a demonstrably **sustainable location**, meeting paragraph 155(c) through excellent access to schools, healthcare, public transport, employment and walking/cycling networks.Accordingly, the Site should properly be treated as grey belt, and the proposed development should be regarded as **not inappropriate in the Green Belt**.

8.4. Given the Council's housing land supply deficit, the strategic policies of the Local Plan are out of date. It follows that **paragraph 11(d)** of the Framework is engaged, and the presumption in favour of sustainable development is applicable. The development further benefits from the **significant**

**weight** afforded by paragraph 158 due to full compliance with the Golden Rules, in addition to the already substantial benefits identified in Section 5 of this Statement.

## Overall Conclusion

8.5. Whether assessed through:

- The grey belt policy tests (our primary case),
- The tilted balance under paragraph 11(d),

the conclusion is unequivocal – the benefits of the proposal significantly and demonstrably outweigh any identified harm.

8.6. The Site is sustainable, the need for new homes especially affordable homes is pressing, and the scheme delivers environmental, social and economic benefits of substantial weight. The development offers a high-quality, landscape-led extension to north Bury that strengthens local green infrastructure and creates a long-term defensible Green Belt boundary.

8.7. For these reasons, the planning balance decisively supports the grant of outline planning permission, and the development should be approved without delay.

# APPENDIX 1 – SITE LOCATION PLAN

Bast House
Bast House Farm Cottage
Bast House Farm
Sinks
Sinks
Ward Bdy
Well
Path (um)
High Hope
Well
FW
FW
Issues
Oak
Lord Raglan
WALMERSLEY OLD ROAD
CP
Boro Const Bdy
Met Dist Bdy
218.8m
Issues
Shelter
A 56
Pond
Issues
Issues
Mount Pleasant
169.3m
BASS LANE
Bassfield Farm
M 66
Reservoir
ESS
214.6m
Mill House
Bassfield
Track
Letter Box
Nangreaves
Trough
Fb
Pond
A 56
171.0m
Track
Mast (Telecommunication)
Pipeline
M 66
WALMERSLEY ROAD
El Sub Sta
WALMERSLEY OLD ROAD
200.3m
Watermeetings Brook
FB
Path (um)
Issues
Spring
Sinks
CG
Longcroft Cottages
Longcroft Barn
Longcroft House
Mast (telecommunication)
M66
Walmersley Brook
A.D.Steps
Baldingstone House
Ivy Cottage
Robins Bank
The Barn
167.6m
Works
198.0m
BENTLEY LANE
Blarny Bird
ROWLANDS ROAD
Oak View
Nabbs Farm
Shelter
148.1m
WALMERSLEY ROAD
Gin Hall
Path (um)
FB
162.3m
Main
El Sub Sta
FALSHAW DRIVE
Shelter
Issues
Recreation Ground
Sports Court
Play Area
Stream
El Sub Sta
New Inn
Pub
134.5m
STRATHAM AVENUE
LEAMINGTON AVENUE
BURNLEY ROAD
BROOKFIELD ROAD
WALMERSLEY ROAD
RIBBLE DRIVE
RIBBLE DRIVE
RIBBLE DRIVE
CARR BANK
El Sub Sta
166 PH
WALMERSLEY OLD ROAD
SPEN CLOSE
CLIFFORD DRIVE
GREENMOUNT CLOSE
SHUTTLEWORTH GROVE
CLIFFORD DRIVE
MILLCROFT MEWS
BURFIELD ROAD
143.9m

**NOTES:**

SCALE: Do not scale from this drawing.

SETTING OUT: All setting out, levels, dimensions to be agreed on site. Do not use the information on this drawing without checking all dimensions on site. Any discrepancies between drawings, specifications and site works are to be reported to The Urbanists. Order of construction and setting out is to be agreed on site.

CHECK: This drawing must be the latest revision, read in conjunction with all other drawings, details, specifications and schedules. All dimensions are in millimetres unless otherwise stated. Where any contradiction or uncertainty arises between the drawings and/or the schedule of works / specification, it is the Contractor's responsibility to seek verification from The Urbanists before proceeding. No claims will be met by The Urbanists, where the Contractor continues work in absence of such confirmation.

| No. | Date | By | Revision Notes |
|---|---|---|---|

**PROJECT STATUS:**

S2 (SUITABLE FOR INFORMATION)

**the urbanists**

| | |
|---|---|
| Client | Hollins Strategic Land |
| Project | Land East of Walmersley Road, Bury |
| Title | Site Location Plan |

| Project ID | Organiser | Volume | Level | Type | Role | Dwg | Suit. | Rev. |
|---|---|---|---|---|---|---|---|---|
| 2492 | URB | XX | XX | DR | UD | 010 | S0 | - |

Drawn HW Date 01/12/2025 Checked JD Scale 1:1250 @A1

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# APPENDIX 10 – LANDSCAPE & VISUAL STATEMENT (INFLUENCE)

# LANDSCAPE AND VISUAL SATEMENT

**Land east of Walmersley Road, Bury**

April 2026
INF_N251310_R01_REV B

influence®

Produced by: Influence Landscape Planning and Design Ltd
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|---|---|
| Document ref: | INF_N251310 |
| Status: | Submission Version |
| Release date: | 15/12/2025 |
| Author: | Leonie Brown CMLI |
| Checked by: | Sara Boland CMLI |
| Proof read by: | |

| Revision: | Date: |
|---|---|
| REV A | 15/12/2025 |
| REV B | 08/08/2026 |

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# 1 Introduction

## Outline

1.1 This Landscape and Visual Statement (LVS) has been prepared by Influence Landscape Planning and Design Ltd (Influence), a chartered Landscape Architecture and Environmental Planning practice.

1.2 Influence has been appointed by Hollins Strategic Land LLP to carry out this LVS for the proposed mixed-use development at land east of Walmersley Road, Bury. This LVS will be used to accompany any outline planning application with all matters reserved other than access for mixed use development of up to 350 dwellings (Use Class C3), up to 2,500 sq mts employment/commercial uses (Use Classes E(c), E(d), E(e), E(f), E(g)(ii) and E(g)(iii)), a local centre comprising up to 249 sq mts of retail floorspace (Use Class E(a)), mobility hub, public open space and associated infrastructure).

1.3 The LVS has been undertaken as a stand-alone report based upon the guidance contained within the Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA)[1]. It provides a narrative appraisal of the proposed development within the identified application Site and surrounding study area. This report is not a Landscape and Visual Assessment.

1.4 The location of the proposed development is shown on figure INF_N251310(08)001.

[1] Landscape Institute and Institute of Environmental Management and Assessment, 2013

# 2 Planning Context

## Introduction

**2.1** Aspects of planning guidance and policy, which are of particular relevance to the LVS, are examined below. Relevant statutory, non-statutory and planning designations within the LVS study area are shown on figure INF_N251310(08)001.

## International Legislation

2.2 The European Landscape Convention (ELC)[2], which was signed by the UK in February 2006 and became binding in 2007, is the first international convention to focus specifically on landscape issues and aims to protect, manage and plan landscapes in Europe.

2.3 The ELC highlights the importance of developing landscape policies dedicated to the protection, management and creation of landscapes, and establishing procedures for the general public and other stakeholders to participate in policy creation and implementation.

2.4 The ELC defines landscape as *"an area, as perceived by people, whose character is the result of the action and interaction of natural and / or human factors"*[3].

## National Legislation

2.5 This report takes into account the legislation and policy relevant to landscape and visual amenity, and the relevant ecology and cultural heritage including the following.

### Public Rights of Way

2.6 Legislation with regard to Public Rights of Way (PRoW) is in the National Parks and Access to the Countryside Act 1949, Countryside Act 1968, Wildlife and Countryside Act 1981, Highways Act 1980, Rights of Way Act 1990 and Countryside Rights of Way Act 2000 (CROW 2000).

2.7 PRoWs are recorded on Definitive Maps by the County Council and are protected under the above legislation. Applications and consultation are required for any works that would affect a PRoW, for example a temporary diversion during construction works, a permanent diversion as the result of a proposed development or any other changes to the routes.

## National Planning Policy Framework

2.8 The National Planning Policy Framework (NPPF)[4] is a material consideration and provides guidance for regional and local planning. At the heart of the NPPF is a presumption in favour of sustainable development, which forms the basis of plan-making and decision-taking.

[2] Council of Europe, 2004
[3] Council of Europe, 2004
[4] Ministry of Housing, Communities and Local Government, National Planning Policy Framework, December 2024

2.9 The NPPF sets out three objectives in order to achieve sustainable development – economic, social and environmental. The environmental objective is relevant to this report. Particularly relevant is the requirement *"to protect and enhance our natural, built and historic environment"*.

2.10 The NPPF provides guidance on how to deliver sustainable development. The planning principles of relevance to this LVS are summarised as:

- Section12 Achieving well-designed places[5], which addresses the creation of high quality, beautiful and sustainable buildings and place. Developments should add to the overall quality of an area, should be visually attractive with regards to architecture, layout and landscaping, should be sympathetic to local and historic character, respond to the surrounding built environment and landscape setting and establish or maintain a sense of place. The importance of trees in urban environments is also addressed;
- Section 15 Conserving and Enhancing the Natural Environment[6], which states (inter alia) that the intrinsic character and beauty of the countryside should be recognised. Policies should provide net gains for biodiversity. Valued landscapes such as National Parks and AONB should be conserved and enhanced, with the scale of development limited in this area; and
- Section 16 Conserving and Enhancing the Historic Environment[7] sets out the approach to heritage assets identifying that they are irreplaceable resource and should be conserved in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of existing and future generations.

## National Design Guide

2.11 The National Design Guide (NDG)8 has been published to further expand the design policies set out in the NPPF providing a framework to assess proposals against in terms of achieving well designed places.

2.12 One of the key components identified in the NDG that needs to be considered to ensure good design is landscape. When addressing the identity of a place, characteristic I1 identifies the importance of landscape setting and backdrop in order to respond effectively to local identity.

2.13 A key part of the NDG assessment relates to context and how well-designed places need to be integrated into their surroundings so they relate well to them along with being influenced by and influencing their context positively[9]. Characteristic C1 emphasises the need to respond appropriately to landscape character in order to provide positive new developments.

[5] Section 12, paras 1313-136 NPPF, 2025
[6] Section 15, paras 187-195 NPPF, 2025
[7] Section 16, paras 202-212 NPPF, 2025
[8] Ministry of Housing, Communities and Local Government, National Design Guide, January 2021
[9] Ministry of Housing, Communities and Local Government, National Design Guide, January 2021, p10

## Local Planning Policy

2.14 The Application Site is located within the administrative jurisdiction of Bury Council, with the Places for Everyone (PfE) Joint Development Plan for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan[10] as the main policy document.

2.15 A summary of the key aspects of the local planning policies that are considered relevant to the landscape and visual assessment are presented below.

## Places for Everyone Joint Development Plan 2024

2.16 The Greener Places Strategy identify policies that are relevant;

- Policy JP-G1 Landscape Character
- Policy JP-G7 Trees and Woodland
- Policy JP-G9: The Green Belt

## Designations, Registered Sites and Public Rights of Way

2.17 The Application Site is not located within any national or local nature, heritage or landscape designation.

2.18 PRoW Bury Footpath 6BUR#1traverses the Site from Walmersley Road to Walmersley Old Road. From this footpath, the PRoW Bury Footpath 2ABUR#1 starts in the woodland block and travels northwards, exiting the Site and continuing under the M66.

## Other Designations

2.19 Within the study area, there are some designations which, whilst not specifically related to landscape value or quality, indicate a potential landscape value and/or quality.

2.20 The study area contains three Conservation Areas; Mount Pleasant Conservation Area which is located north-east of the Site, Brooksbottoms and Rowlands Conservation Area located in the west of the study area along with Summerseat Conservation Area. Whilst Conservation Areas are cultural heritage designations, they often encompass landscape elements which contribute to the value in terms of cultural heritage. Therefore, these designations can be taken as an indicator of potential landscape value and quality.

2.21 The majority of the study area, including the Site, is within the Merseyside and Greater Manchester Green Belt. Whilst the Green Belt is a predominantly planning designation, in accordance with the NPPF the essential elements of the Green Belt are their openness and their performance. A Green Belt designation is not necessarily an indicator of potential landscape quality. For this Application Site, it has been determined that the Site is considered to sit within Grey Belt.

[10] Greater Manchester Combined Authority, 2024

# 3 Methodology

## Guidance

3.1 The format of this LVS is based on the principles set out in the Guidelines for Landscape and Visual Impact Assessment Third Edition[11], the Landscape Character Assessment Guidance for England and Scotland[12] and An Approach to Landscape Character Assessment[13]. A detailed methodology is provided in Appendix A.

3.2 *Viewpoint photographs have been presented in accordance with the Landscape Institute's Advice Note TGN Visual Representation 06/19*[14].

## Study Area

3.3 A computer modelled Zone of Theoretical Visibility (ZTV) was initially run to establish the theoretical ('worst case scenario') visibility of the proposed development in the surrounding landscape and assist with the process of defining the LVS study area[15]. This theoretical visibility is based on topography alone and does not take account of intervening vegetation and built form.

3.4 Following the initial desktop study, a Site visit was carried out and the actual visibility of the application Site and the proposed development, where landscape and visual impacts could potentially occur, was found to be considerably restricted by the surrounding landform combined with intervening vegetation and built form. Based on this information the study area of the LVS has been defined as a maximum of 2km from the application Site.

3.5 Only landscape and visual receptors within the LVS study area have been considered in the assessment, as there is no potential for any significant landscape and/or visual effects to be incurred beyond that area.

[11] Landscape Institute and Institute of Environmental Management and Assessment, 2013
[12] Former Countryside Agency and Scottish Natural Heritage, 2002
[13] Natural England, 2014
[14] Landscape Institute, 2019
[15] See figure INF_N251310(08)003

# 4 Landscape Baseline

4.1 The landscape character within the LVS study area is described and assessed below, and relevant information concerning landscape character is shown in figure INF_N251310(08)002 which illustrates the existing relevant landscape character areas and the key landscape features within the study area.

## Landscape Character Assessment

### National Landscape Character Assessment

4.2 The Site falls within the National Character Area (NCA) 36 Southern Pennines, with a small southern portion in NCA 54 Manchester Pennine Fringe. As this is a National Character Area, the local character area assessment is considered more relevant for this Site.

### Local Landscape Character

#### *Greater Manchester Landscape Character and Sensitivity Assessment (2018)*

4.3 The Greater Manchester Landscape Character and Sensitivity Assessment August 2018 sets out the relevant landscape character observations and assessment of its sensitivity.

4.4 The Site falls within the Pennine Foothills (West/South Pennine) Landscape character Type (LCT) but the northern extent forms the boundary with Incised Urban Fringe Valleys LCT

4.5 The LCTs are then subdivided into Landscape Character Areas (LCAs) the Site falling within 24: Knowl and Rooley Moors, Fringes and Foothills and on the boundary of 23: River Irwell (north Bury) and Kirklees.

#### *Pennine Foothills (West/South Pennine)*

4.6 Those landscape features, described in the character assessment, relevant to the Site and surrounding study area are set out below;

- Strongly rolling and undulating topography punctuated by locally distinctive hills and carved by intricate stream valleys. Elevation ranges from 100 to over 350 metres AOD at Besom Hill
- Transitional landscape sloping up from the northern fringes of Greater Manchester towards the uplands of the South and West Pennines.
- Land use is dominated by lush semi-improved grassland pastures enclosed by a mix of gritstone walls, hedgerow boundaries and post and rail fencing. Horse paddocks are often found adjacent to settlement.
- Various other land uses, including quarries and reservoirs and frequent recreational facilities such as golf clubs. Country Parks are located at Tandle Hill (Oldham District) and Hollingworth (Rochdale District).
- Well wooded landscape with extensive tree and woodland cover with trees in stream valleys, along field boundaries and avenues of trees along roads. Tracts of dense broadleaved woodland also define cloughs, including large areas of ancient woodland.

- Evidence of the area's industrial heritage in the form of old mill buildings, chimneys, disused quarries and mines and the Rochdale Canal.
- Settlement mainly comprises scattered traditional stone farmsteads and halls, with some small groups of dwellings including Victorian terraces. The largest settlement is Ainsworth, located between Bury and Bolton. The foothills provide an important separation function between distinct urban areas.
- Numerous footpaths and bridleways cross and provide access to the landscape from nearby urban areas and also link to the moorlands. These include the Rotary Way, Oldham Way and Rochdale Way.
- Road pattern mainly comprises minor winding lanes and tracks connecting farms. Occasionally, more major routes cross through the LCT, including the M62 and several A-roads.
- Variable visual character depending on topography and vegetation cover; there are long views across the urban conurbation to the West and South Pennine uplands beyond where vegetation allows. Areas within the Peak District National Park are visible from some vantage points. Other areas are visually enclosed due to valleys or vegetation which creates wooded skylines.
- Occasionally, masts and pylons/overhead lines intrude on the wooded skylines. Other intrusive modern influences include the M66 motorway and prominent views of urban development, including tower blocks breaking horizons.
- Other skyline features including chimneys, the war memorial in Tandle Hill Country Park and views to monuments on higher ground within the uplands including Peel Tower and Bishop Park Monument.

4.7 Special landscape qualities have been identified. Broadly these relate to features such as strongly undulating landform, undeveloped skylines and hill summits, views to distinct landmarks, distinct field patterns, sparsely settled rural character, the pockets of tranquillity and those long views which are afforded from the higher ground.

4.8 The LCA sets out guidance and opportunities to consider when bringing development forward. Relevant to the Site, recommendations follow that;

- Ensure that the sense of separation the landscape provides between distinct settlements is retained;
- Strengthen the stone wall and hedgerow network, using local gritstone for walls and locally prevalent and climate resilient species for hedges. Any new boundaries should reflect local characteristics, including the planting of a new generation of hedgerow trees.
- Protect areas of broadleaved woodland (particularly ancient woodland) which provide important semi- natural habitat and create wooded skylines. Utilise the screening effects of existing woodland to integrate development into the landscape where possible.
- Ensure that any development is in keeping with the form, density and vernacular of existing buildings. Avoid any large-scale development to retain the sparsely settled character of the landscape.
- Retain the important recreational function of the landscape. Seek to improve public rights to way to encourage sustainable travel. Join up and promote multi-use routes to major destinations within the landscape including Hollingworth Country Park and Tandle Hill Country Park.

## Landscape Observations of the Application Site and Study Area

### The Application Site

4.9 The Site is divided into two distinct parcels of land divided by a mature woodland copse, transecting the Site from north to south. The area to the east remains more intact, the footpath network appears on the mid-18th century mapping, linking Walmersley Road to the Longcroft House, however the construction of the M66 will have caused significant alterations to the landscape including the rerouting and loss of some of the footpath connections.

4.10 In this eastern parcel, the topography is slightly undulating, and the land is currently pasture with a number of individual trees. Viewpoint (VP) 01 clearly shows the landscape features of the eastern parcel.

4.11 The southern portion of the western parcel is largely formed from the reclaimed Bury Reservoir and this is evident visually. The topography is relatively flat as well some small dips, with a raised plateau to the south adjacent to the northern edge of Baldingstone. There are virtually no landscape features within the parcel and the boundaries are strongly vegetated. This is clear in VP02.

4.12 There are long views north and south but these are largely contained to the Site itself due to the small changes in topography and the vegetation along the boundaries.

4.13 The parcel of land is bounded to the east by the M66 which impacts visually on the eastern parcel particularly where it is at grade as shown in VP04. Otherwise, the Site is quite contained by the vegetated boundaries.

4.14 A single lattice framed high voltage electricity pylon, with overhead cables stretches across the most northern portion of the Application Site. This forms part of the power infrastructure network, which is visible in VP01 and VP04.

### The Study Area

4.15 The landscape surrounding the Site is a mixture of suburban edge to the south and west, motorway and associated infrastructure directly to the north and east. Beyond the M66 to the north and east the landscape quickly rises to 250m AOD, becomes rural pasture landscape with strong historic quarrying associations, visible by way of the settlement typologies, the cobbled streets, the existing quarries and the random patterned, small-scale fields for grazing. Further the landscapes transitions into wilder, isolated landscape associated with the moor landscape.

4.16 Further to the west the landscape, has some rural qualities, rising to approximately 150m AOD, but is ultimately more contained and surrounded by ribbon development and settlements including Higher Summerseat, Tottington and ultimately Bury.

4.17 The landscape generally feels active and the parcel is perceived as part of the settlement edge, largely due to the M66 separating the land physically and visually from the east.

4.18 Irregular woodland blocks feature west of the M66, including riparian woodland along the River Irwell in the north. Woodland features are less prominent to the east of the M66.

4.19 Recreational paths form an extensive network in the wider landscape. The Irwell Sculpture Trail, a long-distance trail, follows the River Irwell west of the Site.

4.20 An electricity transmission line of high voltage pylons and overhead cables runs across the Study Area from west to east.

## Landscape Sensitivity for Landscape Receptors

### *Sensitivity of the Site*

4.21 The Site is a parcel of land characterised by mature woodland copse with grassland. The sensitivity of the Site is considered to be medium-high owing to the representativeness of the Site with the wooded LCA characteristics.

### *Sensitivity of the LCA*

4.22 Broadly the LCAs are assessed and a sensitivity rating attributed to be read in conjunction with the narrative setting out changes through the LCA. The following sensitivities are attributed to LCA 23 and 24;

- LCA 24 2-3 storey residential housing **Medium**
- LCA 23 2-3 storey residential housing **Medium – High**

4.23 A more detailed appraisal of the sensitivity sets out that 'areas of steep and/or complex landform, distinct hills and prominent ridgelines would be of a high sensitivity to any type of scale or development … These areas are highly prominent, widely visible from existing urban areas and the surrounding uplands and provide an undeveloped setting to development'.

# 5 Visual Baseline

## Visual Baseline

5.1 The visibility of the proposed development has been established by combining desktop study, ZTV analysis and information attained by the assessor during field assessment. To aid the visual assessment an analysis of topography has also been undertaken.

5.2 Figure INF_N251310(08)001 shows the location of viewpoints selected as representative of the key sensitive receptors of the proposed development. The figure also records the actual visibility of the application Site as experienced during the Site visit.

## Viewpoints

5.3 The ZTV analysis and subsequent Site visits identified several areas within the LVA study area which would have visibility of the proposed development.

5.4 A series of viewpoints, representing different types of views and groups of receptors within both the immediate area and wider surroundings, have been identified to consider the visual impact of the proposed development. Some views have been included in order to demonstrate that views are not available from a particular location or to a particular receptor.

5.5 The key sensitive receptors identified for this LVA include:

- Recreational receptors on PRoW Footpath 6BUR#1 (VP 01 and VP 02)
- Recreational receptors on on Byway 174BUR and entrance to PRoW Footpath 6BUR#1 (VP 03)
- Recreational receptors on PRoW Footpath 8ABUR#1 (VP 04 and VP 05)
- Recreational receptors on PRoW Footpath 196RAM (VP 06)
- Recreational receptors at the entrance of Restricted Byway 165BUR (VP 07)

## View from PRoW Footpath 6BUR#1

5.6 The PRoW Footpath 6BUR#1 crosses through the Site from the east boundary to the west. Viewpoint 01 represents the views of recreational receptors that looks north-west into the Site. The view comprises pastoral grassland with scattered tree planting with woodland in the distance. Above the tree canopies on the horizon the elevated landform of Holcombe Moor with the Peel Monument is visible. In the far right of the panorama a motorway sign is located behind tree canopies and adjacent to the Site's western boundary. Viewpoint 02 is taken from the eastern area of the Site and looks towards the mixed woodland band that crosses north/south through the Site.

5.7 Views from within the parcels of land, which make up the overall Site, are mostly contained by the strong vegetative boundaries and the woodland group through the central spine. Views encompass the whole of the parcel, as accessed by the PRoWs, but do not open up to views to the wider landscape. Occasionally there are openings and breaks which allow a visual connection to the built form of Manchester skyline.

5.8 The views have a semi-rural quality, which is influenced by the neighbouring M66 and A56. Receptors on this footpath are considered to have a **high sensitivity** to development owing to the semi-rural features and minimal presence of built form within the views.

## View from Byway 174BUR and entrance to PRoW Footpath 6BUR#1

5.9 Viewpoint 03 is taken from the A56 Walmersley Road at the entrance of Byway 174BUR and oppoSite PRoW Footpath 6BUR#1, looking east towards the Site. The Site has a dense treed boundary adjacent to grass verge or the road. Street furniture such as lamp posts, road signs and marketing A-boards is seen in the view. The view represents the recreational receptors, with Site located behind the tree line.

5.10 The Site is buffered by intervening vegetation eastfrom Walmersely Road and the adjacent residential edge (VP 03). Natural breaks are evident where the tree planting is less mature or presumably has failed but generally views are restricted along this route. Even from the PRoWs traveling west along Rowlands Road (track) there are limited views due to the topography and the vegetation, very occasional glimpses may be available if receptors study the view.

5.11 Receptors experience this view from an urban context, adjacent to residential houses on a busy road with some minor detractors such as street furniture within the panorama. The overall sensitivity of the receptors at this junction of byway and footpath is considered **medium sensitivity**.

## View from PRoW Footpath 8ABUR#1

5.12 Recreational receptors are represented by the view captured at Viewpoint 04, which is taken from the PRoW Footpath 8ABUR#1. It looks west towards the Site with the M66 crossing through the view adjacent to the Site. The landform is undulating, falling away from the viewer with the woodland block within the Site present across the view. The Site itself has a high point in the left of the panorama, where a telecommunications mast is present, falling left to right of the view. Above the tree canopies, long distance views comprising woodland blocks, intricate field patterns with vegetated boundaries and settlement of Tottington, Greenmount and Summerseat. Holcombe Moor with the Peel Monument is seen in the distance in the right of the panorama.

5.13 Viewpoint 05 is taken north of Viewpoint 04 and looks towards the Site in a south-westerly direction. The view looks over undulating agricultural land with layers of woodland blocks and field boundaries, settlement areas of Brandlesholme.

5.14 From the east, views are more available due largely to the higher landform and breaks in the boundary vegetation. The ground plane of the Site becomes visible but only in part and the Site generally appears heavily vegetated, although the western parcel is perceived as being ‘altered’ due to the lack of features and the raised southern portion. Overall, there is a presumption that due to its location between the settlement and the motorway that there has been a degree of change to the parcel of land.

5.15 The view is semi-rural with influences of major road infrastructure, settlement, agricultural and pastoral land. Long distance views are possible with a notable landmark. The sensitivity of

receptors along this footpath is considered to be **medium sensitivity** owing to the context of existing residential development within the view alongside the road infrastructure.

## View from PRoW Footpath 196RAM

5.16 The panorama captured at Viewpoint 06 represents views experienced by the recreational receptors on the PRoW Footpath 196RAM and looks south towards the Site. Taken from an elevated viewpoint, the view captures a combination of rural countryside with vegetated field boundaries, swathes of woodland blocks interspersed with isolated buildings and in the distance the northern extent of Bury and a glimpsed view of the M66. From this location the eastern grassland area of the Site is visible.

5.17 From the longer distance elevated viewpoint, the Site is more visible however a much wider context becomes evident as a backdrop to the Site over the semi-rural and urban panorama. The sensitivity to change within the view for recreational receptors is considered to be **medium**.

## View from Restricted Byway 165BUR

5.18 This long-distance view taken from the Restricted Byway 165BUR looks east towards the Site and is representative of views experienced by the recreational receptor. The view captures undulating landform of agricultural fields with defined vegetated boundaries. The Site's Woodland copse is visible and the southern rising landform of the Site is visible. Isolated farmstead and linear settlement feature within the panorama. Long distance views towards Deeply Hill and Haden Moor are possible. The horizon skyline is punctuated by a number of wind turbines and high voltage lattice-framed pylons.

5.19 The multi patterned landscape of the surrounding region – settlements set within vegetation, local ridge framing the backdrop, irregular field patterns, the motorway and connecting road networks – set a much broader scene and high light the active and busy nature of this landscape and the separate identity of the landscape to the north-west. (RVP07)

5.20 The view is predominantly rural combined with isolated farmstead and linear settlement which adds a semi-urban quality. Owing to the semi-urban quality of the view combined, the sensitivity of the recreational receptors is **medium**.

# 6 The Development Proposals

6.1 The potential development opportunity for the Site is shown on Illustrative Masterplan[16], which seeks to set a framework and overarching principles. These include:

- Provision of mixed housings, up to 350 dwellings
- Inclusion of a Local Centre, Employment area and mobility hub
- Public Open Space to include pedestrian footpaths, attenuation pond and play areas
- Woodland Walk through existing woodland
- Minimal loss of existing tree planting across the Site, with proposed tree planting in the public open space areas and primary vehicle routes
- Northern parcel of land in ownership proposed for ecological enhancement

[16] The Urbanists, Illustrative Masterplan 2492-URB-00-XX-DR-UD-011

# 7 Potential Effects of the Development Proposals

## The Site and local area

7.1 The baseline character of the Site is enclosed undulating grassland field with wooded boundaries and featuring Walmersley Brook and riparian woodland copse. The addition of built form to include residential dwellings, local centre and employment would result in a loss of open greenspace, however proposals would retain the existing boundary and woodland trees on Site, with additional tree planting proposed to public open spaces to reflect the 'parkland' quality in the baseline. Views within the Site would become shortened and enclosed.

7.2 The vegetated boundaries of the Site limit intervisibility towards the Site in the immediate area

7.3 The immediate area would experience an intensification of settlement, although this would be perceived as an extension of Walmersley and Baldingstone. The extension of settlement is limited by the presence of the M66 and A56 Walmersley Road.

## The Pennine Foothills (West / South Pennine) LCT

7.4 The baseline character of the LCT incorporates undulating landscape of agricultural land, woodland blocks, settlement alongside road and power infrastructure. The proposal of residential development would increase the settlement characteristic of the LCT; however this is limited owing to the extent of settlement in the baseline. The proposed retention of the woodland copse and vegetated boundaries would preserve field patterns and limit loss of existing woodland characteristics.

# 8 Summary and Conclusions

8.1 Visually the Site is contained, from local and adjacent views, due to the strong vegetative boundaries. The internal woodland group creates a division across the Site, however breaks in the woodland group ensure connectivity between the two areas.

8.2 Beyond to the north, where the land rises significantly there are views across the Site, which take in the ground plane. Although the Site will be visible from some of the local vantage points and footpaths, generally it is in the context of the landscape around Bury and its outlying suburbs. This landscape appears as undulating, rural pastureland, interspersed frequently by settlements which appear nestled in a strong vegetation infrastructure.

8.3 It is considered that the developed Site will be representative of that wider described landscape.

8.4 The M66 provides a physical and perceptual boundary, containing development to the southwest of it and the nature of the landscape to the north-west means that it is not at risk from development.

8.5 The Proposals for the Site seek to retain the vegetation boundaries, the woodland buffer through the centre and gap up along the motorway. The layout respects the existing vegetation and improves the watercourse. Existing permissive footpath links will be defined legibly on Site and the existing connections retained and improved (the subway connection under the M66)

8.6 Overall it is considered that there will of course be an impact on the character of the Site itself, although the parcel adjacent to Walmersley Road lacks any features of merit and is representative of reclaimed land. The rural nature of the eastern parcel will be lost in part, but the retention of the vegetation contains the development, mitigating any urban development and constrains the built footprint to smaller parcels set amongst a strong planted backdrop.

# 9 References

Ministry of Housing, Communities and Local Government, National Design Guide, January 2021.

Ministry of Housing, Communities and Local Government, 2024, *National Planning Policy Framework*

Council of Europe, 2004, *European Landscape Convention*

Former Countryside Agency and Scottish Natural Heritage, 2002, *Landscape Character Assessment Guidance for England and Scotland*

Landscape Institute and Institute of Environmental Management, 2013, *Guidelines for Landscape and Visual Impact Assessment Third Edition*

Landscape Institute, 2019, *Advice Note TGN Visual Representation 06/19*

Natural England, 2014, *An Approach to Landscape Character Assessment*

Parliament of the United Kingdom, 1995, *Environment Act (Part 5) Hedgerow Regulations 1997 (SI 1997 No, 1160)*

# Appendices

# Appendix A – LVS Methodology

# A Methodology

## Guidance

1.1 The Landscape and Visual Impact Assessment (LVIA) and supporting studies and surveys were conducted in accordance with the principles set out by Landscape Character Assessment Guidance for England and Scotland [1]and Guidelines for Landscape and Visual Impact Assessment 3rd Edition[2].

1.2 Other guidance with regard to developments in the landscape that has informed the LVIA include Hedgerow Regulations[3] and Lighting in the Countryside: Towards Good Practice[4].

1.3 Viewpoint photographs have been presented in accordance with the Landscape Institute's (LI) Technical Guidance Note 06/19 Visual Representation of Development Proposals[5].

## Scope of the Landscape and Visual Assessment

1.4 The LVIA considers the predicted effects of development on landscape resources (both features and character) and on people's visual amenity.

1.5 Landscape and visual assessments are two separate but interlinked processes that are undertaken in parallel. The assessments are informed by a combination of desk and site based appraisal techniques and professional judgements.

1.6 The landscape assessment considers the effects of the proposed development on the physical landscape, which may give rise to changes in its character, and how this is experienced; separately considering the effects of development on:

- Landscape character areas (area with recognisable, consistent pattern of landscape elements identified at different scales by Natural England, county and local councils);
- Designated landscape resources (areas of landscape designated and protected under national and local policy);

1.7 The visual assessment considers the potential changes that would occur to available views in a landscape as a result of the development proposals, the resultant effect on visual amenity and people's responses to the changes.

1.8 The LVIA comprises, firstly the identification, understanding and description of the existing landscape and visual baseline conditions (landscape receptors and groups of views likely to be impacted by the proposed development within a defined study area) and secondly the

[1] Countryside Agency and Scottish Natural Heritage, 2002
[2] Landscape Institute and Institute of Environmental Management 3rd Edition, 2013
[3] UK Parliament, 1997
[4] Department for Communities and Local Government, 1997
[5] Landscape Institute, 2019

identification and description of the impacts arising from the development on the landscape and the visual receptors.

1.9 The assessment examines both construction phase impacts and impacts on completion of the proposed scheme, to include assessing the impacts on Day 1 of completion and 15 years into operation. The impacts are assessed based on professional judgements and an understanding of the construction phases and phasing of completion, which are summarised in the LVIA and include any proposed landscape and visual mitigation works.

### Stages in Landscape and Visual Impact Assessment

1.10 The LVIA process comprises the following stages:

- Baseline assessment: record and analyse the existing nature and value of the landscape character and features, and visual amenity of the study area through desk and field based appraisal;
- Description of the nature, forms and features of the proposed development including and constraints and opportunities;
- Assessment of sensitivity of the existing landscape and identified visual receptors to change and assessment;
- Identification of potential landscape and visual impacts due to the proposed development;
- Identification of proposed mitigation measures appropriate to the development and its landscape context;
- Assessment of the magnitude of effect upon the identified receptors, likely to result from implementation of the proposed development;
- Assessment of the significance of the residual effects on landscape and visual resource, taking into account appropriate mitigation.

1.11 The assessment process is iterative; the analysis of the baseline conditions and evaluation of the potential effects resulting from a development informs the evolution of the proposed development. It is, therefore, important to take into consideration the mitigation that is inherent or proposed as part of the development in order to assess the residual effects and their significance.

1.12 The assessment process is recorded in two principal stages: a baseline study of the existing landscape and surrounding visual receptor groups, followed by the impact assessment.

## Study Area

1.13 Published guidance provides recommendations on the extent of the Zone of Theoretical Visibility (ZTV) that should be produced in order to assess the area that would potentially experience significant visual effects.

1.14 The purpose of the LVIA is to identify significant landscape and visual effects. It is, therefore, reasonable to limit the study area in various respects in order to meet the requirements of the specific project in its landscape context and to reflect the likelihood of significant effects arising over very long distances. It is also important that the more significant effects occurring over shorter distances are given appropriate emphasis. The report has adopted the following approach:

### Computer based Visibility Analysis – Zone of Theoretical Visibility (ZTV)

1.15 In order to identify landscape resources and visual receptors within the landscape surrounding the application site that may be affected by a development, a ZTV plan is produced to illustrate the worst case extent of the potential visibility of the proposed development. The ZTV identifies the maximum area over which it is theoretically possible to see some part of the proposed development, but does not take account of screening that may result from vegetation, localised variations in topography and built form. The ZTV is created using a terrain model, which is based on ordnance Survey (OS) data at 1:25000 scale with contours at 5m intervals.

1.16 It should be noted that ZTVs are used as a working tool to inform the assessment and do not convey the nature or magnitude of visual effects. The actual visual effects of the proposed development are assessed through a more detailed analysis of specific viewpoints, and based on field survey observations. In combination with a site visit, this information enables the identification of a provisional list of representative viewpoints, and allows the determining authority and consultees to judge how representative these are and whether they include particularly sensitive receptors and vantage points.

1.17 A bare ground ZTV has been prepared around the proposed development site, to take account of the worst case scenario based on proposed building heights. This comprehensive ZTV has been examined in order to identify particularly sensitive locations that would potentially experience significant visual effects e.g. particularly important visitor destinations, or those in protected landscapes (if appropriate) or promoted viewpoints and national trails.

1.18 An appropriate study area has been selected for the assessment as it is considered to represent the most concentrated and significant potential impacts. This is based on professional experience of residential and mixed use development assessment, that visibility over greater distance does not have as much potential to result in significant changes to landscape and visual receptors in the landscape context.

1.19 The LVIA focusses on potentially significant landscape and visual effects likely to occur within the localised study area.

## Landscape Assessment

1.20 The former Countryside Agency Landscape Character Assessment: Guidance for England and Scotland[6] makes a distinction between the characterisation process and the judgement-making process. The baseline section of the LVIA, therefore, deals predominantly with the characterisation process, in which the attributes of the landscape are described.

1.21 In order to be effective, this LVIA needs to consider the landscape resource within the study area at an appropriate level of detail. Initially, a desktop study is undertaken in order to identify any existing landscape character assessments that describe landscape designations and character areas within the LVIA study area. Following this desk based analysis, site visits are carried out to verify the existing landscape characterisation and identify and assess the

[6] Countryside Agency and Scottish Natural Heritage, 2002

physical components and structure of the landscape within the application site and its surroundings.

1.22 The baseline divides the application site and surroundings into a series of landscape character areas, which are then brought forward for the assessment if the potential for impact on the landscape resource is identified.

1.23 In addition to landscape character, the proposed development's effect on landscape elements and features is also considered. The relevant groups of landscape elements and features include:

- Landform;
- Land cover and vegetation (trees, hedgerows, grassland etc.);
- Land use (including Public Open Space);
- Watercourses;
- Accessibility (public footpaths/cycleways).

## Landscape Sensitivity

1.24 Landscape is a combination of both cultural and physical components that give rise to patterns that are distinctive to particular localities and help to define a 'sense of place'. Landscape character is defined by the interaction of influences and components such as landform, hydrology, vegetation, landcover, land use pattern and cultural features and associations, and their relationship with the surroundings.

1.25 Although landscape has some intrinsic sensitivity, different landscape receptors have different elements and features that can accommodate a variety of development types. To reliably inform detailed assessment of impacts, landscape sensitivity needs to be determined with reference to the changes arising from a specific type of development. Therefore landscape sensitivity is assessed combining judgments on the value attached to a landscape and the susceptibility to the type of change or development proposed.

1.26 Landscape value is the relative value attached to a potentially affected landscape. Landscape value is relative in relation to the different stakeholders and different parts of society that use or experience a landscape. Factors that have been considered in making judgments on landscape value include designations (both national and local), local planning documents, status of features (eg. TPO's or Conservation Areas) and local community and interests (for example local green spaces, village greens or allotments). Landscape value will vary in response to the specific landscape that is being considered.

1.27 The value is assessed as high, medium or low and the assessment is made based on the following factors:

- The quality placed on the landscape, including the scenic quality;
- The presence of rare elements or features, or rare landscape character types;
- Whether the landscape contains a particular character and/or features or elements considered to be particularly important examples;
- The presence of nature, historical or cultural features of interest;

- Evidence that the landscape is important for recreational users;
- Perceptual aspects, such as tranquillity or wildness;
- Associations of the landscape with particular people in history (such as artists or writers), or historical events, that contribute to the perception of natural beauty.

1.28 The second component of landscape sensitivity relates to susceptibility. Landscape susceptibility to change is the ability to accommodate change without undue consequences for the maintenance of the baseline situation. In this context, the term landscape receptors can be expanded to cover overall character areas, condition or a particular landscape character type or an individual landscape element or feature. Landscape susceptibility will vary in response to the specific landscape that is being considered and to the nature of the type of change that may occur.

1.29 To assess landscape susceptibility it is important to appreciate the key characteristics and attributes of the landscape of the application site and surrounding study area, in order to understand local landscape variations and if the landscape of the application site fits with the description of the LCT/LCA that it is within.

1.30 The characteristics of the landscape that should be considered with regard to their susceptibility to change include a variety of attributes, such as scale and enclosure, landform, nature of land use, nature of existing elements or nature of existing features. Landscape susceptibility is described on the verbal scale as high, medium or low.

1.31 Sensitivity is a term applied to specific receptors, combining judgments of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor. Receptors can include specific elements of features or may be judged at a wider scale and include landscape character parcels, types or areas.

1.32 The consideration of value of the landscape receptor combined with susceptibility to the type of change arising from the proposal, allows for assessment of sensitivity of the landscape receptor. The sensitivity of landscape receptors is categorised as high, medium or low; the criteria for each category is outlined in Table A-1.

Table A-1 Sensitivity of Landscape Receptors

| Receptor Sensitivity | Typical Criteria |
|---|---|
| **High** | A landscape of particularly distinctive character and high or exceptional scenic quality. Strong representation of the typical landscape character type.<br><br>Intact landscape with excellent condition of elements and features. Presence of rare features in the landscape.<br><br>May be nationally and/or regionally designated landscape for its scenic quality and character, such as an Area of Outstanding Natural Beauty (AONB) or National Park.<br><br>High recreational value with strong cultural and historical associations.<br><br>High susceptibility to changes arising from the proposal. |

| Receptor Sensitivity | Typical Criteria |
|---|---|
| **Medium** | A landscape of moderately distinctive character and scenic quality. Typical landscape character type is apparent.<br><br>Relatively intact landscape with occasional features of interest. May be locally designated for its quality and character.<br><br>Receptor of higher value but lower susceptibility to the type of change or development, or vice versa. |
| **Low** | A landscape of little distinctive character or scenic quality or is damaged, neglected or poor character and lacking scenic quality.<br><br>Landscape has become eroded with no more than occasional elements and features of interest. Not subject to any form of landscape designation.<br><br>Receptor of low value and low susceptibility to the type of change arising from the proposal. |

## Magnitude of Landscape Effect

1.33 Once the sensitivity of the landscape receptors has been determined, the effect that the proposed development would have on the landscape resource can be assessed.

1.34 The magnitude of effect from the proposed development on landscape character, designations or features is appraised, taking into account each phase (construction and completion) of the proposed development and any inherent / proposed mitigation. The assessment of the magnitude of effect takes into account the following factors:

- The distance of the landscape receptor from the proposed development;
- The degree to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or by addition of new ones, for example removal of hedges may change the small-scale, intimate landscape into a large-scale, open one, of the introduction of new buildings or tall structures may alter open skylines;
- The extent of existing landscape elements that would be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape;
- The scale of the overall predicted change to character;
- The timescale or phasing of the construction stages;
- Whether the landscape change would be reversible or not.

1.35 The magnitude of effect is categorised as high, medium, low or negligible. This is a professional judgement based on the criteria for each magnitude as outlined in Table A-2 below. Different combinations of the below variables can apply in reaching an overall judgement on magnitude.

Table A-2 Magnitude of Landscape Effects

| Magnitude of Effect | Typical Factors |
|---|---|
| **High** | The proposed development would cause a large, irreversible change to the existing landscape for a long period of time or permanently.<br><br>Impact upon landscape features of international and national importance or on fundamental landscape elements such that this would change the key characteristics of that landscape.<br><br>Long-term or permanent change to the existing landscape conditions. |
| **Medium** | The proposed development would cause a noticeable change to the existing landscape; however, few elements and features that contribute to the overall character would be affected.<br><br>Medium or short-term change to landscape conditions.<br><br>Moderate alteration to the individual components of the landscape, leading to small change in aesthetic and perceptual aspects of the landscape. |
| **Low** | The proposed development would cause a small impact / change and would affect relatively few receptors.<br><br>Temporary or reversible change in landscape conditions.<br><br>The key characteristics of the landscape contributing to its character would not be significantly affected. |
| **Negligible** | The proposed development is appropriate in its context or barely perceptible. It may be difficult to differentiate from its surroundings and has very little or no impact on receptors compared to the baseline situation.<br><br>No key characteristics of the landscape, contributing to its character would be affected. |

## Visual Assessment

1.36 Following desk studies and site visits a range of visual receptors (people) that have a potential to be affected by the proposed development are identified. They would include local residents, users of footpaths and other routes, road users, users of recreational facilities, visitors to popular tourist attractions and noted viewpoints, or people at their place of work.

1.37 Potential viewpoints and areas for investigation are then identified following an initial study of Ordnance Survey (OS) maps, analysis of Zone of Theoretical Visibility and, most importantly, site visits; based on the following criteria:

- Distance from the application site to the receptor;
- The proportion of the application site / proposed development visible, as well as the absolute visibility of the proposed development;
- The height of the proposed development relative to the receptor with reference also to the scale of other features in the view;
- The number and character of elements that would be lost from or added to the view;

- High concentrations of viewers, such as settlements, local recreational facilities, public footpaths and attractions etc;
- Views illustrating the visual character of the surrounding area; and
- Areas identified as having a high potential for visual impact.

1.38 A Site visit was carried out to assess both general landscape character and views experienced by different types of visual receptors during the day.

1.39 Following desktop research to understand the surrounding potentially sensitive receptors, a selection of viewpoints was made to represent key relevant visual receptor types likely to be affected by the proposed development, such as residents of nearby properties, users of Public Rights of Way (PRoW), pedestrians, cyclists or road users; to enable the assessment of the proposed change in views and the significance of effect on these receptors.

1.40 Photographs illustrating views from this series of representative viewpoints were taken either using a Canon EOS 500D Digital SLR with lens set to a 35mm focal length to provide the closest possible approximation of a 50mm lens focal length ('true eye' vision) on a traditional 35mm film SLR camera, or a fixed 50mm FL Lens. The photographs have been reproduced in a series of viewpoint sheets with annotation and details of the image recorded. Where contextual views consist of more than one frame, the relevant frames are merged together using Photoshop Creative Cloud (CC) software. This is consistent with Visualisation Type 1: annotated viewpoint photographs and Visualisation type 3: Photomontage / Photowire.

## Visual Receptors

1.41 Visual receptors are groups of people, which include the public or community at large, residents, visitors and other groups of viewers. Study of OS data, production of a ZTV and consultation with the Local Planning Authority (LPA) assist with identifying viewpoints for assessment that best represent the visual receptors likely to be affected by the proposed development.

1.42 Representative viewpoints are validated through site visits; resulting in the repositioning or exclusion of some of the preliminary viewpoints, due to lack of visibility towards the application site.

## Visual Sensitivity

1.43 Sensitivity of visual receptors, whose groups are represented by a selection of viewpoints, depends on their susceptibility to change in views and the value attached to the views that they experience.

1.44 The susceptibility of different visual receptors to changes in views and visual amenity is judged, based on:

- The occupation or activity of people experiencing the view at particular locations; and
- The extent to which their attention or interest may, therefore, be focussed on the views and the visual amenity they experience at particular locations.

1.45 Judgements about the value of views take account of:

- Recognition of the value attached to particular views, for example in relation to heritage / cultural assets, or through planning designations;
- Indicators of the value attached to views by visitors, for example through appearances in guidebooks or on tourist maps, provision of facilities for their enjoyment and references to them in literature and art (Landscape Institute and Institute for Environmental Management and Assessment, 2013).

1.46 The sensitivity of the visual receptors is categorised as **high**, **medium** or **low**, as defined in Table A-3 below.

Table A-3 Sensitivity of Visual Receptors

| Receptor Sensitivity | Typical Criteria |
|---|---|
| **High** | People with a particular interest in their surroundings or with prolonged viewing opportunities, examples include:<br>• Users of promoted viewpoints (often with interpretation boards);<br>• Users of tourist and visitor destinations including recreational or heritage sites (such as ornamental parks and open spaces);<br>• Visitors to recreational hilltops and peaks;<br>• Residential locations and occupiers of residential properties;<br>• People using important recreational routes, such as National Trails / long distance promoted routes, National Cycle Routes;<br>• Users of paths and Public Rights of Way (PRoW) in nationally or locally designated landscapes. |
| **Medium** | People with a general interest in their surroundings or with some viewing opportunities, examples include:<br>• Users of public open spaces and outdoor recreational spaces;<br>• Users of other public routes and PRoW;<br>• Visitors to local viewpoints and resting places. |
| **Low** | People with a more limited or passing interest in their surroundings, examples include:<br>• Users of more transitory routes such as other public routes;<br>• Users of the local road network and major highways;<br>• People at their place of work;<br>• Users of indoor or sporting recreational facilities. |

## Magnitude of Visual Effect

1.47 For each of the identified groups of receptors, the potential magnitude of visual effect (in comparison to the existing 'baseline' situation) was assessed, taking into account each phase of the proposed development and any inherent / proposed mitigation. The magnitude of visual effect takes into consideration the following factors:

- The scale of change to the view with respect to loss or addition of features within the view and changes in its composition, including the proportion of the view occupied by the proposed development;
- The degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics;

- The nature of the view of the proposed development, considering the relative amount of time over which it will be experienced and whether views would be full, partial or glimpsed;
- The degree of visual intrusion or obstruction that would occur from the proposed development;
- The angle of the view in relation to the main activity of the receptor;
- The duration and reversibility of the assessed effect.

1.48 The magnitude of effect is categorised as **high**, **medium**, **low** or **negligible**. As with landscape, different combinations of the variables in the below table may apply.

Table A-4 Magnitude of Visual Effects

| Magnitude of Effect | Typical Factors |
|---|---|
| **High** | Severe change to views;<br><br>Removal of valuable landscape features / elements that highly contribute to the overall quality and nature of the view;<br><br>Total change to the visual character of the surrounding landscape;<br><br>Large number of viewers affected over a prolonged period of time;<br><br>Development is highly prominent in the view. |
| **Medium** | Moderate alteration to views;<br><br>Development affects few visual features / elements on or adjacent to the application site.<br><br>Reversible effect, affecting only a part of the wider view.<br><br>Development 'stands out' in the view. |
| **Low** | The proposed development would cause a small impact / change and would affect relatively few receptors.<br><br>Change to views on transitory routes such as infrequently used paths and roads.<br><br>Small change to more complex views for a small number of viewers with no particular focus on the proposed development. |
| **Negligible** | The proposed development is appropriate in its context or barely perceptible.<br><br>It may be difficult to differentiate from its surroundings and has very little or no impact on receptors compared to the baseline situation.<br><br>It would have no or minimal effect on visual features / elements on or adjacent to the Application Site. |

## Nature of Effects

1.49 The nature of effects contributes to the assessment of magnitude of landscape and visual effects.

1.50 The LVIA considers whether the landscape and visual changes that would arise as a result of the proposed development would be beneficial or adverse. An adverse effect is one that introduces a new, discordant or intrusive element to the landscape or a view. A beneficial effect would be from an overall improvement to the landscape or a view, through the removal of existing discordant features and / or introduction of features of similar scale to those in the surrounding landscape or view that would contribute to its overall character.

1.51 With regard to the duration of landscape and visual effects, short to medium term effects are normally considered to be temporary and associated with the construction of the proposed development, and long-term effects are normally associated with a fully completed and operational scheme. Permanent effects are those which result in an irreversible change to the baseline conditions or will last for the foreseeable future.

1.52 The duration of landscape and visual effects is typically categorised as follows:

- Long-term – 15 years and beyond;
- Medium-term – 5 to 15 years;
- Short-term – 0 to 5 years.

1.53 Landscape and visual effects can be direct (effects that are caused by activities which are an integral part of the scheme) or indirect (effects that are due to activities that are not part of the scheme, e.g. regeneration benefits attributable to the scheme).

## Significance of Landscape and Visual Effects

1.54 Assessment of landscape and visual effects refers to the change that is predicted to take place to the existing (baseline) condition of the landscape and views as a result of the proposed development.

1.55 The significance of an effect is broadly determined by assessing the sensitivity to change, of the landscape and visual receptors, against the magnitude of change predicted upon them. The assessment of the effects takes into account mitigation measures implemented as part of the proposed development. Table A-5 is used as a guide only and the assessment of the significance of effect takes into account other modifying factors, based on professional judgement. Ultimately the assessment of sensitivity and magnitude will lead to effects that are of **major**, **moderate**, **minor** or **negligible** significance.

Table A-5 Significance of the Effect to the Landscape and Visual Receptors

| **Magnitude of Effect** | **Description** | | |
|---|---|---|---|
| **High** | Moderate | Major | Major |
| **Medium** | Minor | Moderate | Major |
| **Low** | Minor | Minor | Moderate |
| **Negligible** | Negligible | Negligible | Negligible |
| | **Low** | **Medium** | **High** |
| | **Receptor Sensitivity** | | |

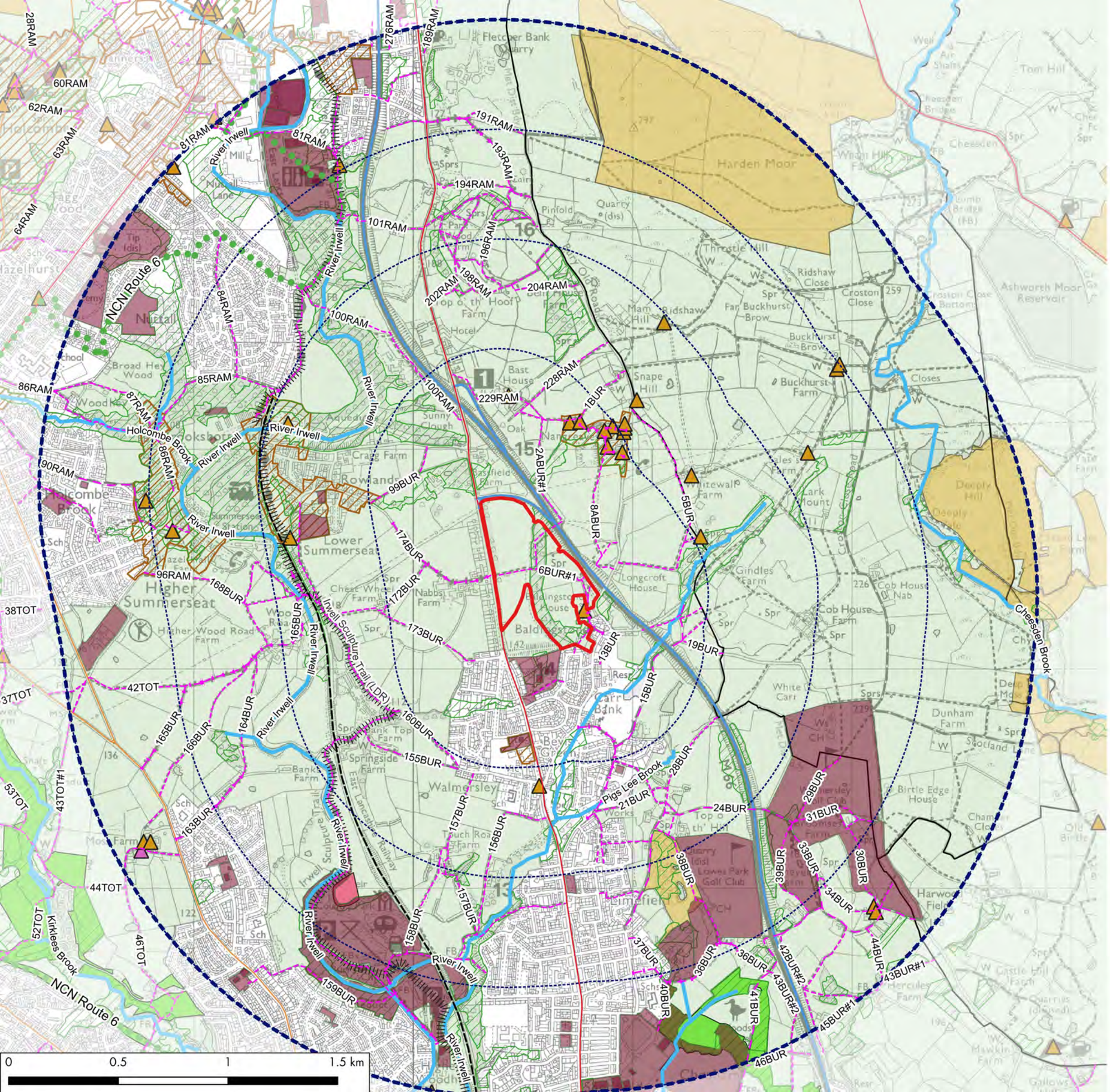
1.56 The following table A-6 provides a brief definition of the key landscape and visual significance criteria.

Table A-6 Definitions of Significance

| **Significance** | **Description** |
|---|---|
| **Major** | Important or substantial change in landscapes of national, district or local importance, or substantial changes in views experienced by most sensitive visual receptors. |
| **Medium** | Noteworthy or medium change to sensitive landscape and visual conditions. |
| **Low** | Inconsiderable or small change in landscape and visual conditions. |
| **Negligible** | No discernible effect upon landscape or visual conditions.<br>No effect or an effect that is beneath the level of perception, within normal bounds of variation or within the margin of forecasting error. |

# Figures

INF_N251310(08)001B Context and Designations
INF_N251310 (08)002B Landscape Character Plan
INF_N251310 (08)003B Viewpoint Location Plan
INF_N251310 (08)004B Representative Viewpoints




Legend

- Site Boundary
- 500m buffer
- 2km Study Area
- Woodland
- Restricted Byway
- Footpath
- Bridleway
- BOAT
- Greenspace
- Local Nature Reserves
- CRoW Access Land
- National Cycle Network

**Roads**

- A Road
- B Road
- Motorway
- Railway
- Irwell Sculpture Trail (LDR)
- Watercourse

**Listed Buildings**

- II
- II*
- Scheduled_Monuments
- Conservation Areas
- Green Belt
- Local Authority Boundaries

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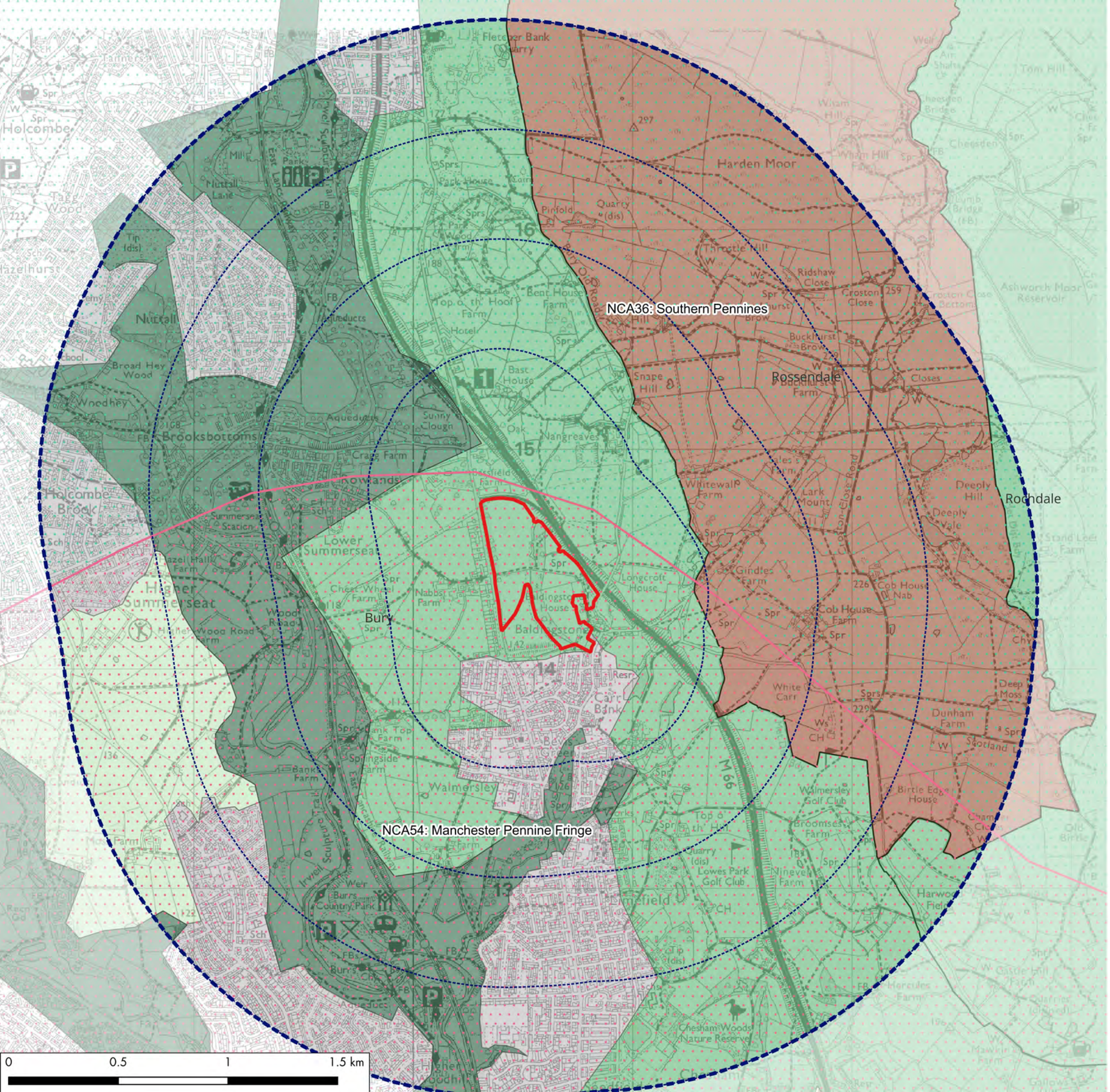
PROJECT
Land east of Walmersley Road, Bury

CLIENT
Hollins Strategic Land

TITLE
Context and Designations Plan

| | | | |
|---|---|---|---|
| STATUS | FINAL | | |
| SCALE | NTS | DATE | APR 26 |
| DRAWN | SM | CHECKED | LB |

| JOB NO: | DWG NO: | REV NO: | ORIGINAL SIZE |
|---|---|---|---|
| N251310 | (08)001 | B | A3 |




Legend

- Site Boundary
- 500m buffer
- 2km Study Area

**National Character Areas (NCAs)**

- NCA36: Southern Pennines
- NCA54: Manchester Pennine Fringe

**Greater Manchester Landscape Character Assessment**

- Incised Urban Fringe Valleys LCT
- Pennine Foothills (West / South Pennines) LCT
- Urban Fringe Farmland LCT

**Lancashire Landscape Character Assessment**

- Moorland Fringe LCT
- Settlement area

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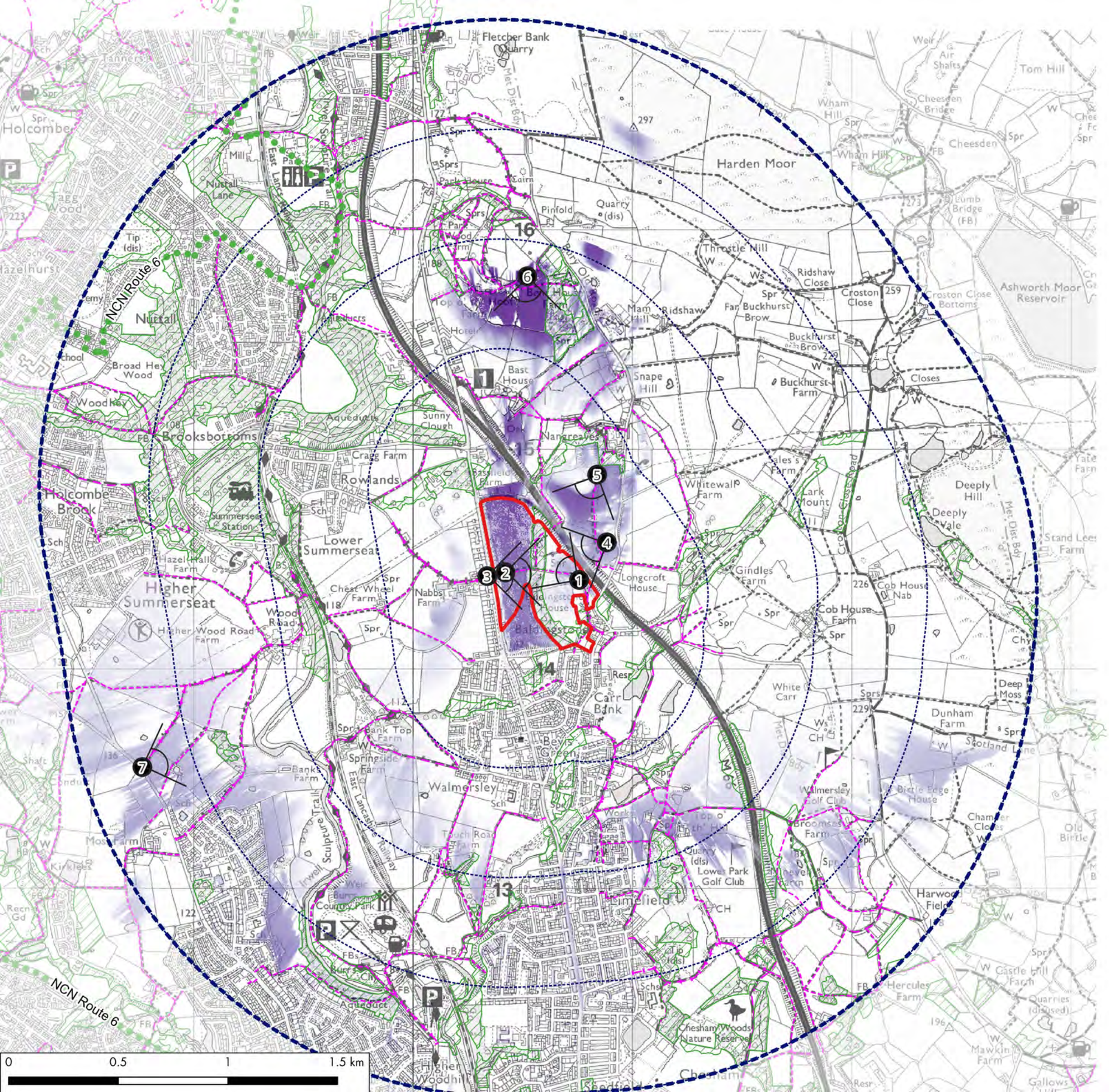
PROJECT
Land east of Walmersley Road, Bury

CLIENT
Hollins Strategic Land

TITLE
Landscape Character

| | | | |
|---|---|---|---|
| STATUS | FINAL | | |
| SCALE | NTS | DATE | APR 26 |
| DRAWN | SM | CHECKED | LB |

| JOB NO: | DWG NO: | REV NO: | ORIGINAL SIZE |
|---|---|---|---|
| N251310 | (08)002 | B | A3 |




0 0.5 1 1.5 km

Legend

- Site Boundary
- 500m buffer
- 2km Study Area
- Woodland
- Viewpoints
- National Cycle Network_Public
- Footpath
- Bridleway
- Byway Open to All Traffic
- Restricted Byway

**Zone of Theoretically Visibility (modelled at 9m ridge height)**

- Not theoretically visible
- Theoretically visible

The ZTV illustrates the potential visibility of the proposed development based on digital surface modelling data. Therefore this takes into account objects that may occur in the landscape, such as woodland or buildings which may affect lines of sight.

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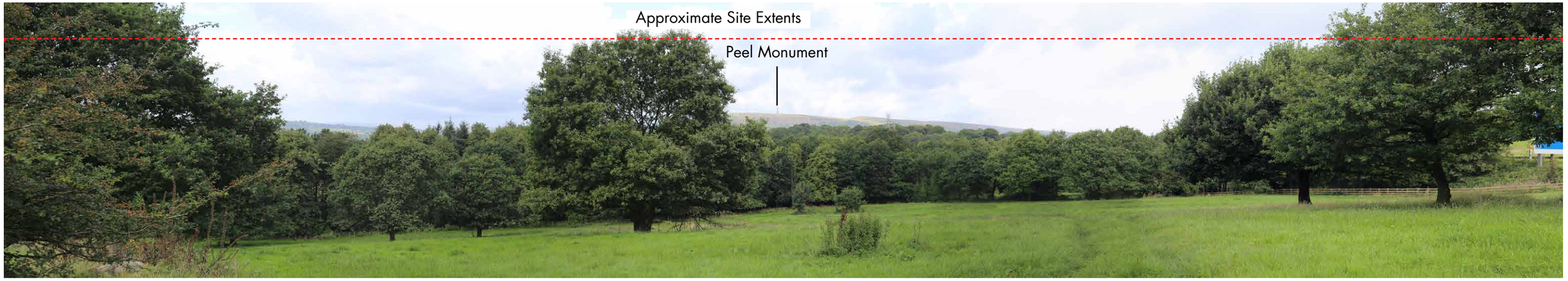
PROJECT
Land east of Walmersley Road, Bury

CLIENT
Hollins Strategic Land

TITLE
ZTV and Viewpoint Location Plan

| | | | |
|---|---|---|---|
| STATUS | FINAL | | |
| SCALE | NTS | DATE | APR 26 |
| DRAWN | SM | CHECKED | LB |

| JOB NO: | DWG NO: | REV NO: | ORIGINAL SIZE |
|---|---|---|---|
| N251310 | (08)003 | B | A3 |




**Representative Viewpoint 01 - View from Public Right of Way Footpath 6BUR#1 on the within the eastern area of the site looking west**




**Representative Viewpoint 02 - View from Public Right of Way Footpath 6BUR#1 in the western area of the site looking east**




**Representative Viewpoint 03 - View from the entrance of Byway 174BUR opposite the entrance to Footpath 6BUR#1 looking east towards the site across Walmersley Road**

Drawing Number:
**N251310 (08) 004B**

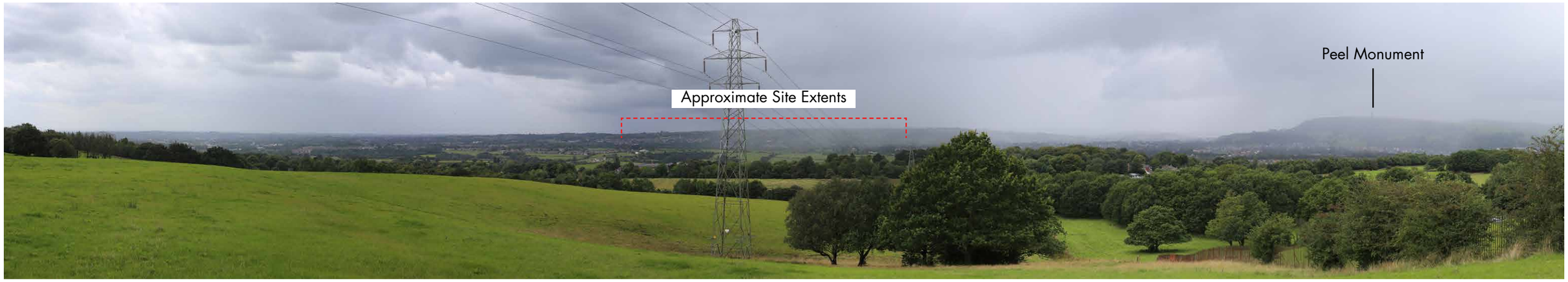
# Land east of Walmersley Road, Bury

## Representative Viewpoints

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**Representative Viewpoint 04 - View from Public Right of Way Footpath 8ABUR#1 looking west across the M66 Motorway towards the site**




**Representative Viewpoint 05 - View from Public Right of Way Footpath 8ABUR from the edge of the vegetation looking south west towards the site**




**Representative Viewpoint 06 - View from Public Right of Way Footpath 196RAM from east of Top o' th' Hoof Farm looking south towards the site**

Drawing Number:
**N251310 (08) 005B**

# Land east of Walmersley Road, Bury

## Representative Viewpoints

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**Representative Viewpoint 07 - View from just off of the B6214 from the entrance of Restricted Byway 165BUR looking east towards the site**

Drawing Number:
**N251310 (08) 006B**

# Land east of Walmersley Road, Bury

## Representative Viewpoints

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# APPENDIX 11 – ECOLOGY REPORT & SURVEYS (ERAP)

**Land East of Walmersley Road, Bury BL9 5LE**

# ECOLOGICAL SURVEY AND ASSESSMENT

**April 2026**

**ERAP (Consultant Ecologists) Ltd Reference: 2025-166**

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**Land East of Walmersley Road, Bury BL9 5LE**

# RESULTS OF BREEDING BIRD SURVEYS 2025

**February 2026**

**ERAP (Consultant Ecologists) Ltd reference: 2025-166**

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## Document Control

| Survey Type: | Surveyors | Survey Date(s) |
|---|---|---|
| Breeding bird surveys | Chris Swindells B.Sc. (Hons) | 29th April 2025<br>9th May 2025<br>24th May 2025<br>7th June 2025<br>21st June 2025<br>13th July 2025 |
| **Reporting** | **Personnel** | **Date** |
| **Author** | Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM | 3rd February 2026 |
| **Signature(s)** |  | |
| **Checked** | Rebecca Bayley B.Sc. (Hons) | 4th February 2026 |
| **Revised and issued** | Victoria Burrows | 4th February 2026 |
| **Report issued to** | Hollins Strategic Land | |
| **Version Number** | 1 | |

## 1.0 INTRODUCTION

### 1.1 Background and Rationale

1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned by Hollins Strategic Land (HSL) to carry out an ecological assessment of land east of Walmersley Road, Bury (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SD 80563 14442.

1.1.2 The assessment was required to inform an outline planning application proposing the development of the site to residential housing.

1.1.3 The habitats within the site comprise Walmersley Brook with an associated corridor of broad-leaved woodland, coniferous woodland and plantation woodland. Other habitats at the site comprise mixed native scrub, semi-improved grassland, improved grassland, other neutral grassland, stone walls, individual trees and areas of Reed Canary-grass grassland with scattered scrub.

1.1.4 This *Results of Breeding Bird Surveys 2025* report has been prepared to present the results of breeding bird surveys carried out at the site between April and July 2025.

## 2.0 METHOD OF SURVEY

### 2.1 Surveyors and Equipment

2.1.1 Breeding bird surveys were conducted by Chris Swindells B.Sc. (Hons). Equipment used during the surveys comprised an Opticron 80mm telescope and Nikon 10 x 50 binoculars.

### 2.2 Survey Approach and Methods

2.2.1 The surveys were carried out with reference to the *Breeding Bird Survey Methodology* as provided by the *Bird Survey Guidelines*[1], and the *UK Breeding Bird Survey* (BBS) method (Gilbert, et al., 1998).

2.2.2 The survey approach comprised six visits spaced between April and July 2025. Six visits were selected in accordance with the Bird Survey Guidelines "*Six visits is therefore considered to be a proportionate survey effort for all terrestrial and freshwater habitats.*"

2.2.3 The surveys commenced between half an hour before sunrise and half an hour after sunrise. Surveys were typically concluded by around mid-morning (10am to 11am) as it is generally recognised that activity levels (and hence detectability) of many species will have tailed off by this time.

2.2.4 The survey area comprised a transect route through the site / land within the redline boundary. Bird species on the site margins and within habitats up to a distance of 50 metres were also recorded.

2.2.5 The locations of the bird annotations on **Figures 2** to **7** are approximate, although an effort was made to ensure that the bird species are annotated within the relevant habitats (if not the exact location within the surveyed area).

2.2.6 The survey details are presented below.

[1] https://birdsurveyguidelines.org/methods/survey-method/

**Table 2.1: Breeding Bird Survey Dates and Conditions**

| Survey Repetition | Date | Sunrise Time | Period of Observation | Weather Conditions |
|---|---|---|---|---|
| 1 | 29th April 2025 | 05:48 | 06:00 to 11:30 | Sunny.<br>Wind: South, 1 mph.<br>Temperature: 12°C at 06:00 rising to 20°C<br>Good visibility. |
| 2 | 9th May 2025 | 05:18 | 05:45 to 11:00 | Sunny.<br>Wind: South-east 1 mph.<br>Temperature: 4°C at 06:00 rising to 14°C.<br>Good visibility. |
| 3 | 24th May 2025 | 04:54 | 05:15 to 11:00 | Overcast with rain showers (occasional).<br>Wind: West 3 mph.<br>Temperature: 11°C at 06:00 rising to 15°C<br>Good visibility. |
| 4 | 7th June 2025 | 04:41 | 05:15 to 11:00 | Sunny. Clouded over 10:00.<br>Wind: West 1-2 mph.<br>Temperature: 11°C<br>Good visibility. |
| 5 | 21st June 2025 | 04:39 | 05:15 to 11:00 | Broken clouds and dry.<br>Wind: South-west 1-2 mph.<br>Temperature: 18°C to 25°C<br>Good visibility. |
| 6 | 13th July 2025 | 04:56 | 05:30 to 10:00 | Sunny.<br>Wind: South 1 mph.<br>Temperature: 16°C rising to 21°C<br>Good visibility. |

2.2.7 During each survey, the surveyor recorded the following:

a. Date, weather conditions, start and end times;

b. Birds observed within the site and flying over the site (species and number (estimate if necessary));

c. Incidences and time of any disturbance e.g. dog walkers, walkers, cyclists;

d. Equipment used; and

e. Survey limitations experienced.

2.2.8 All visible and audible birds were recorded during the site survey following the standard recording methodology and codes of the *British Trust for Ornithology (BTO) Common Birds Census* (Marchant, 1983).

2.2.9 For the purposes of this assessment birds were counted as 'breeders' if they were recorded in territorial song, observed as a family, carrying food / nest material, in an actual nest and / or repeatedly giving alarm calls thought to have a strong territorial significance. Other birds have been categorised as 'non-breeders' if they were observed flying over the site only, were not engaged in any behaviours indicative of breeding and / or the habitat is not considered to be suitable breeding habitat for that species.

**Survey Limitations**

2.2.10 The surveyor has not reported any incidences / disturbances / unusual human behaviour or agricultural practices being carried out over the duration of the surveys.

2.2.11 No survey limitations on the intended scope of survey were experienced.

### 2.3 Evaluation Methods

2.3.1 Government advice on wildlife, as set out in the NPPF and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedule 1 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019*, is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.

2.3.2 The presence of any Priority Species, as listed under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of bird species listed by the *BOCC: Birds of Conservation Concern 5* (Stanbury, et al., 2021) is also taken into account in the evaluation of the site.

## 3.0 SURVEY RESULTS AND EVALUATION

### 3.1 Summary of Breeding Bird Survey Data

3.1.1 The survey data and maps of the breeding bird surveys are appended at **Tables 7.1** to **7.6** and **Figures 2** to **7**. A summary of the bird survey data is presented at **Table 3.1**.

3.1.2 Bird species are listed as 'breeders' if they were recorded to meet the criteria listed in paragraph 2.2.9.

## Table 3.1: Summary of Breeding Bird Surveys 2025

Species listed in **bold** are Priority Species.

Species in red are BOCC Red-listed species.

Shaded species were recorded breeding in site or on adjacent land.

| | 1: 29th April 2025 | 2: 9th May 2025 | 3: 24th May 2025 | 4: 7th June 2025 | 5: 21st June 2025 | 6: 13th July 2025 |
|---|---|---|---|---|---|---|
| **Total No. Species** | 28 | 36 | 32 | 34 | 38 | 34 |
| **Total Birds** | 188 | 233 | 265 | 246 | 255 | 282 |

| Scientific Name | Common Name | Number Seen | Number Seen | Number Seen | Number Seen | Number Seen | Number Seen | Total | No. Surveys Observed |
|---|---|---|---|---|---|---|---|---|---|
| *Accipiter nisus* | Sparrowhawk | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 2 |
| *Acrocephalus schoenobaenus* | Sedge warbler | 3 | 3 | 2 | 2 | 0 | 0 | 10 | 4 |
| *Aegithalos caudatus* | Long-tailed tit | 0 | 1 | 1 | 1 | 3 | 1 | 7 | 5 |
| *Buteo buteo* | Buzzard | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 2 |
| *Carduelis carduelis* | Goldfinch | 0 | 2 | 0 | 3 | 4 | 5 | 14 | 4 |
| *Carduelis chloris* | Greenfinch | 1 | 2 | 3 | 2 | 4 | 3 | 15 | 6 |
| *Certhia familiaris* | Treecreeper | 1 | 0 | 0 | 2 | 1 | 1 | 5 | 4 |
| *Chroicocephalus ridibundus* | Black-headed gull | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| *Columba livia* | Feral pigeon | 0 | 0 | 5 | 0 | 0 | 16 | 21 | 2 |
| *Columba palumbus* | Woodpigeon | 37 | 25 | 34 | 36 | 33 | 52 | 217 | 6 |
| *Corvus corone* | Carrion crow | 1 | 12 | 11 | 4 | 6 | 9 | 43 | 6 |
| *Corvus frugilegus* | Rook | 12 | 15 | 21 | 11 | 6 | 23 | 88 | 6 |
| *Corvus monedula* | Jackdaw | 2 | 5 | 10 | 22 | 5 | 6 | 50 | 6 |
| *Cyanistes caeruleus* | Blue tit | 3 | 4 | 6 | 6 | 13 | 11 | 43 | 6 |
| *Delichon urbicum* | House martin | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 1 |
| *Dendrocopos major* | Great spotted woodpecker | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 3 |
| *Erithacus rubecula* | Robin | 16 | 30 | 28 | 20 | 19 | 25 | 138 | 6 |
| *Fringilla coelebs* | Chaffinch | 11 | 20 | 18 | 12 | 10 | 9 | 80 | 6 |
| *Fulica atra* | Coot | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 1 |
| *Garrulus glandarius* | Jay | 2 | 3 | 3 | 1 | 2 | 0 | 11 | 5 |
| *Hirundo rustica* | Swallow | 0 | 1 | 2 | 4 | 6 | 5 | 18 | 5 |
| *Larus canus* | Common gull | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 1 |
| *Larus fuscus* | Lesser black-backed gull | 2 | 2 | 2 | 2 | 3 | 6 | 17 | 6 |
| *Parus major* | Great tit | 5 | 3 | 2 | 6 | 4 | 4 | 24 | 6 |
| *Periparus ater* | Coal tit | 4 | 2 | 2 | 2 | 5 | 7 | 22 | 6 |
| *Phasianus colchicus* | Pheasant | 2 | 2 | 1 | 1 | 2 | 0 | 8 | 5 |
| *Phylloscopus collybita* | Chiffchaff | 7 | 10 | 11 | 8 | 9 | 10 | 55 | 6 |
| *Phylloscopus trochilus* | Willow warbler | 0 | 1 | 1 | 1 | 2 | 0 | 5 | 4 |
| *Pica pica* | Magpie | 3 | 4 | 6 | 4 | 3 | 4 | 24 | 6 |

| Scientific Name | Common Name | Number Seen | Number Seen | Number Seen | Number Seen | Number Seen | Number Seen | Total | No. Surveys Observed |
|---|---|---|---|---|---|---|---|---|---|
| *Regulus regulus* | Goldcrest | 1 | 1 | 0 | 1 | 1 | 3 | 7 | 5 |
| *Sitta europaea* | Nuthatch | 0 | 1 | 0 | 1 | 2 | 2 | 6 | 4 |
| *Streptopelia decaocto* | Collared dove | 0 | 2 | 1 | 2 | 2 | 2 | 9 | 5 |
| *Sylvia atricapilla* | Blackcap | 4 | 11 | 11 | 11 | 10 | 6 | 53 | 6 |
| *Sylvia borin* | Garden warbler | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 2 |
| *Sylvia communis* | Whitethroat | 0 | 1 | 1 | 0 | 2 | 1 | 5 | 4 |
| *Troglodytes troglodytes* | Wren | 25 | 23 | 33 | 23 | 37 | 28 | 169 | 6 |
| *Turdus merula* | Blackbird | 20 | 22 | 23 | 29 | 22 | 11 | 127 | 6 |
| *Turdus viscivorus* | Mistle thrush | 3 | 2 | 0 | 1 | 1 | 1 | 8 | 5 |
| ***Emberiza schoeniclus*** | **Reed bunting** | **4** | **2** | **3** | **4** | **2** | **4** | **19** | **6** |
| ***Locustella naevia*** | **Grasshopper warbler** | **0** | **1** | **2** | **0** | **1** | **0** | **4** | **3** |
| ***Passer domesticus*** | **House sparrow** | **4** | **3** | **5** | **7** | **8** | **4** | **31** | **6** |
| ***Prunella modularis*** | **Dunnock** | **7** | **9** | **8** | **7** | **11** | **3** | **45** | **6** |
| ***Pyrrhula pyrrhula*** | **Bullfinch** | **0** | **1** | **1** | **0** | **0** | **0** | **2** | **2** |
| ***Sturnus vulgaris*** | **Starling** | **1** | **0** | **0** | **0** | **3** | **10** | **14** | **3** |
| ***Turdus philomelos*** | **Song thrush** | **6** | **4** | **7** | **5** | **6** | **5** | **33** | **6** |

**Evaluation**

3.1.3 Forty-five bird species were recorded during the surveys. The greatest diversity of bird species (38 species) was recorded in the survey area on 21st June 2025 (Survey 5). The greatest number of individual birds (282) recorded in the survey area was on 13th July 2025 (Survey 6).

3.1.4 Based on the recorded activity 27 species were recorded as 'breeders' within the site and 35 species were recorded breeding in the survey area (the additional species recorded as breeders outside the site are jackdaw, willow warbler, magpie, collared dove, house sparrow, bullfinch, starling and garden warbler).

3.1.5 Seven Priority Species were recorded breeding at the site or on adjacent habitats (reed bunting, house sparrow, dunnock, bullfinch, grasshopper warbler, starling and song thrush). Six recorded species are red-listed bird species (greenfinch, house martin, mistle thrush, grasshopper warbler, house sparrow and starling) with all except house martin were recorded breeding at the site or on adjacent habitats.

3.1.6 A summary of all species detected during the 2025 surveys which are listed as Priority Species or are red-listed species is presented at **Table 3.2**. The figures on **Table 3.2** are representative of the peak count of birds observed displaying breeding behaviour (note this is not an exact representation of the number of pairs or nests but the table has been prepared to provide a guide on relative abundance of the recorded breeding birds).

**Table 3.2: Summary of Confirmed Breeders of Priority Species and Red-listed Species Detected During the 2025 Surveys**

| Common Name | Peak Count[1] within Site / on Site Margins | Peak Count[1] Outside the Site / within Survey Area |
|---|---|---|
| Greenfinch | 2 | 0 |
| Mistle thrush | 1 | 2 |
| **Reed bunting** | 4 | 0 |
| **Grasshopper warbler** | **2** | **0** |
| **House sparrow** | **0** | **4** |
| **Dunnock** | **6** | **0** |
| **Bullfinch** | **1** | **0** |
| **Starling** | **0** | **1** |
| **Song thrush** | **5** | **0** |

[1] The peak count for each species is determined by the highest number of birds observed during one survey effort. Peak counts for each species may be taken from different survey dates.
Species listed in **bold** are Priority Species.
Species in red are BOCC Red-listed species.
House martin is excluded from this table as this species was not recorded breeding at the site.

3.1.7 No bird species listed on Schedule 1 (Part 1) of the *Wildlife and Countryside Act 1981* (as amended) were recorded nesting in the site.

3.1.8 No ground nesting farmland birds such as curlew and lapwing were recorded in the site on the survey dates.

3.1.9 The breeding bird species assemblage recorded at the site comprises woodland specialist species such as nuthatch, goldcrest, treecreeper and great spotted woodpecker, and passerine species typically associated with the woodland, scrub and individual tree habitats.

3.1.10 The areas of dense Reed Canary-grass with scattered scrub support breeding grasshopper warbler, reed bunting and sedge warbler.

3.1.11 Of the 10 non-breeding species recorded at the site, the following information is provided:

a. Two birds of prey (sparrowhawk and buzzard) were recorded visiting the site;

b. Three gull species (common gull, lesser black-backed gull and black-headed gull) were visiting the site;

c. A coot was observed;

d. Rook and feral pigeon were recorded visiting the site; and

e. House martin and swallow were recorded feeding over the site.

## 4.0 ASSESSMENT AND MITIGATION

### 4.1 Habitat Loss and Disturbance Impacts

4.1.1 In accordance with the mitigation hierarchy and ecological guidance, the Illustrative Masterplan seeks to retain areas of woodland, scrub and individual trees where the majority of the breeding birds and the assemblage of bird species were recorded. The retention (and enhancement, see below) of these habitats will secure the opportunities for breeding woodland specialist species and passerine birds as recorded at the baseline, including Priority Species.

4.1.2 In consideration of Priority Species such as song thrush, dunnock and bullfinch, as the proposals seek to retain woodland and scrub habitats (although temporary disturbance impacts during the construction period which may deter use by less tolerant bird species are recognised) and these are also species that can be associated with residential garden habitats which will be created at the site (subject to the appropriate cover of vegetation and nesting sites) it is considered that the development of the site will have no permanent long-term impact on the suitability of the site habitats for use by these three species.

4.1.3 The breeding starling and house sparrow were recorded within the off-site habitats. The development proposals will provide additional habitats for these species (as described below).

4.1.4 In consideration of grasshopper warbler and reed bunting, the areas of Reed Canary-grass used by these species will be removed by the proposals. The creation of areas of water attenuation / SuDS within areas of open grassland with scattered scrub in the site may provide some opportunities for these species and guidance will be provided as part of the detailed landscape proposals to provide suitable habitats for these species. Otherwise these species will be displaced to habitats in the fields in the wider area such as the habitats associated with Pigs Lee Brook (400 metres to the east).

### 4.2 Cat Predation

4.2.1 The construction of any residential development brings an increased risk of bird predation by domestic cats.

4.2.2 There is no doubt in relation to the impacts that domestic cats can have on nesting birds and other wildlife. However, in consideration of the magnitude of the impact of cat predation it is advised that proportionality needs to be applied. The proposals are for the construction of up to 300 dwellings,

not all of which will keep a cat (and some may be discouraged from doing so in the future by the actions of the Homeowners' Packs as discussed below).

4.2.3 In this instance it is advised that appropriate mitigation that can be applied is a combination of raising awareness / education of the residents by including guidance on in the Homeowners' Pack provided during the sale of the properties and securing the long-term presence of the guidance by inclusion on an interpretation board in the public open space at the site. Guidance available in publications such as equipping cats with bells, keeping cats indoors at night, playing with cats to stimulate them, feeding cats with appropriate food, feeding of birds as referenced in *Domestic Cat Predation on Wildlife* (Woods, M., McDonald, R. A. and Harris, S., undated) and Songbird Survival[2] will assist in the protection of some bird species.

### 4.3 Protection of Nesting Birds

4.3.1 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. Any works such as vegetation clearance / management that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist. The bird breeding season typically extends between March to August inclusive.

4.3.2 If breeding birds are detected the ecologist will issue guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. This may involve cordoning off an area of the site until the young birds have fledged.

### 4.4 Enhancement for Breeding Birds

4.4.1 To provide compensatory habitats and to enhance the opportunities for use by nesting birds at the developed site the following is recommended:

a. Application of secured conservation management at the retained areas of woodland, shrub and other habitats to maximise their value to nesting birds, including specialist species;

b. Installation of bird boxes within the retained habitats, including specialist boxes to target specific species such as treecreeper and tawny owl (as appropriate);

c. Planting of native trees and shrubs at the site to include pockets of dense scrub planting which includes Gorse (known to be used by nesting linnet), particularly at the site margins;

d. Maximising habitat connectivity between retained and new habitats;

e. Installation of provisions for nesting house sparrow including installation of terrace boxes[3] at the new buildings. Boxes should not be positioned over windows or doorways where droppings may become a nuisance. RSPB advice states that boxes should ideally be sited facing north to east, to avoid exposure to direct sunlight, which may cause overheating of chicks in the nest. Examples of a suitable house sparrow bird box are given at **Insert 1**:

[2] https://www.songbird-survival.org.uk/

[3] House sparrows are associated with suburban areas. Monitoring suggests a severe decline in the UK house sparrow population, estimated as dropping by 71 per cent between 1977 and 2008 with large falls in both rural and urban populations (RSPB, 2023).



**Insert 1:** Schwegler 1SP House Sparrow Nesting Terrace (left) and Vivara Pro WoodStone House Sparrow Box (right). Both are available from www.NHBS.com

f. The construction of the residential properties, particularly taller buildings, provides an opportunity for the installation of additional nesting opportunities for swift to assist their conservation[4]. Suitable swift nest boxes are illustrated at **Insert 2**.



**Insert 2:** Examples of swift nest boxes[5]

## 5.0 CONCLUSION

5.1 The comprehensive breeding bird surveys carried out at the site and surrounds in 2025 indicates that there are no significant constraints on the proposals in relation to breeding birds.

5.2 It is advised that the recommendations and measures outlined in **Sections 4.2** to **4.4** are appropriate and proportionate to the scale of the development proposals and the impacts of the proposals and can be secured by suitably worded planning obligation / conditions, as appropriate.

## 6.0 REFERENCES


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[4] The swift (*Apus apus*) has been added to *The Birds of Conservation Concern Red List* (Stanbury, et al., 2021) owing to the recorded recent declines and its identified status as a high conservation priority.

[5] From left to right No. 17A Schwegler Swift Nest Box (Triple Cavity) as installation (left), Ibstock Eco-habitat for Swift (centre) and Manthorpe Swift Nesting Box (right) all available from www.NHBS.com and / or Wild Care (www.wildcare.co.uk).

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## 7.0 APPENDIX 1: TABLES

**Table 7.1: Breeding Bird Survey 1: 29th April 2025. Total Species Observed: 28**

| Scientific Name | Common Name | Times Observed | Total Number Seen | No. Observed | | | No. Displaying Breeding Behaviour | | Peak Count (for a single flock) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In Site | Over Site | Outside Site | In Site | Outside Site | |
| *Acrocephalus schoenobaenus* | Sedge warbler | 3 | 3 | 2 | 0 | 1 | 2 | 0 | 1 |
| *Carduelis chloris* | Greenfinch | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Certhia familiaris* | Treecreeper | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Chroicocephalus ridibundus* | Black-headed gull | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Columba palumbus* | Woodpigeon | 23 | 37 | 26 | 0 | 11 | 6 | 20 | 4 |
| *Corvus corone* | Carrion crow | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| *Corvus frugilegus* | Rook | 3 | 12 | 0 | 10 | 2 | 0 | 10 | 0 |
| *Corvus monedula* | Jackdaw | 1 | 2 | 0 | 2 | 0 | 0 | 2 | 0 |
| *Cyanistes caeruleus* | Blue tit | 3 | 3 | 2 | 0 | 1 | 2 | 0 | 1 |
| ***Emberiza schoeniclus*** | **Reed bunting** | **4** | **4** | **4** | **0** | **0** | **4** | **0** | **0** |
| *Erithacus rubecula* | Robin | 16 | 16 | 12 | 0 | 4 | 12 | 0 | 4 |
| *Fringilla coelebs* | Chaffinch | 11 | 11 | 7 | 0 | 4 | 7 | 0 | 4 |
| *Garrulus glandarius* | Jay | 1 | 2 | 2 | 0 | 0 | 2 | 0 | 0 |
| *Larus fuscus* | Lesser black-backed gull | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 0 |
| *Parus major* | Great tit | 4 | 5 | 1 | 0 | 4 | 1 | 0 | 2 |
| ***Passer domesticus*** | **House sparrow** | **4** | **4** | **0** | **0** | **4** | **0** | **0** | **4** |
| *Periparus ater* | Coal tit | 4 | 4 | 3 | 0 | 1 | 3 | 0 | 1 |
| *Phasianus colchicus* | Pheasant | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 |
| *Phylloscopus collybita* | Chiffchaff | 7 | 7 | 3 | 0 | 4 | 3 | 0 | 4 |
| *Pica pica* | Magpie | 2 | 3 | 2 | 0 | 1 | 0 | 2 | 0 |
| ***Prunella modularis*** | **Dunnock** | **7** | **7** | **3** | **0** | **4** | **3** | **0** | **4** |
| *Regulus regulus* | Goldcrest | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| ***Sturnus vulgaris*** | **Starling** | **1** | **1** | **0** | **0** | **1** | **0** | **0** | **1** |
| *Sylvia atricapilla* | Blackcap | 4 | 4 | 1 | 0 | 3 | 1 | 0 | 3 |
| *Troglodytes troglodytes* | Wren | 25 | 25 | 17 | 0 | 8 | 17 | 0 | 8 |
| *Turdus merula* | Blackbird | 17 | 20 | 11 | 0 | 9 | 8 | 3 | 6 |
| ***Turdus philomelos*** | **Song thrush** | **6** | **6** | **5** | **0** | **1** | **5** | **0** | **1** |
| *Turdus viscivorus* | Mistle thrush | 2 | 3 | 1 | 0 | 2 | 1 | 0 | 0 |
| Priority Species are presented in **Bold**. | | | | | | | | | |

**Table 7.2: Breeding Bird Survey 2: 9th May 2025. Total Species Observed: 36**

| Scientific Name | Common Name | Times Observed | Total Number Seen | No. Observed | | | No. Displaying Breeding Behaviour | | Peak Count (for a single flock) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In Site | Over Site | Outside Site | In Site | Outside Site | |
| *Accipiter nisus* | Sparrowhawk | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| *Acrocephalus schoenobaenus* | Sedge warbler | 3 | 3 | 3 | 0 | 0 | 3 | 0 | 0 |
| *Aegithalos caudatus* | Long-tailed tit | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Carduelis carduelis* | Goldfinch | 1 | 2 | 2 | 0 | 0 | 2 | 0 | 0 |
| *Carduelis chloris* | Greenfinch | 2 | 2 | 1 | 0 | 1 | 1 | 0 | 1 |
| *Columba palumbus* | Woodpigeon | 22 | 25 | 15 | 1 | 9 | 12 | 4 | 4 |
| *Corvus corone* | Carrion crow | 7 | 12 | 6 | 1 | 5 | 2 | 5 | 1 |
| *Corvus frugilegus* | Rook | 7 | 15 | 0 | 5 | 10 | 0 | 5 | 0 |
| *Corvus monedula* | Jackdaw | 3 | 5 | 0 | 5 | 0 | 0 | 5 | 0 |
| *Cyanistes caeruleus* | Blue tit | 4 | 4 | 2 | 0 | 2 | 2 | 0 | 2 |
| ***Emberiza schoeniclus*** | **Reed bunting** | **2** | **2** | **2** | **0** | **0** | **2** | **0** | **0** |
| *Erithacus rubecula* | Robin | 30 | 30 | 21 | 0 | 9 | 21 | 0 | 9 |
| *Fringilla coelebs* | Chaffinch | 20 | 20 | 14 | 0 | 6 | 14 | 0 | 6 |
| *Fulica atra* | Coot | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Garrulus glandarius* | Jay | 2 | 3 | 3 | 0 | 0 | 3 | 0 | 0 |
| *Hirundo rustica* | Swallow | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Larus fuscus* | Lesser black-backed gull | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| ***Locustella naevia*** | **Grasshopper warbler** | **1** | **1** | **1** | **0** | **0** | **1** | **0** | **0** |
| *Parus major* | Great tit | 3 | 3 | 1 | 0 | 2 | 1 | 0 | 2 |
| ***Passer domesticus*** | **House sparrow** | **3** | **3** | **0** | **0** | **3** | **0** | **0** | **3** |
| *Periparus ater* | Coal tit | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 |
| *Phasianus colchicus* | Pheasant | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 |
| *Phylloscopus collybita* | Chiffchaff | 10 | 10 | 5 | 0 | 5 | 5 | 0 | 5 |
| *Phylloscopus trochilus* | Willow warbler | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Pica pica* | Magpie | 2 | 4 | 2 | 0 | 2 | 0 | 2 | 0 |
| ***Prunella modularis*** | **Dunnock** | **9** | **9** | **2** | **0** | **7** | **2** | **0** | **7** |
| ***Pyrrhula pyrrhula*** | **Bullfinch** | **1** | **1** | **0** | **0** | **1** | **0** | **0** | **0** |
| *Regulus regulus* | Goldcrest | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| *Sitta europaea* | Nuthatch | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Streptopelia decaocto* | Collared dove | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 2 |
| *Sylvia atricapilla* | Blackcap | 11 | 11 | 5 | 0 | 6 | 5 | 0 | 6 |

| Scientific Name | Common Name | Times Observed | Total Number Seen | No. Observed | | | No. Displaying Breeding Behaviour | | Peak Count (for a single flock) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In Site | Over Site | Outside Site | In Site | Outside Site | |
| *Sylvia communis* | Whitethroat | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| *Troglodytes troglodytes* | Wren | 23 | 23 | 16 | 0 | 7 | 16 | 0 | 7 |
| *Turdus merula* | Blackbird | 22 | 22 | 10 | 0 | 12 | 10 | 0 | 11 |
| ***Turdus philomelos*** | **Song thrush** | **4** | **4** | **1** | **0** | **3** | **1** | **0** | **3** |
| *Turdus viscivorus* | Mistle thrush | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 0 |
| Priority Species are presented in **Bold**. | | | | | | | | | |

**Table 7.3: Breeding Bird Survey 3: 24th May 2025. Total Species Observed: 32**

| Scientific Name | Common Name | Times Observed | Total Number Seen | No. Observed | | | No. Displaying Breeding Behaviour | | Peak Count (for a single flock) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In Site | Over Site | Outside Site | In Site | Outside Site | |
| *Acrocephalus schoenobaenus* | Sedge warbler | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 |
| *Aegithalos caudatus* | Long-tailed tit | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| *Carduelis chloris* | Greenfinch | 3 | 3 | 1 | 0 | 2 | 1 | 0 | 2 |
| *Columba livia* | Feral pigeon | 1 | 5 | 0 | 0 | 5 | 0 | 0 | 0 |
| *Columba palumbus* | Woodpigeon | 27 | 34 | 19 | 1 | 14 | 10 | 10 | 8 |
| *Corvus corone* | Carrion crow | 6 | 11 | 4 | 4 | 3 | 0 | 8 | 0 |
| *Corvus frugilegus* | Rook | 7 | 21 | 0 | 19 | 2 | 0 | 19 | 0 |
| *Corvus monedula* | Jackdaw | 5 | 10 | 2 | 6 | 2 | 0 | 8 | 0 |
| *Cyanistes caeruleus* | Blue tit | 6 | 6 | 5 | 0 | 1 | 5 | 0 | 1 |
| ***Emberiza schoeniclus*** | **Reed bunting** | **3** | **3** | **3** | **0** | **0** | **3** | **0** | **0** |
| *Erithacus rubecula* | Robin | 28 | 28 | 18 | 0 | 10 | 18 | 0 | 10 |
| *Fringilla coelebs* | Chaffinch | 18 | 18 | 16 | 0 | 2 | 16 | 0 | 2 |
| *Garrulus glandarius* | Jay | 2 | 3 | 3 | 0 | 0 | 3 | 0 | 0 |
| *Hirundo rustica* | Swallow | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Larus fuscus* | Lesser black-backed gull | 1 | 2 | 0 | 2 | 0 | 0 | 2 | 0 |
| *Locustella naevia* | Grasshopper warbler | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 |
| *Parus major* | Great tit | 2 | 2 | 1 | 0 | 1 | 1 | 0 | 1 |
| ***Passer domesticus*** | **House sparrow** | **5** | **5** | **0** | **0** | **5** | **0** | **0** | **5** |
| *Periparus ater* | Coal tit | 2 | 2 | 1 | 0 | 1 | 1 | 0 | 1 |
| *Phasianus colchicus* | Pheasant | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| *Phylloscopus collybita* | Chiffchaff | 11 | 11 | 7 | 0 | 4 | 7 | 0 | 4 |
| *Phylloscopus trochilus* | Willow warbler | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Pica pica* | Magpie | 3 | 6 | 2 | 0 | 4 | 0 | 2 | 0 |
| ***Prunella modularis*** | **Dunnock** | **8** | **8** | **3** | **0** | **5** | **3** | **0** | **5** |
| ***Pyrrhula pyrrhula*** | **Bullfinch** | **1** | **1** | **0** | **0** | **1** | **0** | **0** | **1** |
| *Streptopelia decaocto* | Collared dove | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Sylvia atricapilla* | Blackcap | 11 | 11 | 5 | 0 | 6 | 5 | 0 | 6 |
| *Sylvia borin* | Garden warbler | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Sylvia communis* | Whitethroat | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| *Troglodytes troglodytes* | Wren | 33 | 33 | 24 | 0 | 9 | 24 | 0 | 9 |
| *Turdus merula* | Blackbird | 23 | 23 | 11 | 0 | 12 | 11 | 0 | 12 |
| ***Turdus philomelos*** | **Song thrush** | **7** | **7** | **3** | **0** | **4** | **3** | **0** | **4** |

Priority Species are presented in **Bold**.

**Table 7.4: Breeding Bird Survey 4: 7th June 2025. Total Species Observed: 34**

| Scientific Name | Common Name | Times Observed | Total Number Seen | No. Observed | | | No. Displaying Breeding Behaviour | | Peak Count (for a single flock) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In Site | Over Site | Outside Site | In Site | Outside Site | |
| *Acrocephalus schoenobaenus* | Sedge warbler | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 |
| *Aegithalos caudatus* | Long-tailed tit | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Carduelis carduelis* | Goldfinch | 2 | 3 | 1 | 0 | 2 | 1 | 0 | 2 |
| *Carduelis chloris* | Greenfinch | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 |
| *Certhia familiaris* | Treecreeper | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 |
| *Columba palumbus* | Woodpigeon | 29 | 36 | 16 | 0 | 20 | 12 | 4 | 10 |
| *Corvus corone* | Carrion crow | 2 | 4 | 2 | 0 | 2 | 0 | 2 | 0 |
| *Corvus frugilegus* | Rook | 6 | 11 | 0 | 8 | 3 | 0 | 8 | 0 |
| *Corvus monedula* | Jackdaw | 9 | 22 | 0 | 4 | 18 | 0 | 4 | 0 |
| *Cyanistes caeruleus* | Blue tit | 6 | 6 | 2 | 0 | 4 | 2 | 0 | 4 |
| *Delichon urbicum* | House martin | 1 | 4 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Dendrocopos major* | Great spotted woodpecker | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| ***Emberiza schoeniclus*** | **Reed bunting** | **4** | **4** | **4** | **0** | **0** | **4** | **0** | **0** |
| *Erithacus rubecula* | Robin | 20 | 20 | 10 | 0 | 10 | 10 | 0 | 10 |
| *Fringilla coelebs* | Chaffinch | 12 | 12 | 10 | 0 | 2 | 10 | 0 | 2 |
| *Garrulus glandarius* | Jay | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| *Hirundo rustica* | Swallow | 1 | 4 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Larus fuscus* | Lesser black-backed gull | 2 | 2 | 0 | 2 | 0 | 0 | 2 | 0 |
| *Parus major* | Great tit | 6 | 6 | 2 | 0 | 4 | 2 | 0 | 4 |
| ***Passer domesticus*** | **House sparrow** | **7** | **7** | **0** | **0** | **7** | **0** | **0** | **7** |
| *Periparus ater* | Coal tit | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 |
| *Phasianus colchicus* | Pheasant | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Phylloscopus collybita* | Chiffchaff | 8 | 8 | 5 | 0 | 3 | 5 | 0 | 3 |
| *Phylloscopus trochilus* | Willow warbler | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Pica pica* | Magpie | 2 | 4 | 2 | 0 | 2 | 0 | 2 | 0 |
| ***Prunella modularis*** | **Dunnock** | **7** | **7** | **3** | **0** | **4** | **3** | **0** | **4** |
| *Regulus regulus* | Goldcrest | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| *Sitta europaea* | Nuthatch | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Streptopelia decaocto* | Collared dove | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Sylvia atricapilla* | Blackcap | 11 | 11 | 3 | 0 | 8 | 3 | 0 | 8 |
| *Troglodytes troglodytes* | Wren | 23 | 23 | 17 | 0 | 6 | 17 | 0 | 6 |
| *Turdus merula* | Blackbird | 29 | 29 | 16 | 0 | 13 | 16 | 0 | 13 |

| Scientific Name | Common Name | Times Observed | Total Number Seen | No. Observed | | | No. Displaying Breeding Behaviour | | Peak Count (for a single flock) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In Site | Over Site | Outside Site | In Site | Outside Site | |
| ***Turdus philomelos*** | **Song thrush** | **5** | **5** | **3** | **0** | **2** | **3** | **0** | **2** |
| *Turdus viscivorus* | Mistle thrush | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Priority Species are presented in **Bold**. | | | | | | | | | |

**Table 7.5: Breeding Bird Survey 5: 21st June 2025. Total Species Observed: 38**

| Scientific Name | Common Name | Times Observed | Total Number Seen | No. Observed | | | No. Displaying Breeding Behaviour | | Peak Count (for a single flock) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In Site | Over Site | Outside Site | In Site | Outside Site | |
| *Aegithalos caudatus* | Long-tailed tit | 3 | 3 | 1 | 0 | 2 | 1 | 0 | 2 |
| *Buteo buteo* | Buzzard | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| *Carduelis carduelis* | Goldfinch | 2 | 4 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Carduelis chloris* | Greenfinch | 4 | 4 | 1 | 0 | 3 | 1 | 0 | 3 |
| *Certhia familiaris* | Treecreeper | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| *Columba palumbus* | Woodpigeon | 26 | 33 | 15 | 4 | 14 | 9 | 10 | 8 |
| *Corvus corone* | Carrion crow | 4 | 6 | 2 | 4 | 0 | 2 | 4 | 0 |
| *Corvus frugilegus* | Rook | 1 | 6 | 0 | 0 | 6 | 0 | 0 | 0 |
| *Corvus monedula* | Jackdaw | 3 | 5 | 2 | 2 | 1 | 0 | 4 | 0 |
| *Cyanistes caeruleus* | Blue tit | 13 | 13 | 9 | 0 | 4 | 9 | 0 | 4 |
| *Dendrocopos major* | Great spotted woodpecker | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| ***Emberiza schoeniclus*** | **Reed bunting** | **2** | **2** | **1** | **0** | **1** | **1** | **0** | **1** |
| *Erithacus rubecula* | Robin | 19 | 19 | 14 | 0 | 5 | 14 | 0 | 5 |
| *Fringilla coelebs* | Chaffinch | 10 | 10 | 8 | 0 | 2 | 8 | 0 | 2 |
| *Garrulus glandarius* | Jay | 2 | 2 | 1 | 0 | 1 | 1 | 0 | 1 |
| *Hirundo rustica* | Swallow | 2 | 6 | 0 | 4 | 2 | 0 | 4 | 0 |
| *Larus canus* | Common gull | 1 | 4 | 0 | 4 | 0 | 0 | 4 | 0 |
| *Larus fuscus* | Lesser black-backed gull | 2 | 3 | 0 | 3 | 0 | 0 | 3 | 0 |
| ***Locustella naevia*** | **Grasshopper warbler** | **1** | **1** | **1** | **0** | **0** | **1** | **0** | **0** |
| *Parus major* | Great tit | 4 | 4 | 3 | 0 | 1 | 3 | 0 | 1 |
| *Passer domesticus* | House sparrow | 8 | 8 | 0 | 0 | 8 | 0 | 0 | 8 |
| *Periparus ater* | Coal tit | 5 | 5 | 4 | 0 | 1 | 4 | 0 | 1 |
| *Phasianus colchicus* | Pheasant | 2 | 2 | 1 | 0 | 1 | 1 | 0 | 1 |
| *Phylloscopus collybita* | Chiffchaff | 9 | 9 | 5 | 0 | 4 | 5 | 0 | 4 |
| *Phylloscopus trochilus* | Willow warbler | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 2 |
| *Pica pica* | Magpie | 2 | 3 | 0 | 0 | 3 | 0 | 0 | 1 |
| ***Prunella modularis*** | **Dunnock** | **11** | **11** | **6** | **0** | **5** | **6** | **0** | **5** |
| *Regulus regulus* | Goldcrest | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Sitta europaea* | Nuthatch | 2 | 2 | 1 | 0 | 1 | 1 | 0 | 1 |
| *Streptopelia decaocto* | Collared dove | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 0 |
| ***Sturnus vulgaris*** | **Starling** | **3** | **3** | **0** | **0** | **3** | **0** | **0** | **3** |
| *Sylvia atricapilla* | Blackcap | 10 | 10 | 4 | 0 | 6 | 4 | 0 | 6 |

| Scientific Name | Common Name | Times Observed | Total Number Seen | No. Observed | | | No. Displaying Breeding Behaviour | | Peak Count (for a single flock) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In Site | Over Site | Outside Site | In Site | Outside Site | |
| *Sylvia borin* | Garden warbler | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Sylvia communis* | Whitethroat | 2 | 2 | 1 | 0 | 1 | 1 | 0 | 1 |
| *Troglodytes troglodytes* | Wren | 37 | 37 | 24 | 0 | 13 | 24 | 0 | 13 |
| *Turdus merula* | Blackbird | 22 | 22 | 11 | 0 | 11 | 10 | 1 | 9 |
| ***Turdus philomelos*** | **Song thrush** | **6** | **6** | **5** | **0** | **1** | **5** | **0** | **1** |
| *Turdus viscivorus* | Mistle thrush | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Priority Species are presented in **Bold**. | | | | | | | | | |

**Table 7.6: Breeding Bird Survey 6: 13th July 2025. Total Species Observed: 34**

| Scientific Name | Common Name | Times Observed | Total Number Seen | No. Observed | | | No. Displaying Breeding Behaviour | | Peak Count (for a single flock) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In Site | Over Site | Outside Site | In Site | Outside Site | |
| *Accipiter nisus* | Sparrowhawk | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| *Aegithalos caudatus* | Long-tailed tit | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| *Buteo buteo* | Buzzard | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 0 |
| *Carduelis carduelis* | Goldfinch | 4 | 5 | 4 | 0 | 1 | 2 | 2 | 1 |
| *Carduelis chloris* | Greenfinch | 3 | 3 | 2 | 0 | 1 | 2 | 0 | 1 |
| *Certhia familiaris* | Treecreeper | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Columba livia* | Feral pigeon | 1 | 16 | 0 | 0 | 16 | 0 | 0 | 0 |
| *Columba palumbus* | Woodpigeon | 33 | 52 | 26 | 1 | 25 | 8 | 19 | 8 |
| *Corvus corone* | Carrion crow | 7 | 9 | 0 | 4 | 5 | 0 | 4 | 1 |
| *Corvus frugilegus* | Rook | 1 | 23 | 0 | 0 | 23 | 0 | 0 | 0 |
| *Corvus monedula* | Jackdaw | 4 | 6 | 0 | 2 | 4 | 0 | 2 | 1 |
| *Cyanistes caeruleus* | Blue tit | 11 | 11 | 7 | 0 | 4 | 7 | 0 | 4 |
| *Dendrocopos major* | Great spotted woodpecker | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Emberiza schoeniclus* | Reed bunting | 4 | 4 | 4 | 0 | 0 | 4 | 0 | 0 |
| *Erithacus rubecula* | Robin | 25 | 25 | 16 | 0 | 9 | 16 | 0 | 9 |
| *Fringilla coelebs* | Chaffinch | 9 | 9 | 6 | 0 | 3 | 5 | 1 | 3 |
| *Hirundo rustica* | Swallow | 2 | 5 | 0 | 1 | 4 | 0 | 1 | 0 |
| *Larus fuscus* | Lesser black-backed gull | 3 | 6 | 0 | 1 | 5 | 0 | 1 | 0 |
| *Parus major* | Great tit | 4 | 4 | 3 | 0 | 1 | 3 | 0 | 1 |
| *Passer domesticus* | House sparrow | 4 | 4 | 0 | 0 | 4 | 0 | 0 | 4 |
| *Periparus ater* | Coal tit | 7 | 7 | 5 | 0 | 2 | 5 | 0 | 2 |
| *Phylloscopus collybita* | Chiffchaff | 10 | 10 | 4 | 0 | 6 | 4 | 0 | 5 |
| *Pica pica* | Magpie | 2 | 4 | 0 | 0 | 4 | 0 | 0 | 1 |
| *Prunella modularis* | Dunnock | 3 | 3 | 1 | 0 | 2 | 1 | 0 | 1 |
| *Regulus regulus* | Goldcrest | 3 | 3 | 1 | 0 | 2 | 1 | 0 | 2 |
| *Sitta europaea* | Nuthatch | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 2 |
| *Streptopelia decaocto* | Collared dove | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Sturnus vulgaris* | Starling | 2 | 10 | 0 | 0 | 10 | 0 | 0 | 0 |
| *Sylvia atricapilla* | Blackcap | 6 | 6 | 0 | 0 | 6 | 0 | 0 | 6 |
| *Sylvia communis* | Whitethroat | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Troglodytes troglodytes* | Wren | 28 | 28 | 19 | 0 | 9 | 19 | 0 | 8 |
| *Turdus merula* | Blackbird | 11 | 11 | 8 | 0 | 3 | 4 | 4 | 3 |

| Scientific Name | Common Name | Times Observed | Total Number Seen | No. Observed | | | No. Displaying Breeding Behaviour | | Peak Count (for a single flock) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | In Site | Over Site | Outside Site | In Site | Outside Site | |
| *Turdus philomelos* | Song thrush | 5 | 5 | 2 | 1 | 2 | 2 | 1 | 2 |
| *Turdus viscivorus* | Mistle thrush | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Priority Species are presented in **Bold**. | | | | | | | | | |

## 8.0 APPENDIX 2: FIGURES

**Figure 1: Aerial Image of the Site and Surrounding Habitats Showing Site Boundary and Survey Area**

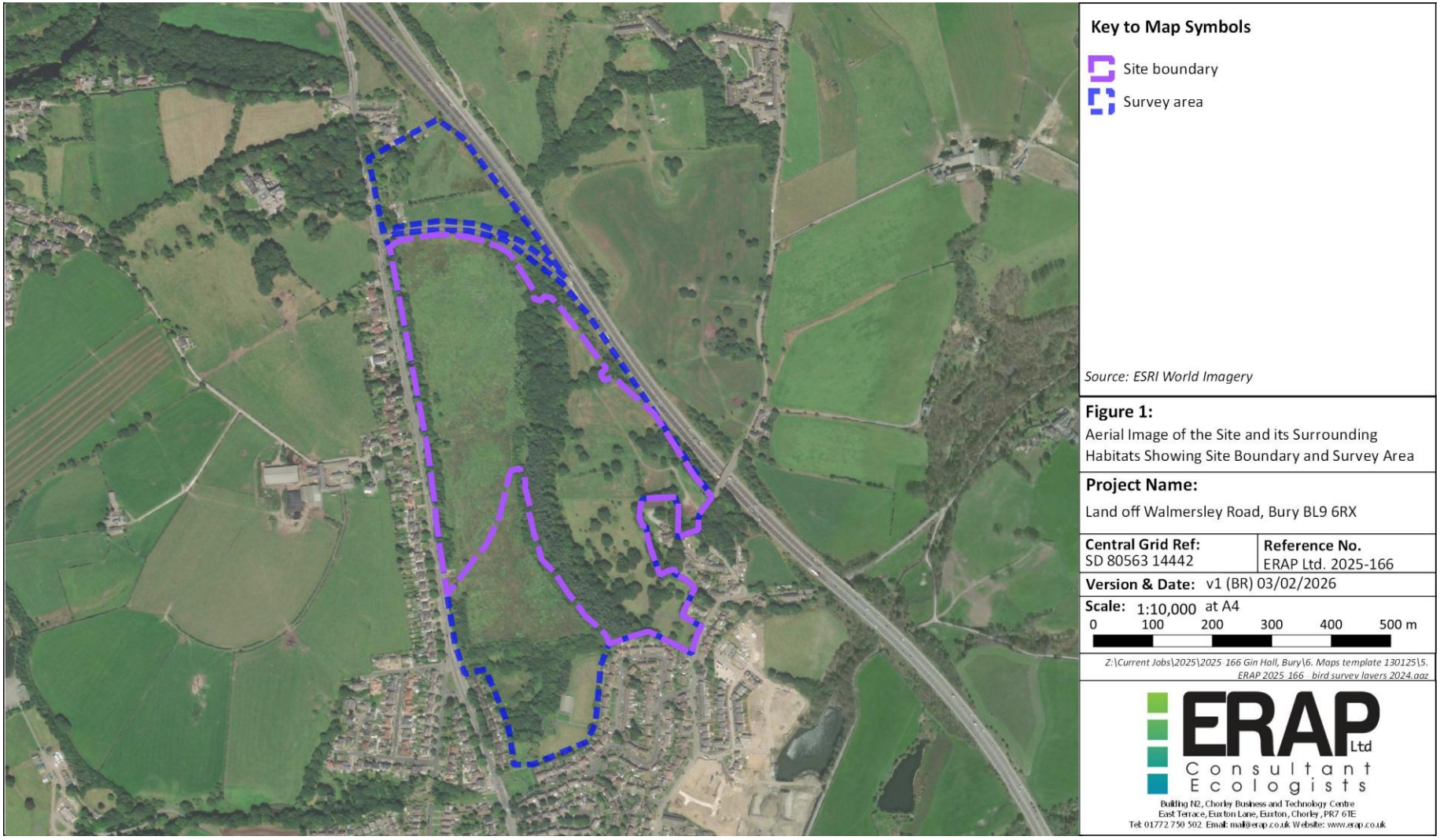
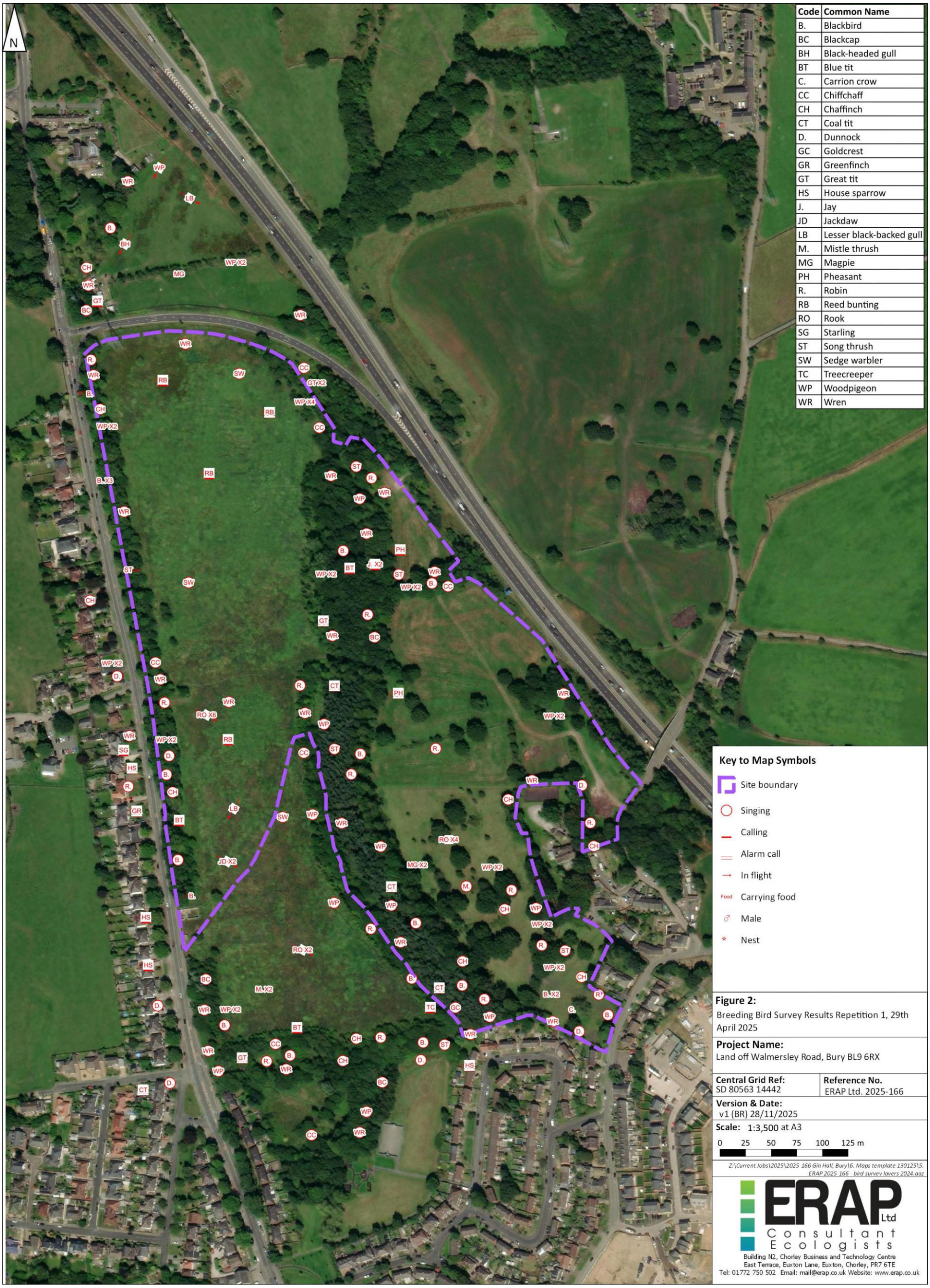


**Figure 2:** **Breeding Bird Survey Results Repetition 1: 29th April 2025**




| Code | Common Name |
|---|---|
| B. | Blackbird |
| BC | Blackcap |
| BH | Black-headed gull |
| BT | Blue tit |
| C. | Carrion crow |
| CC | Chiffchaff |
| CH | Chaffinch |
| CT | Coal tit |
| D. | Dunnock |
| GC | Goldcrest |
| GR | Greenfinch |
| GT | Great tit |
| HS | House sparrow |
| J. | Jay |
| JD | Jackdaw |
| LB | Lesser black-backed gull |
| M. | Mistle thrush |
| MG | Magpie |
| PH | Pheasant |
| R. | Robin |
| RB | Reed bunting |
| RO | Rook |
| SG | Starling |
| ST | Song thrush |
| SW | Sedge warbler |
| TC | Treecreeper |
| WP | Woodpigeon |
| WR | Wren |

**Figure 3:** **Breeding Bird Survey Results Repetition 2: 9th May 2025**




| Code | Common Name |
|---|---|
| B. | Blackbird |
| BC | Blackcap |
| BF | Bullfinch |
| BT | Blue tit |
| C. | Carrion crow |
| CC | Chiffchaff |
| CD | Collared dove |
| CH | Chaffinch |
| CO | Coot |
| CT | Coal tit |
| D. | Dunnock |
| GC | Goldcrest |
| GH | Grasshopper warbler |
| GO | Goldfinch |
| GR | Greenfinch |
| GT | Great tit |
| HS | House sparrow |
| J. | Jay |
| JD | Jackdaw |
| LB | Lesser black-backed gull |
| LT | Long-tailed tit |
| M. | Mistle thrush |
| MG | Magpie |
| NH | Nuthatch |
| PH | Pheasant |
| R. | Robin |
| RB | Reed bunting |
| RO | Rook |
| SH | Sparrowhawk |
| SL | Swallow |
| ST | Song thrush |
| SW | Sedge warbler |
| WH | Whitethroat |
| WP | Woodpigeon |
| WR | Wren |
| WW | Willow warbler |

**Figure 4:** **Breeding Bird Survey Results Repetition 3: 24th May 2025**




| Code | Common Name |
|---|---|
| B. | Blackbird |
| BC | Blackcap |
| BF | Bullfinch |
| BT | Blue tit |
| C. | Carrion crow |
| CC | Chiffchaff |
| CD | Collared dove |
| CH | Chaffinch |
| CT | Coal tit |
| D. | Dunnock |
| FP | Feral pigeon |
| GH | Grasshopper warbler |
| GR | Greenfinch |
| GT | Great tit |
| GW | Garden warbler |
| HS | House sparrow |
| J. | Jay |
| JD | Jackdaw |
| LB | Lesser black-backed gull |
| LT | Long-tailed tit |
| MG | Magpie |
| PH | Pheasant |
| R. | Robin |
| RB | Reed bunting |
| RO | Rook |
| SL | Swallow |
| ST | Song thrush |
| SW | Sedge warbler |
| WH | Whitethroat |
| WP | Woodpigeon |
| WR | Wren |
| WW | Willow warbler |

**Figure 5:** **Breeding Bird Survey Results Repetition 4: 7th June 2025**




| Code | Common Name |
|---|---|
| B. | Blackbird |
| BC | Blackcap |
| BT | Blue tit |
| C. | Carrion crow |
| CC | Chiffchaff |
| CD | Collared dove |
| CH | Chaffinch |
| CT | Coal tit |
| D. | Dunnock |
| GC | Goldcrest |
| GO | Goldfinch |
| GR | Greenfinch |
| GS | Great spotted woodpecker |
| GT | Great tit |
| HM | House martin |
| HS | House sparrow |
| J. | Jay |
| JD | Jackdaw |
| LB | Lesser black-backed gull |
| LT | Long-tailed tit |
| M. | Mistle thrush |
| MG | Magpie |
| NH | Nuthatch |
| PH | Pheasant |
| R. | Robin |
| RB | Reed bunting |
| RO | Rook |
| SL | Swallow |
| ST | Song thrush |
| SW | Sedge warbler |
| TC | Treecreeper |
| WP | Woodpigeon |
| WR | Wren |
| WW | Willow warbler |

**Key to Map Symbols**

- Site boundary
- Singing
- Calling
- Alarm call
- In flight
- Fam — Family
- Food — Carrying food
- ♂ Male
- ♀ Female
- Circling overhead

**Figure 5:**
Breeding Bird Survey Results Repetition 4, 7th June 2025

**Project Name:**
Land off Walmersley Road, Bury BL9 6RX

| **Central Grid Ref:** | **Reference No.** |
|---|---|
| SD 80563 14442 | ERAP Ltd. 2025-166 |

**Version & Date:**
v1 (BR) 28/11/2025

**Scale:** 1:3,500 at A3

0 25 50 75 100 125 m

*Z:\Current Jobs\2025\2025 166 Gin Hall, Bury\6. Maps template 130125\5. ERAP 2025 166 bird survey layers 2024.aaz*


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**Figure 6:** **Breeding Bird Survey Results Repetition 5: 21st June 2025**




| Code | Common Name |
|---|---|
| B. | Blackbird |
| BC | Blackcap |
| BT | Blue tit |
| BZ | Buzzard |
| C. | Carrion crow |
| CC | Chiffchaff |
| CD | Collared dove |
| CH | Chaffinch |
| CM | Common gull |
| CT | Coal tit |
| D. | Dunnock |
| GC | Goldcrest |
| GH | Grasshopper warbler |
| GO | Goldfinch |
| GR | Greenfinch |
| GS | Great spotted woodpecker |
| GT | Great tit |
| GW | Garden warbler |
| HS | House sparrow |
| J. | Jay |
| JD | Jackdaw |
| LB | Lesser black-backed gull |
| LT | Long-tailed tit |
| M. | Mistle thrush |
| MG | Magpie |
| NH | Nuthatch |
| PH | Pheasant |
| R. | Robin |
| RB | Reed bunting |
| RO | Rook |
| SG | Starling |
| SL | Swallow |
| ST | Song thrush |
| TC | Treecreeper |
| WH | Whitethroat |
| WP | Woodpigeon |
| WR | Wren |
| WW | Willow warbler |

**Figure 6:**
Breeding Bird Survey Results Repetition 5, 21st June 2025

**Project Name:**
Land off Walmersley Road, Bury BL9 6RX

**Central Grid Ref:** SD 80563 14442

**Reference No.** ERAP Ltd. 2025-166

**Version & Date:** v1 (BR) 28/11/2025

**Scale:** 1:3,500 at A3

0 25 50 75 100 125 m

*Z:\Current Jobs\2025\2025 166 Gin Hall, Bury\6. Maps template 130125\5. ERAP 2025 166 - bird survey layers 2024.aaz*


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**Figure 7: Results of Breeding Bird Survey 6: 13th July 2025**




| Code | Common Name |
|---|---|
| B. | Blackbird |
| BC | Blackcap |
| BT | Blue tit |
| BZ | Buzzard |
| C. | Carrion crow |
| CC | Chiffchaff |
| CD | Collared dove |
| CH | Chaffinch |
| CT | Coal tit |
| D. | Dunnock |
| FP | Feral pigeon |
| GC | Goldcrest |
| GO | Goldfinch |
| GR | Greenfinch |
| GS | Great spotted woodpecker |
| GT | Great tit |
| HS | House sparrow |
| JD | Jackdaw |
| LB | Lesser black-backed gull |
| LT | Long-tailed tit |
| M. | Mistle thrush |
| MG | Magpie |
| NH | Nuthatch |
| R. | Robin |
| RB | Reed bunting |
| RO | Rook |
| SG | Starling |
| SH | Sparrowhawk |
| SL | Swallow |
| ST | Song thrush |
| TC | Treecreeper |
| WH | Whitethroat |
| WP | Woodpigeon |
| WR | Wren |

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## Document Control

| Survey Type: | Surveyors[1] | Survey Date(s) |
|---|---|---|
| Ecological appraisal surveys | Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM<br>Principal Ecologist | 11th August 2025<br>1st October 2025<br>15th March 2026<br>26th March 2026 |
| **Reporting** | **Personnel** | |
| **Author** | Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM<br>Principal Ecologist | 26th March 2026 |
| **Signature(s)** |  | |
| **Checked** | Rebecca Bayley B.Sc. (Hons) Graduate Ecologist | 26th March 2026 |
| **Revised and issued** | Victoria Burrows | 27th March 2026 |
| **Report issued to** | Hollins Strategic Land | |
| **REvised** | Version 3: 10.04.26<br>Victoria Burrows<br>Revisions to Table 4.1 made following preparation of BNG Metric | |
| **Version Number** | 3 | |

[1] *Licence reference numbers*

**Bats**

Victoria Burrows, Natural England Class Survey Licence (bats, Level 2) Registration Number 2015-10390-CLS-CLS / 2025-84635-CL18-BAT

**Water vole**

Victoria Burrows, Natural England WML-CL31 Class Licence Registration Number CL31/00023

## SUMMARY

### Introduction and Scope

i. This report presents the results of an ecological survey and assessment carried out at the land east of Walmersley Road, Bury. The assessment was requested to inform an outline planning application proposing the development of the site to mixed use development.

ii. This report presents the results of a desktop study and data search, an extended Phase 1 Habitat Survey and assessment and the results of the survey and assessment for relevant protected species. The surveys were carried out by a licensed, qualified and experienced ecologist and are in accordance with recognised survey guidelines.

iii. The scope of survey undertaken is appropriate and proportionate to the conditions present and has facilitated the application of the mitigation hierarchy to inform the *Illustrative Masterplan* (The Urbanists, 2025). The collated baseline surveys have informed the scope of recommendations and actions to be accommodated by the site proposals to avoid significant effects on features of ecological value, minimise impacts where avoidance is not possible, and to secure maximised opportunities for biodiversity as part of the proposals.

### Results of Survey and Assessment

iv. The approximately 19.9 hectares site is located to the east of Walmersley Road in an area to the north of Bury. The site is bisected by Walmersley Brook which is bordered by scrub to the west and woodland to the east with deciduous woodland at the northern end and mixed, mainly coniferous woodland to the south. Land east of the brook on land sloping towards the M66 motorway is colonised by improved and semi-improved grassland with scattered individual trees and woodland fragments. Land west and north of the brook is colonised by dense stands of Reed Canary-grass and areas of neutral grassland which is understood to have colonised an inert landfill. Along the western site boundary with Walmersley Road is a narrow belt of woodland and roadside hedgerows. Towards the south-western corner of the site are the stone walls and former buildings associated with Gin Hall.

v. In consideration of the distances, and the absence of direct habitat and hydrological connectivity between the site and any statutory and non-statutory designated sites for nature conservation in the wider area, it is considered that the development proposals will have no direct or indirect effect on any designated sites for nature conservation or their features of special interest.

vi. No semi-natural habitats, irreplaceable habitats or Priority Habitat are present at the site. Other than the presence of Rhododendron shrubs in the woodland at the western site margin no other invasive plant species as listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were found.

vii. The mature and semi-mature trees and the woodland habitats are considered to be of 'local' importance as they create habitat connectivity with the wider tree and woodland network and support habitats of value to nesting birds and foraging birds and bats, and contribute to the habitat structural diversity at the site and local area. The *Proposed Site Layout* has been through a number of iterations to secure the conservation / retention of as many trees and area of woodland as possible. The retention of these habitats in conjunction with enhancement by appropriate management and habitat creation (refer to **Section 5.2**) and the buffering of the habitats with complementary habitats of scrub and grassland, particularly along the northern margin of the site, will avoid a significant impact of the proposals on the integrity and ecological function of the woodland, groups of trees and scrub.

viii. The Blackthorn and Bramble scrub habitats are assessed to be of 'site' value for the support of breeding birds and provision of habitat connectivity and retention of this habitat is proposed.

ix. The modified grassland, tall forbs and drain are not considered to hold any importance on a geographical scale and the development area is primarily focused at the modified grassland and tall forb habitats.

x. Habitats at the site margins and in the wider area are likely to be used by foraging bats. Inappropriate use of artificial lighting at the site may have an adverse effect on use of the local area by foraging bats and other wildlife. Guidance to avoid a significant impact on foraging bats and to conserve habitats for use by foraging bats is provided at **Section 5.2**. Nine trees scheduled to be removed and six trees advised for pruning are identified to have suitability for use by roosting bats (PRF-I) and an appropriate method statement is outlined in **Section 5.3**.

xi. Mandatory measures to be applied to ensure the protection of nesting birds during and prior to the site preparation works are described at **Section 5.3** and recommendations for the provision of nesting opportunities for conservation targets such as starling and house sparrow (Priority Species), swift and woodland birds are detailed in **Section 5.4**.

xii. The habitats at the site are suitable for use by badger and Priority Species such as brown hare, hedgehog and other wildlife. Best practice guidance for the protection of wildlife to be applied prior to and during site clearance and construction operations is described in **Section 5.3**.

xiii. Appropriate and proportionate survey effort and / or assessment, in accordance with standard survey guidelines has been applied to discount adverse effects on other relevant protected species. No further surveys for other protected species are necessary to inform a planning application.

**Recommendations and Conclusion**

xiv. It is concluded that development at the site in accordance with an appropriate site layout and landscape / habitat creation strategy that takes into account the ecological recommendations is feasible and acceptable in accordance with the identified ecological considerations and relevant planning policy.

xv. The mitigation hierarchy has been applied and, in the presence of mandatory actions and best practice measures described in **Section 5.0**, adverse effects on designated sites for nature conservation are reasonably discounted and appropriate mitigation / compensation to address identified impacts on ecologically valuable habitats (namely tree loss) and protected species are feasible and can be secured.

xvi. The report describes the appropriate and proportionate measures and recommendations that aim to enhance the value of the site for wildlife such as roosting bats, nesting birds and biodiversity. The recommendations comprise landscape planting, habitat creation and the application of positive habitat management in the long-term to achieve measurable gains for biodiversity and compliance with the NPPF, local planning policy and best practice.

## 1.0 INTRODUCTION

### 1.1 Background and Rationale

1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned by Hollins Strategic Land to carry out an ecological assessment of land east of Walmersley Road, Bury BL9 5LE (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SD 80563 14442. An aerial image of the site and its surrounding habitats is appended at **Figure 1** (source image: ESRI World Imagery).

1.1.2 The assessment was required to inform an outline planning application described as '*Outline planning application with all matters reserved other than access for mixed use development for up to 350 dwellings (Use Class C3), up to 2,500 sq mts employment/commercial uses (Use Classes E(c), E(d), E(e), E(f), E(g)(ii) and E(g)(iii)), a local centre comprising up to 249 sq mts of retail floorspace (Use Class E(a)), mobility hub, public open space and associated infrastructure.'*

### 1.2 Scope of Works

1.2.1 The scope of ecological works undertaken in 2025 and 2026 comprised:

a. A desktop study and data search for known ecological information at the site and the local area;

b. An Extended Phase 1 Habitat Survey and assessment, and assessment of the habitats present at the site using the UK Habitats Classification;

c. Assessment of the ecological value of the habitats within the site with the use of the National Vegetation Classification (NVC) and the Ratcliffe criteria, as presented in *A Nature Conservation Review* (Ratcliffe, 1977);

d. Survey and assessment of all habitats for relevant statutorily protected species[1] and other wildlife including badger (*Meles meles*), barn owl (*Tyto alba*), great crested newt (*Triturus cristatus*), water vole (*Arvicola amphibius*), otter (*Lutra lutra)*, bird species[2], and reptiles;

e. A daytime bat walkover survey, which has comprised an assessment of the suitability of the habitats within the site and the surrounding area for foraging and commuting bats, an assessment of the former Gin Hall structures and a ground level tree assessment of relevant trees;

f. The identification of any potential ecological constraints on the proposals and the specification of the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance; and

g. The identification of any further surveys or precautionary actions that may be required to inform the progression of the site through the planning process or prior to the commencement of site preparation and construction activities.

[1] In accordance with *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact on the Planning System* (Office of the Deputy Prime Minister, 2005) developers should not be required to undertake surveys for protected species unless there is reasonable likelihood of the species being present and affected by the development.

[2] A separate *Results of Breeding Bird Surveys 2025* (ERAP (Consultant Ecologists) Ltd, 2026) has been prepared to present the results of breeding bird surveys. This report should be read in conjunction with the *Results of Breeding Bird Surveys 2025* report.

## 2.0 METHOD OF SURVEY

### 2.1 Desktop Study, Data Search and Pre-application Site Meeting

**Desktop Study and Data Search**

2.1.1 The following sources of information and ecological records were consulted:

a. MAGiC Maps: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites;

b. Ancient Tree Inventory (Woodland Trust, 2026): An online database of ancient and veteran trees;

c. Greater Manchester Nature Network (Local Nature Recovery Strategy (LNRS) which is now published);

d. Greater Manchester Local Record Centre (GMLRC);

e. Greater Manchester Biodiversity Action Plan (BAP; and

f. Bury Council Online Maps were consulted to check for Tree Preservation Orders (TPO).

**Other Resources**

2.1.2 An *Ecological Synopsis* prepared for the site in July 2020 by ERAP (Consultant Ecologists) Ltd was consulted for background information.

2.1.3 The *Arboricultural Report to BS5837: 2012 at Land east of Walmersley Road, Bury BL9 6RX* (AWA Tree Consultants, 2026), hereafter referred to as the 'tree report', was also consulted.

**Pre-application Site Meeting**

2.1.4 A pre-application site meeting was held on site on 11th August 2025 with a planning officer from Bury Council and a representative from the Greater Manchester Ecology Unit (GMEU). The main focus of the discussion was the scope of ecological survey required to inform a planning application.

### 2.2 Survey Dates, Surveyor and Conditions

2.2.1 The site was surveyed by Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM (FISC Level 4) on the following dates:

- 11th August 2025: Weather conditions were dry and sunny with a light air (Beaufort scale 1) and an air temperature of 25°C.
- 1st October 2025: Weather conditions were dry with sunny intervals with a light air (Beaufort scale 1) and an air temperature of 16°C.
- 15th March 2026: Dry with sunny intervals with a light air (Beaufort scale 1) and an air temperature of 9°C.
- 26th March 2026: Dry and sunny with a light air (Beaufort scale 1) and an air temperature of 8°C.

## 2.3 Vegetation and Habitats

2.3.1 A Phase 1 Habitat Survey map was prepared for the site and the immediate surrounding area and is appended at **Figure 2**. The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.

2.3.2 On site habitat mapping was assisted via use of GPS technology, using ERSI world imagery and a site topographical plan as a baseplan.

2.3.3 The plant species within the site boundary were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR system, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.

2.3.4 Stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and is a reliable framework for nature conservation and land-use planning.

2.3.5 Habitats within the site were assessed in accordance with *The UK Habitat Classification Version 2.0* (UKHab Ltd, 2023). The UK Habitat Classification, or 'UKHab' has been designed to function at two scales of minimum mappable unit (MMU): fine scale (25m$^2$ or 5 metres length) and large scale (400m$^2$ or 20 metres length). It has been considered for the purposes of this survey that the fine scale of 25m$^2$ or 5 metres length MMU is appropriate.

2.3.6 Hedgerows were assessed in accordance with *The Hedgerows Regulations 1997* wildlife and landscape criteria (H.M.S.O., 1997).

2.3.7 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3rd Edition* (Stace, 2010).

2.3.8 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

## 2.4 Relevant Protected Species and Other Animal Life

### Badger

2.4.1 The survey area for badger covered the site (as annotated on **Figure 1**) and extended to accessible land within a radius of 50 metres from the site boundary. Private gardens / land beyond the site boundary and the vegetation beyond the fenceline at the boundary with the M66 motorway and the M66 slip road were not directly accessed; these areas were viewed from the site and the site boundaries were searched for tracks and gaps beneath the fencelines.

2.4.2 The survey was conducted in accordance with guidance presented within *Badgers and Development* (Natural England, 2007) and Badgers*: advice for making planning decisions* (Natural England, 2022).

2.4.3 The following signs of badger activity were searched for:

a. Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;
b. Large spoil heaps outside sett entrances;
c. Bedding outside sett entrances;
d. Badger footprints;
e. Badger paths;
f. Latrines;
g. Badger hairs on fences or bushes;
h. Scratching posts; and
i. Signs of digging for food.

2.4.4 Habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering badger in accordance with their known habitat preferences as detailed in current guidance and *Badger* (Roper, 2010).

**Daytime Bat Walkover Survey**

***Survey Personnel***

2.4.5 The site was assessed for its suitability to support roosting bats by Victoria Burrows, Natural England Class Survey Licence WML CL18 (Bat Survey Level 2), Registration Number 2015-10390-CLS-CLS / 2025-84635-CL18-BAT. The surveyor's qualifications and experience meet the criteria as defined in *Technical Guidance Series Competencies for Species Survey: Bats* (CIEEM, 2013).

***Habitat Assessment for Commuting / Foraging Bats***

2.4.6 Habitats within and adjacent to the site were assessed for their value and suitability for commuting and foraging bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)* (Collins, J. (ed), 2023). Reference has been made to the categories, descriptions and examples presented in **Table 2.1**.

**Table 2.1: Consideration of Suitability of Foraging and Commuting Habitat for Bats**

| Suitability | Potential Flight Paths and Foraging Habitats |
|---|---|
| None | No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade / protection for flight-lines, or generate/shelter insect populations available to foraging bats). |
| Negligible [a] | No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour. |
| Low | Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.<br>Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub. |
| Moderate | Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. |

| Suitability | Potential Flight Paths and Foraging Habitats |
|---|---|
| | Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water. |
| High | Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge.<br>High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland.<br>Site is close to and connected to known roosts. |
| [a] Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute). | |

***Buildings / Structures***

2.4.7 The remnant stone walls and structures of Gin Hall located at the western margin of the site were examined and assessed for their suitability for use by roosting bats.

2.4.8 The culverts / pipes that carry Walmersley Brook through the site were assessed for their suitability for use by roosting bats.

2.4.9 The suitability of the structures reference above and annotated on **Figure 2**, for use by roosting bats has been assessed in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)* (Collins, J. (ed), 2023), taking into account any presence of gaps suitable for access by bats, features suitable for use by roosting bats within the structures (including crevice dwelling species and species which can roost in the open in roof voids), and the suitability of the surrounding habitats for use by foraging and commuting bats. The suitability of each structure for use by roosting bats has been informed by the categories as presented in **Table 2.2**.

**Table 2.2: Suitability Categories for Roosting Habitats in Buildings (adapted to be applied to structures at the site)**

| Suitability | Description |
|---|---|
| None | No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices / suitable shelter at all ground / underground levels). |
| Negligible[a] | No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion. |
| Low | A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[b] and / or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats[c]). |
| Moderate | A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions[b] and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed). |
| High | A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions[b] and surrounding habitat. These structures have the |

| Suitability | Description |
|---|---|
| | potential to support high conservation status roosts, e.g. maternity or classic cool / stable hibernation site. |

[a]Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).
[b]For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.
[c]Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al*., 2016 and Jansen *et al*., 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.

***Ground Level Tree Assessment***

2.4.10 A ground level tree assessment (GLTA) within the site was conducted at the 14 trees identified in the tree report to be unsuitable for retention (i.e. Retention Category 'U'), those trees considered to be within the developable area as indicated on the *Illustrative Masterplan* (The Urbanists, 2025)[3] and all individual trees. The objective of the GLTA was to assess their suitability for use by roosting bats, and to inform whether further surveys or precautionary measures were required. Trees within the woodlands to be retained were not individually assessed, although incidental observations of trees with suitability for use by roosting bats were recorded and are described in **Section 3.3** and annotated on **Figure 2**.

2.4.11 Trees were assessed from the ground using binoculars and a high-powered torch. Each tree was searched for the presence of the following features:

*Woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed platey bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy (Hedera helix) with stem diameters in excess of 50mm and bat, bird or dormouse (Muscardinus avellanarius) boxes.*

2.4.12 Terms used to describe any features present follow (where possible) those outlined and described in *Bat Tree Habitat Key, 2nd Edition* (Andrews, H (ed), 2013) and *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-care and Ecology Professionals* (BTHK, 2018).

2.4.13 The surveyed trees have been assessed and described using the categories presented at Tables 4.2 and 6.2 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn),* (Collins, J. (ed), 2023), as presented in **Table 2.3**.

[3] It is recognised that once the site proposals are prepared in detail an *Arboricultural Impact Assessment* report will be prepared which will advise on whether any further trees are scheduled for removal. At this point further / updated survey and assessment in relation to suitability for use by roosting bats will be required (refer to **Section 5.2**).

**Table 2.3: Definition of Terms and Suitability Categories Used in Tree Survey for Roosting Bats**

| Terms and Suitability Categories | Description |
|---|---|
| PRF | Potential Roost Feature. |
| None | Either no PRFs in the tree(s) or highly unlikely to be any. |
| FAR | Further Assessment Required to establish if PRFs are present in the tree. |
| PRF-I | PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats. |
| PRF-M | PRF is suitable for multiple bats and may therefore be used by a maternity colony. |

***Equipment***

2.4.14 A list of equipment used is detailed in **Table 2.4**.

**Table 2.4: Survey Equipment used during Daytime Bat Survey**

| |
|---|
| Ladders |
| LED Lenser P14 torch |
| Canon Ixus digital camera |
| 8x20 binoculars |
| Ridgid Micro Inspection Camera Borescope CA-300 |

**Bird Species**

2.4.15 The site was assessed for its suitability and value for the support of breeding and wintering bird species.

2.4.16 Incidental bird species observed and heard during the site visits were recorded.

***Breeding Bird Surveys***

2.4.17 Breeding bird surveys were carried out at the site and local area in 2025. The survey methods applied are described in *Results of Breeding Bird Surveys 2025* (ERAP (Consultant Ecologists) Ltd, 2026).

2.4.18 Habitats throughout the site and in the immediate surrounding area were assessed for their value to roosting, feeding and nesting birds, including Priority Species.

**Great Crested Newt and Other Amphibian Species**

***Desktop Search for Ponds***

2.4.19 In accordance with *Great crested newts: advice for making planning decisions* (Natural England, 2022) all ponds within an unobstructed 500 metres of a site should be considered for their suitability to support breeding great crested newts. Common toad is a Priority Species and presence of this species is capable of being a material consideration in relation to a planning application.

2.4.20 There are no ponds within the site boundary. Consultation of MAGiC Maps indicates that there are no ponds within an unobstructed 500 metres radius of the site boundary. At this stage there is no requirement to survey for great crested newt or other amphibian species. It is recognised that species such as common toad can travel a fair distance from their breeding pond and it is considered that the reasonable avoidance measures described later in this report are appropriate and proportionate to the likelihood of presence and any impact.

**Reptile Species**

2.4.21 The site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document *Reptile Mitigation Guidelines* (Natural England, 2011), and the *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined in **Table 2.5**.

**Table 2.5: Important Habitat Characteristics for Reptiles**

| | |
|---|---|
| 1. Location (in relation to species range) | 7. Connectivity to nearby good quality habitat |
| 2. Vegetation Structure | 8. Prey abundance |
| 3. Insolation | 9. Refuge opportunity |
| 4. Aspect | 10. Hibernation habitat potential |
| 5. Topography | 11. Disturbance regime |
| 6. Surface geology | 12. Egg-laying site potential |

**Water Vole and Otter**

2.4.22 Walmersley Brook and an artificially lined conduit lie within the site boundary. The main channel of Walmersley Brook within and downstream of the site reaches a total length of 951 metres from between where it emerges beneath the M66 to the culvert a Hartley Gardens to the south. This whole length plus a 95 metre long open channel section from between a pipe a the M66 to the eastern bank of Walmersley Brook was surveyed. The former stone / artificially lined conduit in the south-eastern corner of the site (refer to **Photo 47**) is no longer an open channel watercourse and no further survey was carried out.

2.4.23 The following methods were applied on 11th August and 1st October 2025:

a. The survey methods detailed in *Water Vole Field Signs and Habitat Assessment: A Practical Guide to Water Vole Surveys* (Dean, 2021) and *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series) Eds. Fiona Mathews and Paul Chanin* (Dean, et al., 2016) were applied. The brook, conduit and their associated banks were searched for burrows, latrines, feeding remains, runs, feeding lawns, nests and footprints;

b. The suitability of the surveyed watercourses for water vole has been assessed using Table 2.1 of *Water Vole Field Signs and Habitat Assessment: A Practical Guide to Water Vole Surveys* (Dean, 2021), as reproduced in **Section 8.5**, appended; and

c. The otter survey was undertaken in accordance with the guidance outlined in *Ecology of the European Otter. Conserving Natura 2000 Rivers, Ecology Series 10* (Chanin, 2003) and searches were made for signs of otter in accordance with *Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No 10* (Chanin, 2003) and *Otters: advice for making planning decisions* (Natural England, 2022). The brook and conduit were searched for dung (spraints), tracks (footprints), feeding remains, otter slides (into water), holts (underground dens) and couches (above ground sites where otters rest during the day).

**Other Wildlife**

2.4.24 Evidence of other wildlife, including Priority Species, observed whilst on site, but for which specific surveys were not made, was recorded and has been included in this report where it is considered of relevance to the planning application.

2.4.25 Habitats have been assessed for their suitability for Priority Species identified in the data search results where this is considered relevant to the application.

## 2.5 Survey and Reporting Limitations

2.5.1 The surveys were carried out in late summer and early spring when some plant species may be dying back or dormant; the surveyor is experienced in identifying plant species from their vegetative characteristics however, and a reliable assessment of the habitats present was possible. Where it is considered that a survey at these times of year is not within the optimum time for the maximum detection of plant species and characterisation of the habitat (particularly in consideration of the collation of baseline data to inform the separate Assessment of Biodiversity Net Gain) this is discussed in **Section 4.3** and recommendations are made in **Section 5.2**.

2.5.2 The surveys of the remnants of Gin Hall were completed outside the bat active season, when any field signs of bats may have weathered from unprotected / unsheltered external elevations of the buildings. Daytime bat inspections can be completed at any time of year and, if needed, to comply with the guidance as outlined in *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)* (Collins, J. (ed), 2023), further presence / absence surveys are recommended.

2.5.3 No other limitations on the intended scope of survey were experienced.

2.5.4 All measurements within this report are approximate only, and have been either estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC Maps and Google Earth.

## 2.6 Evaluation Methods

2.6.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977) and *Guidelines for the Selection of Biological SSSIs* (Bainbridge, et al., 2013). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.

2.6.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority* Habitat *Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities* (NERC) *Act 2006*. Where suitable, the ecological value of the habitats present has been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018). Each habitat and individual trees have been assessed to determine whether they are 'irreplaceable habitat', defined in *National Planning Policy Framework* (Ministry of Housing, Communities & Local Government, 2024)[4] as '*Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen'*. The further detail presented in *The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024* (GOV.UK, 2024) has also been referred to.

[4]Hereafter the NPPF

2.6.3 Government advice on wildlife, as set out in the NPPF and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and 8 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019*, is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.

2.6.4 The presence of any Priority Species, as listed under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of habitats and / or species listed by the Greater Manchester Biodiversity Action Plan and *2025 Great Britain Red List for Vascular Plants* (Stroh, P. et al., 2025) has been taken into account in the evaluation of the site.

## 3.0 SURVEY RESULTS

### 3.1 Desktop Study and Data Search

**Statutory Designated Sites for Nature Conservation and SSSI Impact Risk Zones**

3.1.1 The site and adjoining land have no non statutory designation for nature conservation.

3.1.2 The site lies within a Site of Special Scientific Interest (SSSI) Impact Risk Zone for the West Pennine Moors SSSI located 2.8 kilometres to the north-west of the site and the Lower Red Lees Pasture located 3.2 kilometres to the north. The site is located 2.6 kilometres to the east of Redisher Wood Local Nature Reserve (LNR).

3.1.3 The SSSI Impact Risk Zone requires the Local Planning Authority to consult with Natural England on likely risks from the following development categories (Natural England, 2026):

**Infrastructure:** Airports, helipads and other aviation proposals.

**Air Pollution:** Livestock and poultry units with a floorspace greater than 500m², slurry lagoons greater than 750m² and manure stores greater than 3500 tonnes.

**Combustion:** General combustion processes greater than 50MW energy input. Including: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis / gasification, anaerobic digestion, sewage treatment works, other incineration / combustion.

3.1.4 The development proposals do not meet any of these development categories.

**Non-statutory Designated Sites for Nature Conservation**

3.1.5 The site and adjoining land have no non-statutory designated site for nature conservation, called 'Sites of Biological Importance' or 'SBIs' in Greater Manchester. Seven SBIs are located within a 2 kilometres radius from the centre of the site and are summarised in **Table 3.1**.

**Table 3.1: SBI Within a 2 Kilometres Radius from the Centre of the Site**

| SBI Name | Distance and Direction from the Site |
|---|---|
| Whitewall Wood (formerly known as Baldingstone SBI) | 0.65 kilometres east |
| Gollinrod Wood | 1 kilometre north-west |
| Gorses Quarry | 1.23 kilometres south-east |
| Flushes at Springside | 1.5 kilometres south-west |
| Castlesteads Wood | 1.3 kilometres south-west |
| Broadhey Wood and Woodhey | 1.9 kilometres north-west |
| Nuttall Farm Pasture | 1.85 kilometres north-west |

3.1.6 The nearest SBI (Whitewall Wood) is designated for the presence of a wooded clough with ancient woodland and fishing ponds, supporting common toad (a Priority Species).

3.1.7 The presence of the SBI is considered further at **Section 4.2**.

**Local Nature Recovery Strategy**

3.1.8 The site and adjoining land do not support any Core Local Nature Sites as identified on the Greater Manchester Nature Network. Habitats annotated on the Nature Network as 'g4 modified grassland' and 'w1h mixed woodland mainly conifer' opportunity areas are identified at the site. The LNRS describes the following actions:

- **Grassland, farmland and lowland heath:** Enhance and appropriately manage remaining semi-natural grasslands and heath to good condition, including increasing species richness.
- **Grassland, farmland and lowland heath:** Creation or restoration of species-rich grasslands and lowland heath, particularly where they will expand or act as stepping stones or corridor.
- **Grassland, farmland and lowland heath:** Enhance and manage improved or semi-improved grasslands to boost species richness.
- **Rivers, canals and waterbodies:** Enhance and maintain existing habitats within our waterbodies and adjacent grassland, wetland and woodland habitats to increase species richness.
- **Rivers, canals and waterbodies:** Expansion, creation or restoration of a variety of waterside habitats, including woodlands, wetlands and meadows, where they will better connect existing habitats.
- **Upland moorlands:** Create transitional habitats or corridors to increase linkage between our uplands and lowland habitats, where conditions allow.

**Main River Designation**

3.1.9 In accordance with *Main River Map* (Environment Agency, 2026) there are no main rivers located within or adjacent to the site.

**Priority Habitats Inventory**

3.1.10 The Priority Habitats Inventory[5] was checked via MAGiC Maps. The following potential Priority Habitats are identified at the site:

[5] A spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act

- 0.3 hectares (ha) of good quality semi-improved grassland at the northern margin of the site (along the boundary with the M66 slip road);
- 0.15 ha of good quality semi-improved grassland in a block at the eastern site boundary; and
- 1.49 ha of deciduous woodland in the northern portion of the wooded area at the site.

3.1.11 No other Priority Habitats are identified at the site by the inventory.

**Ancient Tree Inventory and Tree Preservation Orders**

3.1.12 No ancient or veteran trees are identified at the site by the inventory.

3.1.13 As confirmed by Bury Council's Online Maps and reported in the tree report a number of individual trees and groups of trees within the area of the site to the east of Walmersley Brook have a TPO.

**Protected and Notable Species**

3.1.14 Report records of protected and notable species for a 2 kilometres radius from the centre of the site are summarised in **Table 3.2**.

**Table 3.2: Records of Protected Species Within a 2 Kilometres Radius from the Centre of the Site**

| Taxon Group | Species Name and Designations[1] and Notes |
|---|---|
| **Amphibians** | Great crested newt (*Triturus cristatus*): EPS, WCAs5, PS and GMBAP. 10 records, dated between 1995 and 2013. The closest record is 1050 metres to the south-east of the site, and from 2004. |
| | Common toad (*Bufo bufo*): PS. 9 records, dated between 2010 and 2024. The closest record is 840 metres to the north-west of the site, and from 2021. |
| **Birds – WCAs1 Species** | Kingfisher (*Alcedo atthis*): WCAs1. 21 records, dated between 1998 and 2024. The closest record is 905 metres to the south-west of the site, and from 2020. |
| | Peregrine (*Falco peregrinus*): WCAs1. 1 record from 2009, located 765 metres to the west of the site. |
| **Birds – Priority Species** | **PS Only:** Bullfinch (*Pyrrhula pyrrhula*), curlew (*Numenius arquata*), dunnock (*Prunella modularis*), herring gull (*Larus argentatus*), house sparrow (*Passer domesticus*), lapwing (*Vanellus vanellus*), lesser redpoll (*Carduelis cabaret*), linnet (*Linaria cannabina*), reed bunting (*Emberiza schoeniclus*), skylark (*Alauda arvensis*), song thrush (*Turdus philomelos*), starling (*Sturnus vulgaris*), tree sparrow (*Passer montanus*) and wood warbler (*Phylloscopus sibilatrix*). |
| **Bony Fish** | Brown trout (*Salmo trutta*): PS. 3 records, dated between 2013 and 2015. The closest record is 1235 metres to the west of the site, and from 2013. |
| **Terrestrial Invertebrates** | Cinnabar (*Tyria jacobaeae*): PS. 1 record from 2023, located 1315 metres to the north-east of the site. |
| | Small heath (*Coenonympha pamphilus*): PS. 2 records, dated 2022 and 2023. The closest record is 1315 metres to the north-east of the site, and from 2023. |
| | Wall (*Lasiommata megera*): PS. 37 records, dated between 2017 and 2022. The closest record is 485 metres to the north of the site, and from 2017. |
| | White-letter hairstreak (*Satyrium w-album*): PS. 3 records, dated between 2018 and 2022. The closest record is 1025 metres to the west of the site, and from 2022. |

(2006) Section 41 habitats of principal importance.

| Taxon Group | Species Name and Designations[1] and Notes |
|---|---|
| **Terrestrial Mammals** | Badger (*Mele meles*): PBA92. 4 records of setts (further information is not disclosed here) and 4 records of field signs including one report of a dead badger on the M66 slip road north of the site form 2004. |
| | Soprano pipistrelle (*Pipistrellus pygmaeus*): EPS, WCAs5, PS and GMBAP. 16 records, dated between 2003 and 2024. The closest record is 285 metres to the south-east of the site, and from 2020. |
| | Brown long-eared bat (*Plecotus auritus*): EPS, WCAs5, PS and GMBAP. 1 record from 2020, located 1680 metres to the south of the site. |
| | Noctule bat (*Nyctalus noctula*): EPS, WCAs5, PS and GMBAP. 2 records, dated 2019 and 2020. The closest record is 285 metres to the south-east of the site, and from 2020. |
| | Whiskered / Brandt's bat (*Myotis mystacinus/brandtii*): EPS, WCAs5 and GMBAP. 4 records, dated between 2012 and 2021. The closest record is 895 metres to the west of the site, and from 2012. |
| | Whiskered bat (*Myotis mystacinus*): EPS, WCAs5 and GMBAP. 3 records, dated between 2010 and 2017. The closest record is 995 metres to the south-west of the site, and from 2017. |
| | Common pipistrelle (*Pipistrellus pipistrellus*): EPS, WCAs5 and GMBAP. 193 records, dated between 1995 and 2024. The closest record is 0 metres to the south-east of the site, and from 2016. |
| | Pipistrelle species (*Pipistrellus* sp.): EPS, WCAs5 and GMBAP. 54 records, dated between 1995 and 2019. The closest record is 75 metres to the west of the site, and from 2000. |
| | Daubenton's bat (*Myotis daubentonii*): EPS, WCAs5 and GMBAP. 54 records, dated between 1995 and 2023. The closest record is 885 metres to the west of the site, and from 2022. |
| | Bat species (Order *Chiroptera*): EPS, WCAs5 and GMBAP. 7 records, dated between 2000 and 2022. The closest record is 570 metres to the south of the site, and from 2000. |
| | Otter (*Lutra lutra*): EPS, WCAs5 and PS. 6 records, dated between 2001 and 2023. The closest record is 935 metres to the north-west of the site, and from 2023. |
| | Water vole (*Arvicola amphibius*): WCAs5 and PS. 1 record from 1999, located 1625 metres to the south-west of the site. |
| | Brown hare (*Lepus europaeus*): PS and GMBAP. 1 record from 2012, located 1485 metres to the south-west of the site. |
| | Hedgehog (*Erinaceus europaeus*): PS. 27 records, dated between 2015 and 2023. The closest record is 15 metres to the north-east of the site, and from 2023. |

**[1]Key to Designation Codes:**
EPS = European Protected Species under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.
WCAs1 = Species receives full protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
WCAs5 = Species receives full protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).
PBA92: Protection of Badgers Act 1992.
PS = Priority Species listed under Section 41 of the NERC Act 2006.
GMBAP = Species listed on the Greater Manchester Biodiversity Action Plan.

3.1.15 The presence of these protected and notable species within the wider area has been taken into account throughout this report.

## 3.2 Vegetation and Habitats

### General Description

3.2.1 The approximately 19.9 hectares site is located to the east of Walmersley Road in an area to the north of Bury. The site is bisected by Walmersley Brook which is bordered by scrub to the west and woodland to the east with deciduous woodland at the northern end and mixed, mainly coniferous woodland to the

south. Land east of the brook on land sloping towards the M66 motorway is colonised by improved and semi-improved grassland with scattered individual trees and woodland fragments. Land west and north of the brook is colonised by dense stands of Reed Canary-grass and areas of neutral grassland which is understood to have colonised an inert landfill. Along the western site boundary with Walmersley Road is a narrow belt of woodland and roadside hedgerows. Towards the south-western corner of the site are the stone walls and former buildings associated with Gin Hall.

3.2.2 The northern site boundary meets the M66 motorway slip road. Walmersley Road marks the western site boundary, the covered reservoir at Carr Bank is present to the south and the M66 motorway and existing properties and residential gardens associated with Baldingstone House are present to the east. The infilled former reservoir at Carr Bank lies to the south of the site.

3.2.3 A Phase 1 Habitat Survey is appended at **Figure 2**. Photographs are appended in **Section 8.1**.

**Broad-leaved Woodland (Woodland 1)**

3.2.4 Refer to **Photos 1** and **2**. North of the Public Right of Way (PRoW) crossing over Walmersley Brook is a belt (approximately 65 metres wide) of mature and semi-mature broad-leaved woodland. The woodland extends along a narrow and steep sided tributary of the Brook which extends westwards from beneath the M66 and meets Walmersley Brook in the woodland.

3.2.5 The closed woodland canopy is characterised by constant and abundant Pedunculate Oak (*Quercus robur*) with Alder (*Alnus glutinosa*), Goat Willow (*Salix caprea*), Grey Willow (*Salix cinerea*), Ash (*Fraxinus excelsior*), Horse-chestnut (*Aesculus hippocastanum*), Poplar species (*Populus* sp.) and Silver Birch (*Betula pendula*).

3.2.6 The varied shrub layer supports locally abundant Holly (*Ilex aquifolium*), particularly in the areas fenced off to grazing livestock, and frequent Hawthorn (*Crataegus monogyna*) and Hazel (*Corylus avellana*) with occasional Rowan (*Sorbus aucuparia*).

3.2.7 The herb layer is characterised by constant and abundant Bramble (*Rubus fruticosus* agg.) with woodland herbs such as frequent Herb-Robert (*Geranium robertianum*), occasional Broad Buckler-fern (*Dryopteris dilatata*) and Male-fern (*Dryopteris filix-mas*), locally abundant Bluebell (*Hyacinthoides non-scripta*), locally frequent Remote Sedge (*Carex remota*) and Wood Avens (*Geum urbanum*). Wood Sorrel (*Oxalis acetosella*) and Enchanter's Nightshade (*Circaea lutetiana*) are also well represented. Recorded grass species in the herb layer are Creeping Soft-grass (*Holcus mollis*) and Tufted Hair-grass (*Deschampsia cespitosa*).

3.2.8 Standing and fallen dead wood is present, much of which is colonised by a diversity of fungi species.

3.2.9 An area of the northern portion of the woodland (Woodland 1b (**Photo 3**)) is accessed by cattle and the herb layer is grazed and poached. Evidence of deer browsing is also present.

3.2.10 Japanese Knotweed and Indian Balsam which are both invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) are present.

3.2.11 The woodland has affinities with the W10 *Quercus robur – Pteridium aquilinum – Rubus fruticosus* community of the NVC (Rodwell, 1991) and is considered to be representative of Lowland Mixed Deciduous Woodland Priority Habitat, although it is degraded in areas due to the presence of grazing by livestock and the abundance of invasive plant species namely Indian Balsam.

3.2.12 A plant species list for the woodland is appended at **Table 8.2**. The woodland is described by the UKHab as w1f lowland mixed deciduous woodland with the secondary codes 524 invasive non-native species and 100 grazed (in parts).

**Mixed Broad-leaved and Coniferous Woodland (Woodland 2)**

3.2.13 Refer to **Photos 4** and **5**. The southern section of the woodland clough along Walmersley Brook is characterised by a greater cover of coniferous Pine (*Pinus sylvestris*) trees with frequent Pedunculate Oak, Beech (*Fagus sylvatica*), Ash and Lime (*Tilia* sp.).

3.2.14 The absence of livestock access and grazing in this area has permitted a greater cover of constant and abundant Holly which has become dense in places to create a closed shrub layer. Other woody species in the shrub layer comprise locally abundant Hazel and rare Rhododendron (*Rhododendron ponticum*, Flowering Currant (*Ribes sanguineum*) and occasional Elder (*Sambucus nigra*).

3.2.15 Indian Balsam and Bramble are constant and abundant and Tufted Hair-grass is constant and frequent in the herb layer. As recorded in the broad-leaved woodland to the north (described above) woodland herbs are well-represented with locally abundant Common Bistort (*Bistorta officinalis*), frequent Bluebell, very locally frequent Herb-Robert, very locally abundant Pignut (*Conopodium majus*), occasional Male-fern, Wood Avens, Broad Buckler-fern and rare Hart's Tongue-fern (*Asplenium scolopendrium*). A 'good' moss species diversity was noted and bracket fungus species and Scarlet Elf-cup fungus (*Sarcoscypha coccinea*) were noted.

3.2.16 Local areas of more waterlogged soil conditions near the brook and where the brook has multi-channels support a higher cover of fern species such as Hart's Tongue-fern and local areas of Pendulous Sedge (*Carex pendula*) and Yellow Iris (*Iris pseudoplatanus*). A number of standing dead trees are present in these lowest lying areas.

3.2.17 Towards the eastern margin of the woodland the Pine trees have a lower cover in the canopy and the woodland margin supports Lime and Ash trees. This is the only area of the woodland where Pignut was recorded in the herb layer. For the purposes of assessment this belt of woodland along the eastern margin is classed as the same as Woodland 1.

3.2.18 A plant species list for the woodland is appended at **Table 8.3**. The woodland is described by the UKHab as w1h6 other woodland mixed – mainly conifer with the secondary code 524 invasive non-native species.

**Woodland Along Western Site Margin (Woodland 3)**

3.2.19 Refer to **Photo 6**. Along the western site boundary and parallel to Walmersley Road is an approximately 20 metres wide linear belt of woodland characterised by a closed canopy of young to semi-mature trees of abundant Horse-chestnut with frequent Ash, Sycamore (*Acer pseudoplatanus*) and Pedunculate Oak. Goat Willow is frequent / locally abundant with occasional Beech, and locally frequent Silver Birch.

3.2.20 A very open shrub layer of locally abundant Hawthorn, occasional Holly and rare Hazel, Elder, Rhododendron and Cherry (*Prunus* sp.) species are present.

3.2.21 Bramble is constant and frequent throughout the whole woodland. Areas of the woodland understory where the ground is seasonally waterlogged / inundated, particularly at the northern end, support locally abundant Pendulous Sedge with occasional Tufted Hair-grass and Soft-rush (*Juncus effusus*) and very locally abundant Reed Canary-grass (*Phalaris arundinacea*) and Creeping Jenny (*Lysimachia nummularia*).

3.2.22 The herb layer to the south of the PRoW supports areas of drier ground with a greater cover of Bluebell and Ivy (*Hedera helix*). Invasive plant species of Rhododendron, Himalayan Cotoneaster (*Cotoneaster simonsii*), Montbretia (*Crocosmia crocosmiiflora*), Japanese Knotweed and Indian Balsam were recorded.

3.2.23 A plant species list is appended at **Table 8.4**. The woodland is described by the UKHab as w1h5 other woodland mixed – mainly broadleaved with the secondary code 524 invasive non-native species.

**Off-site Grassed Verge with Planted Trees Along Walmersley Road**

3.2.24 Refer to **Photo 7** and **8**. Between the wooded belt and Walmersley Road is an off-site wide mown grass verge of constant and abundant Perennial Rye-grass (*Lolium perenne*) and Dandelion (*Taraxacum officinale* agg.), frequent Creeping Buttercup (*Ranunculus repens*), Red Fescue (*Festuca rubra*), White Clover (*Trifolium repens*), Rough Meadow-grass (*Poa trivialis*) and occasional Cock's-foot (*Dactylis glomerata*), Common Ragwort (*Senecio jacobaea*) and Daisy (*Bellis perennis*) with planted semi-mature Lime and Plane (*Platanus* sp.) trees. The grassland is indicative of the OV23 *Lolium perenne - Dactylis glomerata* community of the NVC (Rodwell, 2000) and is described by the UKHab as g4 modified grassland with the secondary codes 107 mown and collected and 200 tree.

**Woodland Fragments Near M66 and Baldingstone House (Woodlands 4 to 6)**

3.2.25 Towards the eastern margin of the site the scattered trees have a closed canopy. These cluster of trees cover an area greater than 0.05ha and support woodland herbs (in contrast to the surrounding field of improved grassland). For these reasons and for the purposes of the *Assessment of Biodiversity Net Gain* these areas are assessed as woodland habitat.

***Woodland 4: Woodland Fragment Near Base Station***

3.2.26 Refer to **Photo 9**. The woodland fragment around the base station supports a canopy of abundant even-aged Oak trees, locally abundant Ash, frequent Goat Willow and rare Silver Birch. The shrub layer is open (presumably due to the access by grazing livestock) although locally frequent Holly and Hawthorn are present, particularly on piles on stone rubble which may be less accessible to cattle. The herb layer is grazed and characterised by frequent Perennial Rye-grass, Yorkshire-fog (*Holcus lanatus*), locally abundant Bluebell, very locally abundant Common Nettle and occasional Soft-rush, Tufted Hair-grass and Bramble.

3.2.27 The woodland is described by the UKHab as w1g other broadleaved woodland mixed with the secondary code 100 grazed.

***Woodland 5 and 6: Woodlands Bordering Baldingstone House***

3.2.28 Refer to **Photo 10**. Trees that lie within the site boundary and around the margins of Baldingstone House comprise Oak, Ash, Beech, Cherry, Maple and Silver Birch with a shrub layer of Holly and Hawthorn. The herb layer has been modified by gardening activities and, particularly to the east of Baldingstone House along the PRoW deposited manure has resulted in a herb layer colonised by tall-herbs and species indicative of a soil with a higher nutrient content such as Common Nettle, Cleavers, Broad-leaved Dock, Bramble and Indian Balsam.

3.2.29 The woodland is described by the UKHab as w1g other broadleaved woodland mixed with the secondary code 16 tall herb and 524 invasive non-native species.

**Mixed Scrub**

3.2.30 Refer to **Photo 11**. Along the eastern bank of Walmersley Brook on steeply sloping land leading from the brook to the higher ground and infilled former reservoir is a belt of planted mixed scrub. The dense scrub is characterised by constant and abundant Hawthorn, frequent Silver Birch, Goat Willow, Grey Willow and Hazel and occasional Broom (*Cytisus scoparius*) and Guelder Rose (*Viburnum opulus*).

3.2.31 The herb layer is shaded and supports a high cover of bare ground with constant and frequent Tufted Hair-grass and frequent / locally abundant Indian Balsam. Woodland herbs are limited to occasional Herb-Robert. Japanese Knotweed is present.

3.2.32 The planted mixed scrub forms a buffer to the Brook and the established woodland. A plant species list is appended at **Table 8.5**. Due to its planted origin the scrub has no affinities with an NVC community and is described by the UKHab as h3h mixed scrub.

**Unmanaged Neutral Grasslands**

***Other Neutral Grassland 1: Reed Canary-grass Grassland***

3.2.33 Refer to **Photo 12**. The areas of former landfill between the woodland along Walmersley Brook and Walmersley Road are colonised by dense stands of Reed Canary-grass dominated grassland with scattered plants of occasional Teasel (*Dipsacus fullonum*), Creeping Thistle (*Cirsium arvense*), Common Figwort (*Scrophularia nodosa*) and Goat Willow shrubs and very locally abundant Common Nettle (*Urtica dioica*), Great Willowherb (*Epilobium hirsutum*) and Soft-rush. Indian Balsam plants are present throughout the Reed Canary-grassland, particularly towards the margins.

3.2.34 The stands of Reed Canary-grass are described by the NVC (Rodwell, 1995) as the S28 *Phalaris arundinacea* community.

3.2.35 The stands of Reed-Canary grass are described by the UKHab as g3c other neutral grassland with the secondary codes 10 scattered scrub, 14 scattered rushes and 521 unmanaged.

3.2.36 **Note:** The dense Reed Canary-grass has colonised the former landfill where it is likely that there is a compacted cap of subsoil which has created poor drainage and perched surface water. The grassland is not part of a wetland system and for this reason it is considered to be incorrect to classify the areas of Reed Canary-grass as f2f other wetlands or f2e reedbeds.

***Other Neutral Grassland 2: Margins of Neutral Grassland***

3.2.37 Refer to **Photo 13**. The margins of the large areas of Reed Canary-grass (i.e. a 2 to 5 metres wide belt between the Reed Canary-grass and the woodland habitats) are colonised by unmanaged neutral grassland characterised by abundant Hard Rush (*Juncus inflexus*) and Red Fescue and frequent Meadow Foxtail (*Alopecurus pratensis*), Creeping Bent (*Agrostis stolonifera*), Yorkshire-fog and Rough Meadow-grass (*Poa trivialis*). False Oat-grass (*Arrhenatherum elatius*), Hairy Sedge (*Carex hirta*), Tufted Hair-grass, Common Couch-grass (*Elytrigia repens*), Tall Fescue (*Festuca arundinaceum*), Indian Balsam, Soft-rush, Reed Canary-grass, Creeping Buttercup and Indian Balsam are locally abundant. Other herbs amongst the neutral grassland grass indicators and indicative of the poorly drained conditions are occasional Cuckooflower, Creeping Thistle, Marsh Thistle, Broad-leaved Dock and Common Figwort.

3.2.38 In the areas along the PRoW the grassland is more frequently trampled and, as such, a greater cover of more tolerant species such as Perennial Rye-grass, White Clover and Annual Meadow-grass (*Poa annua*) were recorded in these areas.

3.2.39 Occasional shallow ephemeral pools are present in these areas the cover of Soft-rush, Hairy Sedge and Jointed Rush (*Juncus articulatus*) is greater.

3.2.40 A plant species list is appended at **Table 8.6**. The grassland has affinities with the MG1 *Arrhenatherum elatius* grassland community of the NVC (Rodwell, 1992) and is described by the UKHab as g3c other neutral grassland with the secondary codes 14 scattered rushes, 521 unmanaged, and 524 invasive non-native species.

***Other Neutral Grassland 3: Marshy Grassland / Rushes near the Pylon at the Northern End of the Site***

3.2.41 Refer to **Photo 14**. At the north-western corner of the site near the pylon is a lower-lying area of grassland with a greater cover of rush species. Soft-rush is constant and abundant with locally abundant Hard Rush and Hairy Sedge, Sedge TBC and other species associated with waterlogged soils namely very locally frequent Blinks, locally abundant moss species, occasional Marshy Thistle and rare Reed Canary-grass. Of note in this area was the detection of spikes of Common Spotted-orchid and Southern Marsh-orchid.

3.2.42 A plant species list is appended at **Table 8.7**. The grassland has affinities with the MG1 *Arrhenatherum elatius* grassland community of the NVC and is described by the UKHab as g3c other neutral grassland with the secondary codes 14 scattered rushes, 521 unmanaged, and 524 invasive non-native species.

***Mound of Deposited Soil at Northern Boundary***

3.2.43 Refer to **Photo 15**. At the northern margin of the site adjacent to the timber fence along the boundary with the M66 motorway slip road is a 2 to 3 metres high mound of soil colonised by tall-herb vegetation characterised by abundant Indian Balsam, locally abundant Creeping Thistle and frequent Common Nettle. Bramble is locally abundant, particularly at the north-facing side with occasional Common Hogweed (*Heracleum sphondylium*), Cock's-foot and Curled Dock (*Rumex crispus*).

3.2.44 The vegetation has affinities with the OV25 *Urtica dioica – Cirsium arvense* community of the NVC and the W24 *Rubus fruticosus – Holcus lanatus* scrub community and is described by the UKHab as g3c other neutral grassland with the secondary codes 10 scattered scrub, 16 tall forbs 521 unmanaged and 524 invasive non-native species.

**Poor Semi-improved Grassland**

3.2.45 Refer to **Photo 16**. A fenced off field at the south-eastern corner of the site supports poor semi-improved grassland. The grassland was ungrazed at the time of the walkover. Yorkshire-fog, Meadow Foxtail and Perennial Rye-grass are constant and abundant in the sward with frequent Common Bent Common Sorrel and Rough Meadow-grass. Herb species comprise occasional to locally frequent Greater Bird's-foot-trefoil, Common Ragwort, Common Cat's-ear (*Hypochaeris radicata*), Common Sorrel and Broad-leaved Dock.

3.2.46 Scattered Oak and Ash trees within the grassland support Bluebell beneath the canopy.

3.2.47 A plant species is appended at **Table 8.8**. The grassland has affinities with the MG7 *Lolium perenne* ley community of the NVC and is described by the UKHab as g4 modified grassland with the secondary code 100 grazed and 200 tree.

**Improved / Modified Grasslands**

3.2.48 Refer to **Photos 17** and **18**. East of the Walmersley Brook corridor is a cattle and pony grazed field of poached improved grassland characterised by constant and abundant Perennial Rye-grass, frequent Yorkshire-fog, Rough Meadow-grass and Annual Meadow-grass with occasional Creeping Buttercup, Broad-leaved Dock, Common Chickweed (*Stellaria media*), Cock's-foot and Dandelion.

3.2.49 Local areas of lower lying ground and waterlogged ground conditions, particularly at the northern end are colonised by Soft-rush and a greater cover of Wavy Bittercress and Tufted Hair-grass. At the southern end of the modified grassland, ear to Hedgerow H3 and Bentley Lane is a lower lying area of ground which receives seasonal waterlogging.

3.2.50 Mature and semi-mature trees of Sycamore, Pedunculate Oak and Sessile Oak are present throughout the grassland.

3.2.51 A plant species is appended at **Table 8.9**. The grassland has affinities with the MG7 *Lolium perenne* grass ley community of the NVC and is described by the UKHab as g4 modified grassland with the secondary codes 32 scattered trees and 101 cattle grazed.

**Scattered Individual Trees**

3.2.52 Refer to **Photo 19**. Scattered throughout the improved and semi-improved grassland on the east side of the woodland clough are semi-mature and mature trees of frequent Oak and occasional Ash, Swedish Whitebeam (*Sorbus* sp.). and Sycamore, and shrubs of Holly and Hawthorn.

**Structures at the Former Gin Hall and Surrounding Vegetation**

3.2.53 The stone, concrete block and brick walls of the structures associated with the former Gin Hall are described in relation to their suitability for use by roosting bats in **Section 3.3**.

3.2.54 No vegetation is associated with the walls. The compacted ground, piles of stone rubble and hardstanding bordering the ruins is colonised by ruderal / ephemeral grass and herb species indicative of neutral conditions and characterised by abundant moss species, Common Nettle, Creeping Bent, Annual Meadow-grass, Cock's-foot and Hard Rush. Broad-leaved Dock, Common Figwort, Ribwort Plantain, Common Mouse-ear and Common Ragwort are occasional with stands of very locally abundant Reed Canary-grass and Indian Balsam.

**Boundary Feature: Walls**

***Defunct Dry-stone Walls***

3.2.55 Extending through the improved grassland are defunct and dilapidated drystone walls which are colonised by Bramble scrub and Bluebell.

***Stone Wall at Western Site Boundary***

3.2.56 Refer to **Photo 20**. Immediately south of H1 and associated with the former entrance to the building at Gin Hall is a 1.5 metres high mortared stone wall.

***Stone Wall at Bentley Lane***

3.2.57 Refer to **Photo 21**. A dry stone wall is present at the site boundary with Bentley Lane.

**Boundary Feature: Hedgerows**

3.2.58 Along the western site margin at the edge of the woodland and parallel to the footpath at Walmersley Road is a hedgerow. The hedgerow to the south of the PRoW access is trimmed on the top and west side. North of the PRoW the hedgerow is cut on the sides only.

3.2.59 The hedgerows are assessed in accordance with *The Hedgerows Regulations 1997* at **Section 8.3**.

***Hedgerow H1: South of the PRoW Access***

3.2.60 Refer to **Photo 22**. Hedgerow H1 is a continuous 2 to 3 metres high and less than 1 metres wide Hawthorn dominated hedgerow with locally frequent Holly, Oak and Sycamore and occasional Elder and Beech in the hedgerow (no trees are present).

3.2.61 The understorey is characterised by locally abundant Bramble and very locally frequent Bluebell, non-native Bluebell, Common Mouse-ear and Common Bistort. Other understorey species are very locally abundant Ramsons and Ivy and occasional Dandelion, Great Willowherb Broad-leaved Dock and Cock's-foot.

3.2.62 A plant species list is appended at **Table 8.10**. The hedgerow is representative of the W21 *Crataegus monogyna – Hedera helix* community of the NVC and is described by the UKHab as h2a native hedgerow.

***Hedgerow H2: North of the PRoW Access***

3.2.63 Refer to **Photo 23**. Hedgerow H2 is a continuous Hawthorn and Holly hedgerow with trees of locally frequent Oak, Sycamore, locally abundant Ash, Horse-chestnut and rare Lime.

3.2.64 The understorey is characterised by constant and frequent Bramble and Cleavers with locally abundant Ivy. Woodland herbs are similar to those recorded in the adjacent woodland and comprise very locally frequent Wood Avens, rare Male-fern and occasional Herb-Robert. Nipplewort (*Lapsana communis*) is frequent and Garlic Mustard is very locally abundant. A plant species list is appended at **Table 8.11**. The hedgerow is representative of the W21 *Crataegus monogyna – Hedera helix* community of the NVC and is described by the UKHab as h2a native hedgerow.

***Hedgerow H3: Along Bentley Lane***

3.2.65 Refer to **Photo 24**. The short (28 metres long) section of defunct Hawthorn, Elder and Holly hedgerow with one semi-mature Sycamore tree. The hedgerow understorey is characterised by abundant Ivy with frequent Bluebell, Common Nettle, Wood Avens and Bramble. The hedgerow is representative of the W21 *Crataegus monogyna – Hedera helix* community of the NVC and is described by the UKHab as h2a native hedgerow. Hedgerow H3 has not been assessed in accordance with *The Hedgerows Regulations 1997* as it is less than 30 metres in length.

**Walmersley Brook**

3.2.66 Refer to **Photo 25** to **27**. Walmersley Brook enters the site at the northern end via a concrete pipe and flows within a slightly meandering sand and silt channel with steep and shallow banks to a concrete pipe beneath the PRoW. Further south the channel has a multi-channel flow through the area of coniferous woodland before meeting a section of channel with stone-lined banks.

3.2.67 No emergent or aquatic vegetation was found in the channel. The stone-lined banks of the downstream section support Hart's-tongue Fern.

**Invasive Plant Species**

3.2.68 As annotated on **Figure 2** the following invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) have been detected in the site:

a. Stands of Japanese Knotweed within the woodland along Walmersley Road, and on the western side of Walmersley Brook;

b. Scattered plants of Montbretia, particularly associated with the derelict Gin Hall buildings and the woodland belt along Walmersley Road;

c. Scattered shrubs of Rhododendron and Himalayan Cotoneaster in the woodland habitats;

d. Variegated Yellow Archangel at the southern margin of the site near the houses / gardens off Ribble Drive; and

e. Extensive stands of Indian Balsam throughout the site (**Photo 28**).

3.2.69 These species are listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended); it is an offence to spread or cause their spread in the wild. This is considered further at **Section 4.3** below.

## 3.3 Relevant Protected Species and Other Animal Life

**Badger**

3.3.1 Habitats at the site particularly the woodlands and grasslands away from the PRoW are suitable for use by badger for sett excavation and foraging.

3.3.2 No confirmed badger setts have been located at the site. A D-shaped hole previously recorded by ERAP (Consultant Ecologists) Ltd in the wooded clough in the northern area of the site remains present (**Photo 29**). No evidence of badger was present on 13th March 2026. Sticks were lightly placed against the hole on this date. The sticks remained in position during the survey on 26th March 2026 indicating no sign of current use.

3.3.3 Refer to **Photos 30** and **31**. Paths typical of badger paths (i.e. present beneath vegetation too low to be easily accessed by deer) are present around the margins of the fields of improved and semi-improved grassland in the eastern area of the site and frequent signs of foraging were noted, particularly along the site margin with the M66. There is evidence that badger use the off-site underpass beneath the M66 at the north-eastern corner of the site. The data search and ERAP (Consultant Ecologists) Ltd's knowledge of badger activity in the local area confirms that the site has connectivity to main badger setts in the local area; further information is not disclosed here.

3.3.4 The likely use of the site by visiting / foraging badger and the possible presence of an outlier sett is considered further in **Section 4.4**.

**Bat Species**

***Habitat Assessment for Commuting and Foraging Bats***

3.3.5 Habitats within the site such as the woodlands, woodland edges, Brook corridor, scrub and areas of unmanaged grassland are suitable for use by foraging bats, particularly edge feeding bats such as *Pipistrelle* species. These features are likely to contribute to a wider foraging habitat network used by bats from roosts in the wider area.

3.3.6 In accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn),* (Collins, J. (ed), 2016) the habitats within the site are assessed to be of 'moderate' suitability for use by foraging bats.

***Daytime Survey: Buildings / Structures at Ruins of Gin Hall***

3.3.7 The remaining structures at the ruins of Gin Hall are described below.

*Structure 1*

3.3.8 Refer to **Photo 32** to **36**. Four stone walls with concrete block and brick infills are present at the former window apertures. Gaps are present between the stones including vertical cracks inside the former window recesses which extend into the rubble-filled walls. Inspection of these areas did not detect any bats or bat droppings.

3.3.9 The remainder of the cracks and gaps are considered to be too open and exposed to be suitable for use by roosting bats with the exception of one gap at a height of 2 metres at the south-eastern corner of the structure (**Photo 33**). Inspection of this potential roost features (PRF) with an endoscope did not detect any bats or bat droppings.

3.3.10 Due to the presence of the PRF at the window recesses and at south-eastern corner Structure 1 is assessed to have 'low' suitability for use by roosting bats.

*Structure 2*

3.3.11 Refer to **Photos 37** to **38**. Structure 2 is a dilapidated structure with only the western / roadside wall attaining a height above 2 metres. Inspection of the cracks and crevices in the walls (where accessible) did not detect any bats or bat droppings. Due to the presence of the crevices and the inability to inspect all areas with the endoscope due to the uneven terrain and presence of unstable rubble Structure 2 is assessed to be of 'low' suitability for use by roosting bats.

*Structure 3 (Off-site)*

3.3.12 Refer to **Photos 39** to **40**. Structure 3 is a small intact stone building with a suspected flat concrete slab roof. No access to the internal area of the structure is possible as the window and doorway apertures are bricked up. Gaps suitable for bat access are present between the bricked up areas and the timber window frames. Structure 3 is assessed to be of 'low' suitability for use by roosting bats.

***Culverts / Pipes***

3.3.13 Refer to **Photos 41** to **43**. Walmersley Brook is carried though the woodland and beneath the PRoW roughly in the centre of the site (SD 80564 14466 ///estimated.nervy.album) by a concrete pipe. The brook and its tributaries enter the site from the north and west (SD 80681 14552 ///frightens.drips.mutual

and SD 80560 14665 ///noticing.navy.sheepish) via concrete pipes. These features / pipes are entirely unsuitable for use by roosting bats.

***Ground Level Tree Assessment***

3.3.14 **Section 8.4** presents the results of the ground level tree assessments.

***Trees Identified to be 'Unsuitable for Retention' by the Tree Report***

3.3.15 Refer to **Table 8.13**. None of the 14 trees and shrubs identified as category U (i.e. unsuitable for retention) by the tree report support potential roost features. All are assessed to conform to the suitability criteria of 'none'.

***Trees Likely to be Removed to Create Vehicular Accesses off Walmersley Road***

3.3.16 Refer to **Table 8.14**.

*Northern Access*

3.3.17 The ground level tree assessment of the trees in G181 in the tree report in the position of the northern site access opposite 941 and 943 Walmersley Road (as indicated on the *Illustrative Masterplan*) which are likely to require removal[6] confirmed that none of the trees (Horse-chestnut with flaky / platey bark but no PRFs, Ash and Goat Willow) support a potential roost feature. These trees are assessed to currently conform to the suitability criteria for use by roosting bats of 'none'.

*Southern Access*

3.3.18 The ground level tree assessment of the trees in the position of the northern site access opposite 901 and 903 Walmersley Road detected the presence of a leaning Goat Willow with a hollow stem (**Photo 44**). Inspection of the feature at height did not detect any bats or droppings and confirmed previous use by nesting birds. The feature at the tree (which is located within G178 of the tree report) is exposed from above and is currently assessed as PRF-I.

***Other Trees Likely to be Removed in Accordance with the Illustrative Masterplan***

3.3.19 Trees (44No.) likely to be removed in accordance with the current Illustrative Masterplan are listed on **Table 8.14**. Tree T97 (Oak) is assessed as PRF-I due to the presence of butt-rot which extends at least 0.5 metres into the hollow stem of the tree (**Photo 45**). No bats or bat droppings present on inspection on 26th March 2026.

3.3.20 No PRFs were identified at any other trees that meet this category; all other trees on **Table 8.14** are assessed to conform to the suitability criteria for use by roosting bats of 'none'.

***Incidental Observations***

3.3.21 Refer to **Photo 48**. A Lime tree at the eastern margin of the central woodland has a frost crack (or similar) vertical wound that extends into a shallow cavity in the heartwood. Inspection with an endoscope did not detect any bats. This Lime is located in the woodland and is assessed as PRF-I.

[6] This survey and assessment will need to be repeated when the road configurations are confirmed and the extent of tree removal for access and visibility splays is confirmed.

3.3.22 Refer to **Photo 49**. A Willow at T20 has shallow fissures which may be used by individual bats; no bats present on inspection in March 2026. T20 is assessed as PRF-I.

**Bird Species**

***Incidental Observations***

3.3.23 Birds detected in the site during the habitat surveys are listed in **Table 3.4**.

**Table 3.3: Incidental Observations of Birds During Habitat Surveys**

| Scientific Name | Common Name | BOCC Status[1] |
|---|---|---|
| *Columba palumbus* | Wood pigeon | Amber |
| *Erithacus rubecula* | Robin | Green |
| *Fringilla coelebs* | Chaffinch | Green |
| *Parus caeruleus* | Blue tit | Green |
| ***Passer domesticus*** | **House sparrow** | **Red** |
| *Pica pica* | Magpie | Green |
| *Streptopelia decaocto* | Collared dove | Green |
| ***Sturnus vulgaris*** | **Starling** | **Red** |
| *Troglodytes troglodytes* | Wren | Amber |
| *Turdus merula* | Blackbird | Green |

[1]BOCC: Birds of Conservation Concern (Stanbury, et al., 2021).
Priority Species are presented in **bold**.

***Habitat Assessment: Breeding Birds***

3.3.24 The mosaic of habitats present at the site namely broad-leaved woodland, coniferous woodland, individual trees, scrub, Bramble scrub, dry-stone walls, ruins of Gin Hall and tall Reed Canary-grass grassland provide opportunities for a diversity of bird species including resident UK species and summer migrants. This assessment is supported by the results of the breeding bird surveys carried out in 2025. The *Results of Breeding Bird Surveys 2025* (ERAP (Consultant Ecologists) Ltd, 2026) report states:

*'Forty-five bird species were recorded during the surveys. The greatest diversity of bird species (38 species) was recorded in the survey area on 21st June 2025 (Survey 5). The greatest number of individual birds (282) recorded in the survey area was on 13th July 2025 (Survey 6).*

*Based on the recorded activity 27 species were recorded as 'breeders' within the site and 35 species were recorded breeding in the survey area (the additional species recorded as breeders outside the site are jackdaw, willow warbler, magpie, collared dove, house sparrow, bullfinch, starling and garden warbler).*

*Seven Priority Species were recorded breeding at the site or on adjacent habitats (reed bunting, house sparrow, dunnock, bullfinch, grasshopper warbler, starling and song thrush). Six recorded species are red-listed bird species (greenfinch, house martin, mistle thrush, grasshopper warbler, house sparrow and starling) with all except house martin were recorded breeding at the site or on adjacent habitats.*

*A summary of all species detected during the 2025 surveys which are listed as Priority Species or are red-listed species is presented at **Table 3.2**. The figures on **Table 3.2** are representative of the peak count of birds observed displaying breeding behaviour (note this is not an exact representation of the number of pairs or nests but the table has been prepared to provide a guide on relative abundance of the recorded breeding birds).*

***Table 3.2:* Summary of Confirmed Breeders of Priority Species and Red-listed Species Detected During the 2025 Surveys**

| Common Name | Peak Count[1] within Site / on Site Margins | Peak Count[1] Outside the Site / within Survey Area |
|---|---|---|
| *Greenfinch* | *2* | *0* |
| *Mistle thrush* | *1* | *2* |
| ***Reed bunting*** | *4* | *0* |
| ***Grasshopper warbler*** | ***2*** | ***0*** |
| ***House sparrow*** | ***0*** | ***4*** |
| ***Dunnock*** | ***6*** | ***0*** |
| ***Bullfinch*** | ***1*** | ***0*** |
| ***Starling*** | ***0*** | ***1*** |
| ***Song thrush*** | ***5*** | ***0*** |

*[1] The peak count for each species is determined by the highest number of birds observed during one survey effort. Peak counts for each species may be taken from different survey dates.*
*Species listed in **bold** are Priority Species.*
*Species in red are BOCC Red-listed species.*
*House martin is excluded from this table as this species was not recorded breeding at the site.*

*No bird species listed on Schedule 1 (Part 1) of the Wildlife and Countryside Act 1981 (as amended) were recorded nesting in the site.*

*No ground nesting farmland birds such as curlew and lapwing were recorded in the site on the survey dates.*

*The breeding bird species assemblage recorded at the site comprises woodland specialist species such as nuthatch, goldcrest, treecreeper and great spotted woodpecker, and passerine species typically associated with the woodland, scrub and individual tree habitats.*

*The areas of dense Reed Canary-grass with scattered scrub support breeding grasshopper warbler, reed bunting and sedge warbler.*

*Of the 10 non-breeding species recorded at the site, the following information is provided:*

- *Two birds of prey (sparrowhawk and buzzard) were recorded visiting the site;*
- *Three gull species (common gull, lesser black-backed gull and black-headed gull) were visiting the site;*
- *A coot was observed;*
- *Rook and feral pigeon were recorded visiting the site; and*
- *House martin and swallow were recorded feeding over the site.'*

***Habitat Assessment: Wintering Birds***

3.3.25 The topography of the site and the relatively high cover of woodland do not create optimum conditions for the attraction of wintering birds such as geese and swan species.

3.3.26 The dense areas of grassland / Reed Canary-grass are suitable for use by wintering common snipe and 10 snipe were flushed from this habitat on 13th March 2026.

**Reptiles**

3.3.27 Due to the absence of a suitable food source (i.e. ponds with common frog) the presence of grass snake is reasonably discounted.

3.3.28 The areas of dense vegetation, scrub and woodland margins at the site may be suitable for use by slow-worm and common lizard. The site is not adjacent to or directly linked to any areas of favourable habitat for reptile species, however. There are no reported records of reptiles within the site or local area. It is recognised that absence of a record does not equate to absence of a species or species group; however records of reptile species in Greater Manchester is generally confined to specific areas. During pre-application discussions with the Greater Manchester Ecology Unit (GMEU) it was agreed that the need for surveys for reptile species can be reasonably scoped out.

**Water Vole and Otter**

***Walmersley Brook***

3.3.29 No evidence of water vole or otter was detected along the surveyed section of Walmersley Brook.

3.3.30 The section of Walmersley Brook within the site is assessed to be of 'negligible' value for use by water vole (refer to **Section 8.4**) due to the high cover of artificial banks with no burrowing opportunities behind, the absence of dense marginal vegetation and fluctuations in water levels. In addition, due to the isolation of the 951 metre long surveyed section of the Brook (on and off-site) from other sections of watercourses due to the presence of long culverts and surrounding built development it is considered that natural colonisation of water vole is not likely.

3.3.31 No evidence of otter was found along Walmersley Brook. The shallow Brook provides limited opportunities for otter to feed on large fish species. Otter activity is known to be present in the wider catchment including on the River Irwell located 860 metres to the west. Otter may use Walmersley Brook to move between catchments and feeding areas.

**Other Wildlife and Incidental Observations**

***Brown Hare***

3.3.32 The grasslands are suitable for use by brown hare (a Priority Species). No brown hare were observed during the surveys (or during the breeding bird surveys carried out between April and July 2025). Based on the location of the site, the surrounding network of major roads and built development and the previous use of the site it is considered that the site is not likely to have been naturally colonised by brown hare.

***Hedgehog***

3.3.33 Habitats within the site are suitable for use by foraging, breeding and sheltering hedgehog (*Erinaceus europaeus*), a Priority Species. The suitability of the site for hedgehog is considered further at **Section 4.4**.

***Roe Deer***

3.3.34 Evidence (droppings, paths and hoof prints) of use of the site including the woodlands and grasslands by roe deer (*Capreolus capreolus*) was found.

***Fox***

3.3.35 Scats were found to indicate use of the site by fox.

***Other Wildlife***

3.3.36 Refer to **Photo 46**. The piles of stone rubble associated with the former Gin Hall at the south-western corner of the site has been colonised by mosses and ruderal vegetation. These stone piles create crevices and habitat for use by sheltering fauna such as hedgehog and other species such as stoat and weasel.

## 4.0 EVALUATION AND ASSESSMENT

### 4.1 Introduction and Description of Proposals

4.1.1 The proposals comprise an '*Outline planning application with all matters reserved other than access for mixed use development for up to 350 dwellings, up to 2,500 sq mts employment/commercial uses, a local centre comprising up to 249 sq mts of retail floorspace, mobility hub, public open space and associated infrastructure.'*

4.1.2 Ecological guidance, based on the baseline surveys and as outlined in **Section 5.3**, has been provided to the design team throughout the preparation of the Illustrative Masterplan (The Urbanists, 2025). This approach has ensured that the mitigation hierarchy has been applied and the Masterplan has, as much as possible, been informed by the ecological surveys and assessment to achieve a sympathetic scheme which avoids features of ecological interest (where possible), conserves the habitats and function of habitats identified to be of ecological value with appropriate buffers, conserves habitat connectivity, and seeks to minimise and mitigate / compensate adverse effects where avoidance is not possible.

4.1.3 The *Illustrative Masterplan* (The Urbanists, 2025) and the annotations on **Figure A** at **Section 8.7** aim to demonstrate that appropriate and sustainable development to make efficient use of the land can be achieved whilst protecting and enhancing the identified areas of ecological value / considerations, avoiding significant adverse effects on protected species and Priority Species and securing practical and achievable opportunities for biodiversity net gain in accordance with the National Planning Policy Framework (NPPF), other relevant planning policy and best practice.

4.1.4 **Section 4.2** provides an assessment of any impacts of the proposed development on the designated sites for nature conservation present in the wider area. The ecological value of habitats within the site is evaluated at **Section 4.3**, and protected and notable species are considered at **Section 4.4**.

### 4.2 Designated Sites for Nature Conservation

4.2.1 In consideration of the distances, and the absence of direct habitat and hydrological connectivity between the site and any statutory and non-statutory designated sites for nature conservation in the wider area, (as detailed in **Section 3.1**) it is considered that development at the site can be achieved with no risk of a direct or indirect effect on any designated sites for nature conservation or their features of special interest.

4.2.2 Development at the site is not likely to increase public accessibility which may lead to recreational disturbances to any SBIs in wider area.

4.2.3 As discussed in **Section 4.3**, the woodlands within the site, particularly the broadleaved woodlands are considered to qualify as Lowland Mixed Deciduous Woodland Priority Habitat, on account of the tree species diversity and abundance of woodland herbs. Conservation of the woodland habitats is achieved by the *Illustrative Masterplan* and enhancement by appropriate management as described in **Section 5.7** is recommended and can be secured by the proposals. It is suggested that the habitats at the woodland, once enhanced / brought into appropriate management, should be considered against the *Greater Manchester Sites of Biological Importance Selection Guidelines* (Greater Manchester Ecology Unit, 2016) to determine whether the woodland(s) qualify for designation and additional protection.

## 4.3 Vegetation and Habitats

4.3.1 None of the plant species recorded at the site to date are listed as critically endangered, endangered, vulnerable or near threatened on the *2025 Great Britain Red List for Vascular Plants* (Stroh, P. et al., 2025).

4.3.2 All recorded plant communities at the site are typically considered to be common and widespread across lowland Britain. The National Vegetation Classification (NVC) communities present are typical of the edaphic conditions present and the agricultural management applied at the site. Areas of greater botanical interest outside of the woodlands such as the area of neutral grassland with marsh-orchids near the pylon at the north-western corner of the site will be retained by the proposals and, as described below the drainage regime will need to consider how the conditions at these grasslands are conserved.

4.3.3 None of the fully mature or mature trees are identified on the ancient and veteran tree inventory and none are identified as veteran in the tree report.

4.3.4 None of the habitats at the site are an irreplaceable habitat.

4.3.5 The areas of broadleaf woodland are representative of Lowland Mixed Deciduous Woodland Priority Habitat. Hedgerows H1 and H2 are Priority Habitat.

4.3.6 **Table 4.1** has been prepared to summarise the habitats at the site. The table also provides an assessment in terms of each habitat's importance in a geographical context[7] and confirmation of the habitat distinctiveness in accordance with the statutory biodiversity net gain metric.

4.3.7 It is confirmed that no very high distinctiveness habitats are present at the site.

[7] Using the terms presented at Section 4.7 of *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018), i.e. International and European, National, Regional, Local Authority-wide area, River Basin District, Estuarine system / Coastal cell or Local. The term 'site' value is additionally used to highlight ecological features considered to be of importance in the context of the wider site habitats, but which are of negligible value in the context of the local area.

**Table 4.1: Summary of Habitat Types and Area / Length Present**

| Phase 1 Broad Habitat Type / Area-based Habitats | Conservation Status / Notes / Habitat's Importance in a Geographical Context[8] | BNG Habitat | Habitat Distinctiveness | Area (hectares) |
|---|---|---|---|---|
| A1.1.1 Broadleaved woodland – semi-natural (Lowland Mixed Deciduous Woodland Priority Habitat) | Priority Habitat / County | Lowland Mixed Deciduous Woodland | High | 2.7360 |
| A1.1.1 Broadleaved woodland – semi-natural | Local | Other woodland; broad-leaved | Medium | 1.9977 |
| A1.2.2 Coniferous woodland – plantation | Local | Other woodland; mixed ; mainly conifer | Medium | 1.5812 |
| A2.1 Dense continuous scrub / Mixed scrub | Site | Mixed scrub | Medium | 0.2184 |
| A2.1 Dense continuous scrub / Bramble scrub | Site | Bramble scrub | Medium | 0.0222 |
| B4 Improved grassland | Site | Modified grassland | Low | 3.5965 |
| B5 Marsh / Marshy grassland | Site | Other neutral grassland | Medium | 0.6069 |
| B6 Poor semi-improved grassland | Site | Modified grassland | Low | 2.3385 |
| C3.1 Other tall-herb and fern – tall ruderal | Site | Other neutral grassland | Medium | 0.1027 |
| J1.3 Cultivated / disturbed land – ephemeral / short perennial | Site | Ruderal / ephemeral | Low | 0.0239 |
| J4 Bare ground | No value | Bare ground | Low | 0.0331 |
| J5 Other habitat – course, unmanaged species poor neutral grassland – Reed Canary-grass | Local (for nesting birds and wintering snipe) | Other neutral grassland | Medium | 6.3274 |
| J5 Other habitat – course, unmanaged species poor neutral grassland | Local | Other neutral grassland | Medium | 0.3536 |
| Individual Trees | Site | - | Medium | - |
| | **TOTAL** | | | **19.9381 hectares** |

[8] Using the terms presented at Section 4.7 of *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018), i.e. International and European, National, Regional, Local Authority-wide area, River Basin District, Estuarine system / Coastal cell or Local. The term 'site' value is additionally used to highlight ecological features considered to be of importance in the context of the wider site habitats, but which are of negligible value in the context of the local area.

| Broad Habitat Type / Linear-based Habitats | Conservation Status / Notes / Habitat's Importance in a Geographical Context | BNG Habitat | Habitat Distinctiveness | Length (kilometres) |
|---|---|---|---|---|
| J2.1.2 Intact hedge, native, species-poor (Hedgerow H1 (no trees)) | Priority Habitat / County | Native hedgerow | Low | 0.198 |
| J2.1.2 Intact hedge, native, species-poor (Hedgerows H2 and H3 (with trees)) | Priority Habitat / County | Native hedgerow with trees | Medium | 0.361 |
| Walmersley Brook and tributaries | Local | Local | High | 0.617 |

**Invasive Plant Species**

4.3.8 The presence of Japanese Knotweed, Indian Balsam, Montbretia, Himalayan Cotoneaster, Rhododendron and Variegated Yellow Archangel, all invasive species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), is a consideration of the proposals. It is considered that the proposals present an opportunity for the eradication / control / management of these species to enhance the retained habitats and to prevent further spread.

**Assessment Based on Illustrative Masterplan and Assessment of Biodiversity Net Gain**

4.3.9 As outlined in **Table 4.1** the site supports a diversity of habitats ranging from broadleaved woodland, coniferous woodland, scrub, tall-herb vegetation, neutral grasslands, marshy grassland and watercourses all within a relatively small area.

4.3.10 The *Illustrative Masterplan* has been prepared in accordance with ecological guidance and recommendations as outlined in **Section 5.3** and annotated on **Figure A**. In accordance with the mitigation hierarchy, the *Illustrative Masterplan* seeks to conserve all habitat types at the site and maintain habitat connectivity between all habitats. The proposals avoid and retain the Priority Habitats (woodlands and hedgerows), other woodlands and scrub habitats considered to be of importance at the local level and above.

4.3.11 Where the removal of sections woodland is unavoidable to facilitate access it is feasible to extend the woodland in other areas of the site and / or enhance the existing woodland habitats to compensate for losses.

4.3.12 To make efficient use of the habitats of lower ecological value the developable area includes the fields of improved and semi-improved grassland to the east of Walmersley Brook; this will involve the removal of individual trees (currently indicated at 44No. trees (9 of which are Hawthorn)) in this area. Mitigation involving replacement planting to compensate for the removal of trees is entirely feasible within the space available at the site.

4.3.13 Impacts of the proposals on the surface water regime at the site is not known at this stage. It is identified that the retention of a continuous feed of an appropriate level of surface water to the retained areas of marshy grassland and other neutral grassland with orchids near the pylon in the north-western corner of the site is required. In addition, the requirement for a sustainable urban drainage system (SuDS) provides an opportunity to replicate the marginal, periodically waterlogged and damp grassland habitats at the site and to conserve these habitats at the site in the long-term by appropriate management.

## 4.4 Protected Species and Other Wildlife

### Badger

4.4.1 As outlined in **Section 5.2**, further survey is necessary to determine whether the single hole is an outlier sett. If an active badger sett is confirmed it is advised that mitigation in accordance with current Natural England guidance is entirely feasible.

4.4.2 Otherwise it is acknowledged that badger activity including commuting and feeding is frequent at the site and the conservation of habitats suitable for use by badger and importantly the connectivity between the on-site habitats, off-site habitats and habitats suitable for foraging and a source of fresh drinking water, as shown by the *Illustrative Masterplan,* is considered appropriate to conserve badger at the site and local area.

### Bat Species

#### *Roosting Bats*

4.4.3 Further surveys of the structures at the former Gin Hall and the two identified PRF-I trees (Goat Willow in G178 and T97), plus any further trees later identified to be scheduled to be removed is required to further assess the likely impacts of the proposals on roosting bats.

4.4.4 In consideration of the structures, no evidence of current or previous use by roosting bats was detected during the daylight licensed survey.

4.4.5 The structures are not considered to provide optimum conditions for use by bats in the hibernation season. The structures do not have any underground features or cellars that are accessible to bats and their structural condition is not likely to provide thermally stable conditions for regular / long-term use by roosting bats in the hibernation season or features of a 'classic' hibernation roost.

#### *Foraging Bats*

4.4.6 Retention of the woodland, scrub, scattered trees, brook corridor and hedgerow habitats at the site will conserve habitats suitable for use by foraging bats. Inappropriate use and siting of artificial lighting at the site have the potential to degrade the value of the habitats at the site for use by foraging bats. In the presence of an appropriate lighting strategy, as outlined in **Section 5.3**, it is advised that opportunities for foraging bats will be conserved at the site.

### Bird Species

4.4.7 The paragraphs below are extracted from the *Results of Breeding Bird Surveys 2025* report:

*'**Habitat Loss and Disturbance Impacts***

*In accordance with the mitigation hierarchy and ecological guidance, the Illustrative Masterplan seeks to retain areas of woodland, scrub and individual trees where the majority of the breeding birds and the assemblage of bird species were recorded. The retention (and enhancement, see below) of these habitats will secure the opportunities for breeding woodland specialist species and passerine birds as recorded at the baseline, including Priority Species.*

*In consideration of Priority Species such as song thrush, dunnock and bullfinch, as the proposals seek to retain woodland and scrub habitats (although temporary disturbance impacts during the construction*

*period which may deter use by less tolerant bird species are recognised) and these are also species that can be associated with residential garden habitats which will be created at the site (subject to the appropriate cover of vegetation and nesting sites) it is considered that the development of the site will have no permanent long-term impact on the suitability of the site habitats for use by these three species*.

*The breeding starling and house sparrow were recorded within the off-site habitats. The development proposals will provide additional habitats for these species (as described below).*

*In consideration of grasshopper warbler and reed bunting, the areas of Reed Canary-grass used by these species will be removed by the proposals. The creation of areas of water attenuation / SuDS within areas of open grassland with scattered scrub in the site may provide some opportunities for these species and guidance will be provided as part of the detailed landscape proposals to provide suitable habitats for these species. Otherwise these species will be displaced to habitats in the fields in the wider area such as the habitats associated with Pigs Lee Brook (400 metres to the east).*

***Cat Predation***

*The construction of any residential development brings an increased risk of bird predation by domestic cats.*

*There is no doubt in relation to the impacts that domestic cats can have on nesting birds and other wildlife. However, in consideration of the magnitude of the impact of cat predation it is advised that proportionality needs to be applied. The proposals are for the construction of up to 350 dwellings, not all of which will keep a cat (and some may be discouraged from doing so in the future by the actions of the Homeowners' Packs as discussed below).*

*In this instance it is advised that appropriate mitigation that can be applied is a combination of raising awareness / education of the residents by including guidance on in the Homeowners' Pack provided during the sale of the properties and securing the long-term presence of the guidance by inclusion on an interpretation board in the public open space at the site. Guidance available in publications such as equipping cats with bells, keeping cats indoors at night, playing with cats to stimulate them, feeding cats with appropriate food, feeding of birds as referenced in Domestic Cat Predation on Wildlife (Woods, M., McDonald, R. A. and Harris, S., undated) and Songbird Survival will assist in the protection of some bird species.'*

**Hedgehog**

4.4.8 The habitats at the site are suitable for use by hedgehog (a Priority Species). Best practice guidance for the protection of hedgehog and other wildlife to be applied prior to and during site clearance and construction operations are described in **Section 5.4** and opportunities to conserve habitat connectivity for hedgehog in the developed areas of the site are described in **Section 5.3**.

**Stone Rubble**

4.4.9 Removal of the piles of stone rubble around the ruined buildings at Gin Hall will destroy habitat opportunities for use by fauna such as hedgehog and small mammals. In accordance with best practice it is recommended that the stone piles are removed in accordance with the guidance of an ecologist, as described in **Section 5.4**. The creation of new habitat piles to enable habitation by small mammals, fungi, invertebrates and amphibians is recommended in **Section 5.7**.

**Other Protected Species / Animal Life**

4.4.10 Appropriate survey effort and / or assessment in accordance with standard guidance, has been carried out to reasonably discount adverse effects on relevant protected species namely water vole, otter, nesting barn owl, great crested newt and reptile species. With the exception of the recommendations at **Section 5.2**, no further surveys for other protected species are necessary to inform a planning application.

## 5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

### 5.1 Introduction

5.1.1 The recommendations and guidance provided in this section of the report, follow 'The Mitigation Hierarchy' (i.e. avoid, mitigate, compensate) and describe actions accommodated by the proposals to avoid significant effects and minimise impacts where avoidance is not possible. In addition and where possible, opportunities to enhance the ecological interest and habitat connectivity and seek biodiversity gain through appropriate landscape planting and habitat creation have been identified to ensure compliance with Chapter 15, paragraph 193(d) of the NPPF which states:

*'opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate'.*

### 5.2 Scope of Ecological Surveys Required

5.2.1 To further inform the planning application and determine the impacts of the proposals and to inform the preparation of detailed mitigation strategies (if needed) the scope of ecological surveys listed below are recommended.

**Table 5.1: Further Ecological Surveys Recommended**

| Survey Type | Notes / Appropriate Timing |
|---|---|
| Updated botanical surveys | To ensure the maximum detection of all plant species and plant species diversity at the site (particularly to further inform the conditions assessments presented in the separate *Assessment of Biodiversity Net Gain*) it is recommended that updated botanical surveys of habitats such as the neutral grasslands and Walmersley Brook are carried out from May onwards.<br><br>*Timing:* May to August inclusive. |
| On-going monitoring of badger status | It is recommended that the badger activity at the site is monitored throughout the planning application determination period and updates are prepared to inform the detailed development proposals and mitigation strategy.<br><br>*Timing:* Any time of year |
| Bat survey and assessment: Trees | Once an Arboricultural Impact Assessment is available and updated ground level tree assessments of the trees scheduled to be removed for their suitability for use by roosting bats and further survey, if needed, in accordance with *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)* (Collins, J. (ed), 2023).<br><br>*Timing:* Any time of year (further surveys between May and September inclusive). |

| Survey Type | Notes / Appropriate Timing |
|---|---|
| Dusk emergence surveys: Structures | To determine the presence / likely absence of roosting bats at Structures 1 to 3 (assessed to be of 'low' suitability for use by roosting bats) at the former Gin Hall and to comply with the *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)* (Collins, J. (ed), 2023) at least one dusk emergence survey is required at each structure.<br><br>*Timing:* May and August inclusive. |

### 5.3 Recommendations in Relation to Illustrative Masterplan / Detailed Site Proposals

5.3.1 Refer to **Figure A**. The following recommendations are made and have been accommodated by the *Illustrative Masterplan* (or must be accommodated by the detailed site proposals):

a. Focus of development on the areas of no / low ecological value and / or habitats of low distinctiveness such as the agriculturally improved and poor semi-improved grasslands and the areas on the former landfill that are dominated by dense Reed Canary-grass;

b. Retention (and secured enhancement / long-term management) of the woodland habitats (high and medium distinctiveness habitats), including the accommodation of an undeveloped buffer of complementary habitats and the extension of woodland / scrub habitat to bolster the woodlands;

c. Retention of the individual mature and semi-mature trees (including TPO) trees and enhancement of habitat connectivity by additional complementary planting and habitat creation to link the trees to retained hedgerows / woodland and new habitats;

d. Retention of the site boundary hedgerows and hedgerow with trees. Positioning of site accesses to avoid mature and fully mature trees (particularly Oak);

e. Minimised requirement to cross / culvert Walmersley Brook by utilising existing piped sections for the crossings and creation of complementary habitats to compensate for minor losses of open channel at the crossings;

f. Maximising the blue and green infrastructure and green links through the site by habitat creation and landscape planting including wildflower grasslands, scrub and tree planting;

g. Arrangement and alignment of properties to create contiguous gardens;

h. Alignment of properties to front on to areas of retained and created habitat to minimise the risk of garden extensions and fly tipping;

i. Accommodation of footpaths and recreational areas / dog walking areas within specific areas of the site to detract from informal use of the retained woodland and new habitats designed for wildlife for dog walking etc.;

j. Maximised use of a sustainable urban drainage system (SuDS) across the site with the use of ponds, wetlands and swales, as appropriate, with buffers of complementary habitats such as wildflower grasslands, scrub, woodland and individual trees (i.e. habitats of medium distinctiveness) to maximise opportunities to secure Biodiversity Net Gain and to provide a diversity of habitats for wildlife;

k. Design and implementation of an appropriate and sensitive lighting strategy to avoid any adverse effects on wildlife such as foraging bats, including the avoidance of lighting where not required;

l. Landscape planting within the built environment / residential development to be composed of native species and species known to be of value for the attraction of wildlife;

m. Ensure the developed areas of the site are accessible to wildlife such as hedgehog (a Priority Species) and other wildlife by the installation of lifted gates and plot boundary fences throughout the developed area to permit the passage of wildlife beneath; and

n. Incorporation of features for wildlife such as boxes for roosting bats and nesting birds including current conservation targets such as house sparrow, starling and swift within the developed areas of the site (see below).

## 5.4 Protection of Existing Features During Construction and Construction Environment Management Plan (CEMP) for Biodiversity

### Introduction

5.4.1 To inform the site preparation and construction activities it is recommended that a CEMP for Biodiversity is prepared and implemented. The CEMP for Biodiversity will describe the following actions / measures:

### Preparation of Programme of Works and Toolbox Talk

5.4.2 Owing to the presence of habitats and features that require protection at the site and the wider area, prior to the commencement of works it is essential that an ecologist is involved in the site preparation planning and the proposed programme of works.

5.4.3 In addition, in accordance with best practice, it is recommended that an Ecological Toolbox Talk is provided by an ecologist to all site personnel prior to the start of works.

### Protection of Walmersley Brook and Vegetation / Habitats to be Retained / Enhanced

5.4.4 During the construction phase, temporary protective demarcation fencing will be used to protect the vegetation and habitats to be retained and enhanced. The fencing must remain in position until all areas have been developed to ensure protection is provided throughout the construction phase.

5.4.5 In the absence of updated guidance, the following Pollution Prevention Guidelines (PPG) will be adhered to at any works near Walmersley Brook:

a. PPG1: Basic good environmental practices (Environment Agency, 2013);

b. PPG5: Works in, near or over watercourses (Environment Agency, 2014);

c. PPG6: Construction and demolition sites (Environment Agency, 2012); and

d. PPG7: Operating refuelling sites (Environment Agency, 2011).

### Dust Suppression, Incidents and Accidents

5.4.6 The risk of adverse effects on retained vegetation, habitats and wildlife as a result of dust, spills and leaks will be controlled by the application of best practice measures and appropriate environmental controls such as dust suppression, appropriate storage of chemicals and fuel, presence of spill kits and appropriate training of all on-site personnel.

**Lighting**

5.4.7 Paragraph 198c of the NPPF states that development should:

*'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'*

5.4.8 Any lighting to be used during the construction phase must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over the retained habitats as lighting overspill may deter use by wildlife such as foraging bats.

**Invasive Plant Species and Biosecurity**

5.4.9 It is recommended that the guidance of a specialist contractor is engaged to prepare an Invasive Plant Species Management Plan. The Plan will outline the methods to be applied for the control / eradication of Japanese Knotweed, Indian Balsam, Himalayan Cotoneaster, Variegated Yellow Archangel, Montbretia and Rhododendron at the site.

5.4.10 To minimise the risk of introduction of invasive species to the site and retained habitats, all machinery / plant to be brought to the site must be clean.

5.4.11 Wheels / tracks of machinery / plant must have been pressure washed before use at the site. No excessive remnant soil or plant material from other sites must be present on the machinery / plant or in the tyre treads as this may increase the risk of spread of non-native and invasive plant species e.g. Japanese Knotweed (*Fallopia japonica*) and Giant Hogweed (*Heracleum mantegazzianum*).

**Pre-works Survey for Badger**

5.4.12 Due to the presence of badger activity at the site and local area, prior to the commencement of site preparation operations it is recommended that a pre-works badger survey is carried out.

**Roosting Bats**

5.4.13 The completion of the further surveys as outlined in **Section 5.2** will provide relevant information to inform a mitigation strategy for roosting bats (if needed).

**Nesting Birds**

5.4.14 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is advised that any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist. The bird breeding season typically extends between March to August inclusive.

5.4.15 If breeding birds are detected the ecologist will issue guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. This may involve cordoning off an area of the site until the young birds have fledged.

**Best Practice for the Protection of Wildlife**

5.4.16 During the site preparation and construction operations, for the protection of wildlife, including hedgehog, it is essential that the following best practice is applied:

a. Between the current time and the commencement of site clearance it is recommended that the current agricultural management at the site is continued and the habitats are not permitted to grow dense or rank which may increase the opportunities for attraction of sheltering wildlife. If this is not possible then arrangements must be made for the progressive flailing of the vegetation on the site prior to commencement of works on the site;

b. No trenches must be left open overnight. Trenches or holes must be properly covered with a board or fitted with a means of escape (such as ramped edge or a sloping plank of timber). This will ensure that any inquisitive deer / other wildlife do not become trapped;

c. The piles of stone rubble around Gin Hall and other areas of the site should be dismantled carefully allowing for time for wildlife to leave and to enable safe hand searches, as appropriate;

d. Any pipes must be stored with caps on (to prevent entry by wildlife);

e. No fires must be lit at the site;

f. Any chemicals or harmful materials must be safely and correctly stored so that they cannot be accessed by inquisitive wildlife; and

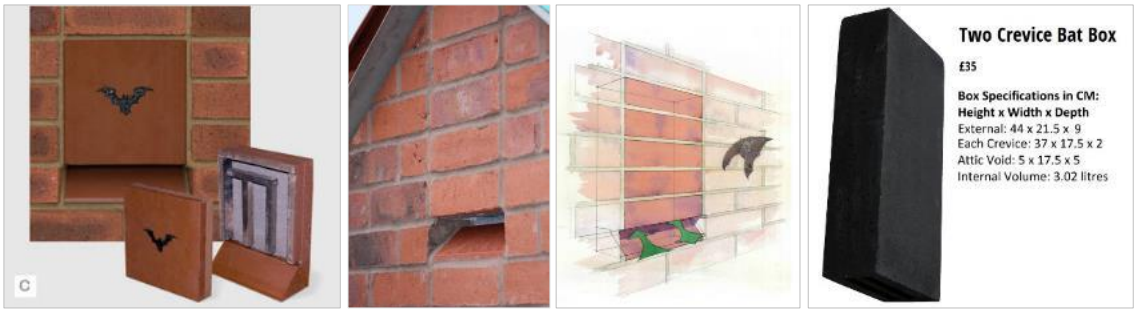
g. Any queries / issues in relation to wildlife on site must be directed to ERAP (Consultant Ecologists) Ltd (01772 750502).

## 5.5 Provision of Opportunities for Roosting Bats and Nesting Birds Within the Residential Area

### Provisions for Roosting Bats: New Buildings

5.5.1 To enhance the opportunities at the site for roosting bats it is recommended that the development incorporates the installation of bat access panels at the new buildings.

5.5.2 The bat access panels should be sited at least four metres above ground level, ideally facing or close to areas of landscape planting or existing linear features. The access panels should not be positioned over windows or doorways where bat droppings may become a perceived nuisance. Once the development layout has been finalised, an ecologist will advise on the appropriate number and positions for the bat access panels.




**Insert 1:** Examples of integrated bat access panels and an externally mounted box[9]

[9] Left to right: IBstock Enclosed Bat Box 'c' (left); Habibat Bat Access Panels (centre left and centre right) and Greenwood's Ecohabitat's two crevice bat box (right). Products with a brick face are illustrated, however the Habibat bat access panels can be supplied unfaced to enable the additional of matching material.

**Provisions for Roosting Bats: Trees**

5.5.3 To enhance the value of the retained woodlands it is recommended that bat boxes are installed on suitable trees at the margins of the retained woodlands. An ecologist will advise on the siting of the bat boxes, as needed.

5.5.4 Bat boxes should be installed to the following guidelines (Bat Conservation Trust, 2024)

a. At least 4 metres above the ground (where safe installation is possible);

b. Sheltered from strong winds and exposed to the sun for part of the day (usually south or south-west). Ideally several bat boxes will be installed to provide a variety of different thermal options for bats. Grouping a number of boxes each with a different aspect can achieve this; while a number of boxes is preferable to one, a single box is still viable and may be used by roosting bats;

c. Located close to unlit linear features, such as lines of trees or hedgerows; and

d. Installed where the bat box entrance is not cluttered or impeded by branches, or accessible to predators (such as cats) by large branches underneath them.

5.5.5 Suitable bat boxes are the Schwegler 1FF, Greenwood Ecohabitat's single or double cavity boxes and Schwegler 1FD, see **Insert 2**.




**Insert 1:** Schwegler 1FF, Greenwood Ecohabitat's single cavity and Schwegler 1FD bat boxes

**Provisions for Nesting Birds**

***House Sparrow and Starling***

5.5.6 House sparrows are associated with suburban areas. Monitoring suggests a severe decline in the UK house sparrow population, estimated as dropping by 71 per cent between 1977 and 2008 with large falls in both rural and urban populations (RSPB, 2023). Starling is a Priority Species

5.5.7 The installation of house sparrow terrace nest boxes and starling nest boxes is recommended at the new housing. The boxes will not be positioned over windows or doorways where droppings may become a nuisance. RSPB advice states that boxes should ideally be sited facing north to east, to avoid exposure to direct sunlight, which may cause overheating of chicks in the nest. Examples of suitable bird boxes are given below.



**Insert 3:** Schwegler 1SP House Sparrow Nesting Terrace and starling nest box

5.5.8 Such bird boxes are available from the NHBS (www.nhbs.com) or Wild Care (www.wildcare.co.uk). ERAP (Consultant Ecologists) Ltd will advise on the appropriate number and siting of bird boxes once the development layout has been finalised.

***Swift***

5.5.9 The swift (*Apus apus*) has been added to *The Birds of Conservation Concern Red List* (Stanbury, et al., 2021) owing to the recorded recent declines and its identified status as a high conservation priority.

5.5.10 The construction of the residential properties provides an opportunity for the installation of additional nesting opportunities for swift to assist their conservation. Suitable swift nest boxes are illustrated below.



**Insert 4:** Examples of swift nest boxes[10]

## 5.6 Landscape Planting within the Built Environment and Public Open Space Areas

5.6.1 It is recommended that the landscape planting within the developed site is composed from native species and species known to be of value for the attraction of wildlife. Recommendations for the landscape planting are outlined below.

***Trees, Shrubs and Hedgerows***

5.6.2 To provide habitat connectivity for the movement of wildlife such as passerine birds and bats through the site the grassed roadside verges should accommodate planting of linear sections of trees.

[10] From left to right No. 17A Schwegler Swift Nest Box (Triple Cavity) as installation (left), Manthorpe Swift Nesting Box (centre) and Ibstock Eco-habitat for Swift (right), all available from www.NHBS.com)

5.6.3 In other areas of the site such as around the SuDS areas the planting of copses of native shrubs will be suitable for the attraction of nesting passerine birds. Suitable trees and shrubs (subject to the distance to the buildings) for individual trees, mixed scrub and new hedgerows are detailed at **Table 5.1** below.

**Table 5.2: Suitable Native Species for Tree, Shrub Hedgerow Planting**

| Scientific Name | Common Name | Scientific Name | Common Name |
|---|---|---|---|
| *Acer campestre* | Field Maple | *Prunus spinosa* | Blackthorn |
| *Corylus avellana* | Hazel | *Rosa canina* | Dog-rose |
| *Crataegus monogyna* | Hawthorn | *Sambucus nigra* | Elder |
| *Ilex aquifolium* | Holly | *Sorbus aucuparia* | Rowan |
| *Malus sylvestris* | Crab Apple | *Ulmus glabra* | Wych Elm |
| *Prunus avium* | Wild Cherry | *Viburnum opulus* | Guelder Rose |
| *Prunus padus* | Bird Cherry | *Ulex europaeus* | Common Gorse |

***Formal Landscape Planting***

5.6.4 In more formal areas of the site, the use of shrubs and plants that are attractive to invertebrates in any borders and planters is recommended, suitable species comprise Lavender (*Lavandula*), *Hebe*, *Ceanothus,* Foxglove (*Digitalis purpurea*) and *Allium* species.

***SuDS Areas and Wildflower Grasslands***

5.6.5 In areas such as in the buffers around the site margins and around the SuDS ponds the seeding of wildflower grasslands with a variety of native species for use by breeding and feeding invertebrates in the areas around the site margins is recommended. The grasslands must then be managed appropriately over the long-term.

5.6.6 The requirement for SuDS areas provides an opportunity for the creation of appropriate conditions for the creation of complementary habitats such as reedbeds, marginal emergent vegetation and open water. These habitats can be suitable for the attraction of nesting bird such as reed bunting (if the Common Reed is dense enough) and waterbirds such as coot.

## 5.7 Landscape and Ecological Management Plan

5.7.1 A Landscape and Ecological Management Plan / Habitat Management and Monitoring Plan will be prepared for all retained and created habitats to ensure the long-term management is applied in accordance with nature conservation objectives (and BNG requirements) and to maintain a safe and attractive site.

5.7.2 A landscape strategy and management strategy that involves the creation and long-term management of species-rich grassland and aims to enhance the species diversity of woodlands will ensure that the site contributes to the following measures of the Greater Manchester Nature Network / LNRS relevant to the site:

- **Grassland, farmland and lowland heath:** Creation or restoration of species-rich grasslands and lowland heath, particularly where they will expand or act as stepping stones or corridor.
- **Grassland, farmland and lowland heath:** Enhance and manage improved or semi-improved grasslands to boost species richness.

- **Rivers, canals and waterbodies:** Enhance and maintain existing habitats within our waterbodies and adjacent grassland, wetland and woodland habitats to increase species richness.

### 5.8 Homeowner's Pack and Environmental Awareness

5.8.1 As part of securing the management of the retained and new habitats in accordance with conservation targets it is strongly recommended that new residents will be made aware of the importance of the habitats, particularly woodland habitats, near their homes and how to avoid / minimise any impacts by the preparation and distribution of a Homeowners' Pack. Packs will advise that the site / property is within proximity to the woodlands and other valuable habitats for wildlife and clearly set out the value, importance and sensitivity of the areas, identify potentially damaging operations / activities and outline a 'responsible use code' such as advising the need to keep dogs on leads and keeping to the footpaths (for example). The guidance can also outline the potential harm of cat predation to birds and other wildlife and encourage residents to think twice about cat ownership and / or encourage the use of catios etc.

5.8.2 This information is in accordance with guidance provided at:

https://www.gov.uk/government/publications/managing-visitors-with-dogs-in-your-woodland/dogs-in-woodland-wildlife-livestock-and-forestry-operations.

5.8.3 In addition to the preparation and distribution of the Homeowners' Pack it is advised that to ensure continuity of information over the years (as properties are sold and change hands) that information boards with the same information are installed at the footpaths in the public open space.

5.8.4 Other means of influencing residents' behaviours can be effective, such as the setting up and establishment of a resident's management group whereby the residents of the site are in regular contact and there is a mechanism by which residents can report issues. This mechanism can also, via social media, create a positive feedback loop and encourage the reiteration of the content of the Homeowners' Pack, good practice (i.e. keeping to the paths and keeping dogs on leads) and the self-governance of residents and their behaviour.

## 6.0 CONCLUSION

6.1 It is concluded that development at the site in accordance with an appropriate site layout and landscape / habitat creation strategy that takes into account the ecological recommendations is feasible and acceptable in accordance with the identified ecological considerations and relevant planning policy.

6.2 The mitigation hierarchy has been applied and, in the presence of mandatory actions and best practice measures described in **Section 5.0**, adverse effects on designated sites for nature conservation are reasonably discounted and appropriate mitigation / compensation to address identified impacts on ecologically valuable habitats (namely tree loss) and protected species are feasible and can be secured.

6.3 The report describes the appropriate and proportionate measures and recommendations that aim to enhance the value of the site for wildlife such as roosting bats, nesting birds and biodiversity. The recommendations comprise landscape planting, habitat creation and the application of positive habitat management in the long-term to achieve measurable gains for biodiversity and compliance with the NPPF, local planning policy and best practice.

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## 8.0 APPENDICES: TABLES AND FIGURES

### 8.1 Photographs

**Table 8.1: Photographs**



**Photo 1:** Broad-leaved woodland (Woodland 1)



**Photo 2:** Broad-leaved woodland (Woodland 1) at tributary to Walmersley Brook



**Photo 3:** Grazed broad-leaved woodland (Woodland 1b)



**Photo 4:** Mixed woodland mainly coniferous (Woodland 2)



**Photo 5:** Coniferous woodland (Woodland 2)



**Photo 6:** Woodland along western site margin



**Photo 7:** Verge of modified grassland and woodland at western site margin



**Photo 8:** Verge of modified grassland and scattered trees along Walmersley Road



**Photo 9:** Woodland fragment near the base station at the M66

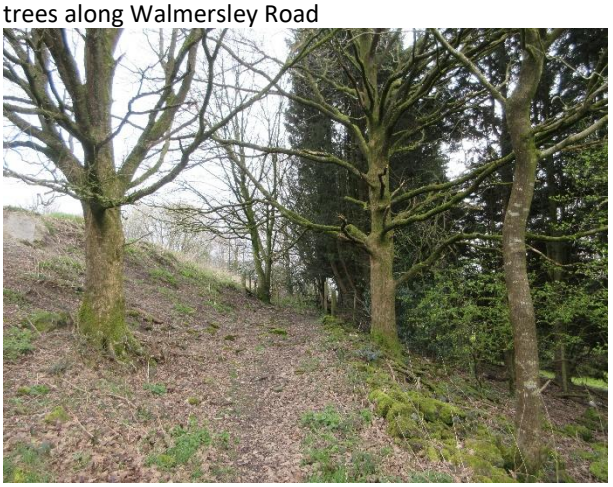


**Photo 10:** Woodland fragment around margins of Baldingstone House



**Photo 11:** Mixed scrub along western edge of Walmersley Brook



**Photo 12:** Other neutral grassland 1: Reed Canary-grass



**Photo 13:** Other neutral grassland 2 at margins of Reed Canary-grass



**Photo 14:** Marshy grassland near pylon (Other neutral grassland 3)



**Photo 15:** Mound of soil with tall-herb vegetation



**Photo 16:** Poor semi-improved grassland



**Photo 17:** Improved / modified grassland



**Photo 18:** Improved / modified grassland



**Photo 19:** Scattered trees over semi-improved and improved grassland



**Photo 20:** Wall near the former Gin Hall at Walmersley Road



**Photo 21:** Dry stone wall at Bentley Road site boundary



**Photo 22:** Hedgerow H1



**Photo 23:** Hedgerow H2



**Photo 24:** Hedgerow H3



**Photo 25:** Walmersley Brook (downstream)



**Photo 26:** Walmersley Brook (middle of site)



**Photo 26:** Walmersley Brook (northern end of site)



**Photo 28:** Indian Balsam over the herb layer of Woodland 2



**Photo 29:** Mammal hole



**Photo 30:** Badger path



**Photo 31:** Badger feeding signs



**Photo 32:** Structure 1



**Photo 33:** Hole in wall at Structure 1



**Photo 34:** Structure 1



**Photo 35:** Structure 1



**Photo 36:** Gaps between doorway lintel at Structure 1



**Photo 37:** Structure 2



**Photo 38:** Structure 2



**Photo 39:** Structure 3



**Photo 40:** Gaps around bricked up windows at Structure 3



**Photo 41:** Pipe carrying Walmersley Brook under PRoW



**Photo 42:** Pipe where tributary of Walmersley Brook enters site from beneath M66



**Photo 43:** Concrete pipe where Walmersley Brook enters the site at the northern end



**Photo 44:** Leaning Goat Willow in location of southern access off Walmersley Road (PRF-I) marked G178



**Photo 45:** T97 (Oak) with butt-rot (PRF-I)



**Photo 46:** Rubble pile near the former Gin Hall suitable for sheltering small mammals



**Photo 47:** Former conduit with stone banks; no longer a watercourse



**Photo 48:** Lime tree on eastern margin of woodland with PRF-I



**Photo 49:** Willow at T20: PRF-I

## 8.2 Plant Species Lists

**Table 8.2: Plant Species List for Woodlands 1 and 1b: Deciduous Woodlands North of Crossing at Walmersley Brook**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| **Canopy** | | | |
| *Acer pseudoplatanus* | Sycamore | F | 10% |
| *Aesculus hippocastanum* | Horse-chestnut | O | 2% |
| *Alnus glutinosa* | Alder | LF | 5% |
| *Betula pendula* | Silver Birch | O | 2% |
| *Fraxinus excelsior* | Ash | F | 10% |
| *Quercus robur* | Pedunculate Oak | A* | 60% |
| *Salix caprea* | Goat Willow | F | 5% |
| *Salix cinerea* | Grey Willow | F | 5% |
| *Tilia* sp. | Lime species | F | 10% |
| **Shrub Layer** | | | |
| *Crataegus monogyna* | Hawthorn | F | 2% |
| *Corylus avellana* | Hazel | F | 2% |
| *Ilex aquifolium* | Holly | LA* | 10% |
| *Sambucus nigra* | Elder | O | 2% |
| *Sorbus aucuparia* | Rowan | O | <1% |
| **Herb Layer** | | | |
| *Asplenium scolopendrium* | Hart's-tongue | R | <1% |
| *Carex pendula* | Pendulous Sedge | LA | 5% |
| *Carex remota* | Remote Sedge | LF | <1% |
| *Circaea lutetiana* | Enchanter's nightshade | LA | 1% |
| *Deschampsia cespitosa* | Tufted Hair-grass | F* | 2% |
| *Dryopteris dilatata* | Broad Buckler-fern | O | <1% |
| *Dryopteris filix-mas* | Male-fern | O | <1% |
| *Fraxinus excelsior* | Ash saplings | O | <1% |
| *Geranium robertianum* | Herb-Robert | F | <1% |
| *Geum urbanum* | Wood Avens | LF | <1% |
| *Heracleum sphondylium* | Hogweed | R | <1% |
| *Holcus mollis* | Creeping Soft-grass | F | 2% |
| *Hyacinthoides non-scripta* | Bluebell | LA | 2% |
| *Impatiens glandulifera* | Indian Balsam | A* | 30% |
| *Juncus effusus* | Soft-rush | O | <1% |
| *Oxalis acetosella* | Wood Sorrel | VLF | <1% |
| *Ranunculus repens* | Creeping Buttercup | R | <1% |
| *Rubus fruticosus* agg. | Bramble | A* | 20% |

[1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

**Table 8.3: Plant Species List for Woodland 2 at Southern Portion of Woodland Clough at Walmersley Brook**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| **Canopy** | | | |
| *Acer pseudoplatanus* | Sycamore | LA | 5% |
| *Fagus sylvatica* | Beech | F | 5% |
| *Fraxinus excelsior* | Ash | F | 5% |
| *Pinus sylvestris* | Scot's Pine | A* | 80% |
| *Prunus* sp. | Cherry | R | <1% |
| *Quercus robur* | Pedunculate Oak | F/A | 10% |
| *Salix caprea* | Goat Willow | LA/F | 15% |
| *Tilia* sp. | Lime species | F | 5% |
| *Ulmus* sp. | Elm species | R | <1% |
| **Shrub Layer** | | | |
| *Corylus avellana* | Hazel | LA | 5% |
| *Cotoneaster simonsii* | Himalayan Cotoneaster | R | <1% |
| *Crataegus monogyna* | Hawthorn | LA | 5% |
| *Ilex aquifolium* | Holly | A* | 30% |
| *Prunus* sp. | Cherry species | O | <1% |
| *Rhododendron ponticum* | Rhododendron | R | <1% |
| *Ribes sanguineum* | Flowering Currant | R | <1% |
| *Sambucus nigra* | Elder | O | <1% |
| *Sorbus aucuparia* | Rowan | O | <1% |
| **Herb Layer** | | | |
| *Asplenium scolopendrium* | Hart's-tongue | R | <1% |
| *Bistorta officinalis* | Common Bistort | LA | 1% |
| *Cardamine pratensis* | Cuckooflower | O | <1% |
| *Carex pendula* | Pendulous Sedge | F | 2% |
| *Carex remota* | Remote Sedge | LA | 1% |
| *Circaea lutetiana* | Enchanter's nightshade | VLA | 1% |
| *Conopodium majus* | Pignut | VLA | <1% |
| *Deschampsia cespitosa* | Tufted Hair-grass | F* | 2% |
| *Dryopteris dilatata* | Broad Buckler-fern | O | <1% |
| *Dryopteris filix-mas* | Male-fern | O | <1% |
| *Fagus sylvatica* | Beech saplings | R | <1% |
| *Ficaria verna* | Lesser Celandine | VLA | <1% |
| *Fraxinus excelsior* | Ash saplings | O | <1% |
| *Geranium robertianum* | Herb-Robert | O | <1% |
| *Geum urbanum* | Wood Avens | O | <1% |
| *Hedera helix* | Ivy | LA | 2% |
| *Heracleum sphondylium* | Hogweed | O | <1% |
| *Holcus lanatus* | Yorkshire-fog | LA | 1% |
| *Holcus mollis* | Creeping Soft-grass | LA | 2% |
| *Hyacinthoides non-scripta* | Bluebell | F/LA | 10% |
| *Impatiens glandulifera* | Indian Balsam | A* | 50% |
| *Iris pseudacorus* | Yellow Iris | VLA | <1% |
| *Juncus effusus* | Soft-rush | VLA | <1% |
| *Lolium perenne* | Perennial Rye-grass | O | <1% |
| *Lonicera periclymenum* | Honeysuckle | LA | 1% |
| *Phalaris arundinacea* | Reed Canary-grass | VLA | <1% |
| *Poa annua* | Annual Meadow-grass | VLA | <1% |
| *Prunus* sp. | Cherry sapling | R | <1% |

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| *Ranunculus repens* | Creeping Buttercup | O | <1% |
| *Rubus fruticosus* agg. | Bramble | A/LVA* | 10% |
| *Rubus idaeus* | Raspberry | LA | <1% |
| *Tellima grandiflora* | Fringecups | R | <1% |
| *Vicia sepium* | Bush Vetch | R | <1% |
| [1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species | | | |

**Table 8.4: Plant Species List for Woodland 3 at Western Boundary**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| **Canopy** | | | |
| *Acer platanoides* | Norway Maple | O | 1% |
| *Acer pseudoplatanus* | Sycamore | F | 20% |
| *Aesculus hippocastanum* | Horse-chestnut | A | 25% |
| *Betula pendula* | Silver Birch | F | 1% |
| *Fagus sylvatica* | Beech | O | <1% |
| *Fraxinus excelsior* | Ash | F | 10% |
| *Platanus* sp. | Plane species | LF | 5% |
| *Quercus robur* | Pedunculate Oak | F | 40% |
| *Salix caprea* | Goat Willow | F/LA | 10% |
| **Shrub Layer** | | | |
| *Corylus avellana* | Hazel | R | <1% |
| *Cotoneaster simonsii* | Himalayan Cotoneaster | R | <1% |
| *Crataegus monogyna* | Hawthorn | LA | 5% |
| *Ilex aquifolium* | Holly | O | <1% |
| *Prunus* sp. | Cherry species | R | <1% |
| *Rhododendron ponticum* | Rhododendron | R | <1% |
| *Sambucus nigra* | Elder | R | <1% |
| **Herb Layer** | | | |
| *Allium ursinum* | Ramsons | VLF | <1% |
| *Bistorta officinalis* | Common Bistort | LA/F | 10% |
| *Carex pendula* | Pendulous Sedge | LA | 5% |
| *Carex remota* | Remote Sedge | VLA | <1% |
| *Cirsium arvense* | Creeping Thistle | O | <1% |
| *Cirsium palustre* | Marsh Thistle | R | <1% |
| *Crocosmia crocosmiiflora* | Montbretia | VLA | <1% |
| *Deschampsia cespitosa* | Tufted Hair-grass | O | <1% |
| *Dryopteris dilatata* | Broad Buckler-fern | R | <1% |
| *Dryopteris filix-mas* | Male-fern | O | <1% |
| *Fagus sylvatica* | Beech saplings | O | <1% |
| *Fallopia japonica* | Japanese Knotweed | O | <1% |
| *Ficaria verna* | Lesser Celandine | VLA | 1% |
| *Fraxinus excelsior* | Ash saplings | O | <1% |
| *Galium aparine* | Cleavers | VLF | <1% |
| *Geranium robertianum* | Herb-Robert | O | <1% |
| *Geranium* sp. | Garden Crane's-bill species | R | <1% |
| *Geum urbanum* | Wood Avens | VLF | <1% |
| *Hedera helix* | Ivy | LA | 5% |
| *Heracleum sphondylium* | Common Hogweed | R | <1% |
| *Hyacinthoides non-scripta* | Bluebell | LA | 20% |
| *Impatiens glandulifera* | Indian Balsam | F/LA | 20% |
| *Juncus effusus* | Soft-rush | O | <1% |
| *Juncus inflexus* | Hard Rush | LA | <1% |
| *Lysimachia nummularia* | Creeping Jenny | VLA | <1% |
| *Narcissus* sp. | Daffodil species | O | <1% |
| *Phalaris arundinacea* | Reed Canary-grass | VLA | <1% |
| *Polypodium vulgare* | Common Polypody | R | <1% |
| *Ranunculus repens* | Creeping Buttercup | VLA | <1% |
| *Rubus fruticosus* agg. | Bramble | F* | 20% |
| *Rubus idaeus* | Raspberry | VLA | <1% |

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| *Rumex acetosa* | Common Sorrel | VLF | <1% |
| *Rumex obtusifolius* | Broad-leaved Dock | O | <1% |
| *Sambucus nigra* | Elder sapling | O | <1% |
| *Taraxacum officinale* agg. | Dandelion | O | <1% |
| *Urtica dioica* | Common Nettle | LA | 1% |
| *Vicia sepium* | Bush Vetch | R | <1% |
| [1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species | | | |

**Table 8.5: Plant Species List for Mixed Scrub Along Western Bank of Brook**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| **Woody Species** | | | |
| *Betula pendula* | Silver Birch | F | 5% |
| *Corylus avellana* | Hazel | F | 20% |
| *Crataegus monogyna* | Hawthorn | A* | 70% |
| *Cytisus scoparius* | Broom | O | <1% |
| *Ilex aquifolium* | Holly | R | <1% |
| *Pinus sylvestris* | Scot's Pine | O | <1% |
| *Salix caprea* | Goat Willow | F | 20% |
| *Salix cinerea* | Grey Willow | F | 2" |
| *Sambucus nigra* | Elder | O | <1% |
| *Viburnum opulus* | Guelder Rose | O | <1% |
| **Herb and Grass Species** | | | |
| *Carex pendula* | Pendulous Sedge | O | 1% |
| *Deschampsia cespitosa* | Tufted Hair-grass | F* | 5% |
| *Fallopia japonica* | Japanese Knotweed | VLA | 1% |
| *Ficaria verna* | Lesser Celandine | VLF | <1% |
| *Geranium robertianum* | Herb-Robert | O | <1% |
| *Hypericum androsaemum* | Tutsan | R | <1% |
| *Impatiens glandulifera* | Indian Balsam | F/LA | 10% |
| *Juncus effusus* | Soft-rush | LA | 5% |
| *Rubus fruticosus* agg. | Bramble | F | 5% |
| *Rubus idaeus* | Raspberry | VLF | 1% |
| *Rumex sanguineus* | Wood Dock | O | <1% |
| [1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species | | | |

**Table 8.6: Plant Species List for Neutral Grassland 2 at Margins of Stands of Reed Canary-grass**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| *Agrostis stolonifera* | Creeping Bent | F | 5% |
| *Alopecurus pratensis* | Meadow Foxtail | F | 5% |
| *Anthoxanthum odoratum* | Sweet Vernal-grass | F | 5% |
| *Arrhenatherum elatius* | False Oat-grass | LA | 5% |
| *Cardamine flexuosa* | Wavy Bitter-cress | VLF | <1% |
| *Cardamine pratensis* | Cuckooflower | O | <1% |
| *Carex hirta* | Hairy Sedge | LA | 5% |
| *Carex pendula* | Pendulous Sedge | LA | 1% |
| *Cirsium arvense* | Creeping Thistle | O | <1% |
| *Cirsium palustre* | Marsh Thistle | O | <1% |
| *Dactylis glomerata* | Cock's-foot | LF | 5% |
| *Deschampsia cespitosa* | Tufted Hair-grass | LA | 5% |
| *Dipsacus fullonum* | Teasel | O | <1% |
| *Elytrigia repens* | Common Couch-grass | LA | 1% |
| *Epilobium hirsutum* | Great Willowherb | VLF | <1% |
| *Epilobium montanum* | Broad-leaved Willowherb | VLF | <1% |
| *Festuca arundinaceum* | Tall Fescue | LA | 5% |
| *Festuca rubra* | Red Fescue | A | 15% |
| *Holcus lanatus* | Yorkshire-fog | F | 15% |
| *Hypericum perforatum* | Perforate St. John's-wort | O | <1% |
| *Impatiens glandulifera* | Indian Balsam | LA | 5% |
| *Juncus articulatus* | Jointed Rush | VLF | <1% |
| *Juncus conglomeratus* | Compact Rush | VLF | <1% |
| *Juncus effusus* | Soft-rush | LA | 5% |
| *Juncus inflexus* | Hard Rush | A | 30% |
| *Lolium perenne* | Perennial Rye-grass | LA | 2% |
| *Montia fontana* | Blinks | VLA | <1% |
| *Phalaris arundinacea* | Reed Canary-grass | LA | 5% |
| *Phleum pratense* | Timothy | O | <1% |
| *Plantago lanceolata* | Ribwort Plantain | O | <1% |
| *Poa trivialis* | Rough Meadow-grass | F | 10% |
| *Prunella vulgaris* | Self-heal | VLF | <1% |
| *Ranunculus acris* | Meadow Buttercup | O | <1% |
| *Ranunculus repens* | Creeping Buttercup | LA | 2% |
| *Rubus fruticosus* agg. | Bramble | LA | 5% |
| *Rumex acetosa* | Common Sorrel | VLA | <1% |
| *Rumex crispus* | Curled Dock | O | <1% |
| *Rumex obtusifolius* | Broad-leaved Dock | O | <1% |
| *Salix caprea* | Goat Willow sapling | O | <1% |
| *Scrophularia nodosa* | Common Figwort | O | <1% |
| *Senecio jacobaea* | Common Ragwort | O | <1% |
| *Taraxacum officinale* agg. | Dandelion | O | <1% |
| *Trifolium repens* | White Clover | VLF | <1% |
| *Tussilago farfara* | Colt's-foot | VLF | <1% |
| *Typha latifolia* | Bulrush | VLF | <1% |
| *Urtica dioica* | Common Nettle | VLF | <1% |
| *Vicia sativa* | Common Vetch | O | <1% |
| *Vicia sepium* | Bush Vetch | O | <1% |

[1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

**Table 8.7: Plant Species List for Neutral Grassland 3: Marshy Grassland Near Pylon**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| *Anthoxanthum odoratum* | Sweet Vernal-grass | F | 5% |
| *Cardamine flexuosa* | Wavy Bitter-cress | VLF | <1% |
| *Cardamine pratensis* | Cuckooflower | VLF | <1% |
| *Carex hirta* | Hairy Sedge | LA | 5% |
| *Cirsium arvense* | Creeping Thistle | O | <1% |
| *Cirsium palustre* | Marsh Thistle | O | <1% |
| *Dactylorhiza fuchsii* | Common Spotted-orchid | VLF | <1% |
| *Dactylorhiza praetermissa* | Southern Marsh Orchid | VLA | <1% |
| *Dryopteris filix-mas* | Male-fern | R | <1% |
| *Epilobium hirsutum* | Great Willowherb | VLA | <1% |
| *Epilobium montanum* | Broad-leaved Willowherb | VLA | <1% |
| *Impatiens glandulifera* | Indian Balsam | F | 2% |
| *Juncus effusus* | Soft-rush | A* | 90% |
| *Juncus inflexus* | Hard Rush | LA | 10% |
| *Lolium perenne* | Perennial Rye-grass | F | 2% |
| *Lonicera periclymenum* | Honeysuckle | VLA | <1% |
| *Montia fontana* | Blinks | VLF | <1% |
| *Phalaris arundinacea* | Reed Canary-grass | R | <1% |
| *Ranunculus repens* | Creeping Buttercup | VLA | <1% |
| *Rubus fruticosus* agg. | Bramble | VLA | 1% |
| *Rumex acetosa* | Common Sorrel | F | 2% |
| *Rumex crispus* | Curled Dock | O | 1% |
| *Rumex obtusifolius* | Broad-leaved Dock | F | <1% |
| *Salix caprea* | Goat Willow | O | <1% |
| *Scrophularia nodosa* | Common Figwort | F | 1% |
| *Senecio jacobaea* | Common Ragwort | O | 1% |

[1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

**Table 8.8: Plant Species List for Poor Semi-improved Grassland**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| *Agrostis capillaris* | Common Bent | F | 5% |
| *Alopecurus pratensis* | Meadow Foxtail | A* | 20% |
| *Cerastium fontanum* | Common Mouse-ear | VLF | <1% |
| *Festuca rubra* | Red Fescue | F | 1% |
| *Holcus lanatus* | Yorkshire-fog | A* | 30% |
| *Hypochaeris radicata* | Common Cat's-ear | O | <1% |
| *Juncus effusus* | Soft-rush | VLF | 1% |
| *Lolium perenne* | Perennial Rye-grass | A* | 20% |
| *Lotus pedunculatus* | Greater Bird's-foot-trefoil | LF | 1% |
| *Poa trivialis* | Rough Meadow-grass | F | 5% |
| *Ranunculus acris* | Meadow Buttercup | O | <1% |
| *Ranunculus repens* | Creeping Buttercup | LF | 1% |
| *Rubus fruticosus* agg. | Bramble | O | <1% |
| *Rumex acetosa* | Common Sorrel | F | 2% |
| *Rumex obtusifolius* | Broad-leaved Dock | O | 1% |
| *Senecio jacobaea* | Common Ragwort | O | <1% |
| *Urtica dioica* | Common Nettle | O | 1% |

[1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

**Table 8.9: Plant Species List for Modified Grassland**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| *Agrostis capillaris* | Common Bent | F | 5% |
| *Alopecurus pratensis* | Meadow Foxtail | F | 5% |
| *Anthoxanthum odoratum* | Sweet Vernal-grass | LF | 5% |
| *Cardamine flexuosa* | Wavy Bittercress | LF | <1% |
| *Dactylis glomerata* | Cock's-foot | O | <1% |
| *Deschampsia cespitosa* | Tufted Hair-grass | O/LF | <1% |
| *Epilobium hirsutum* | Great Willowherb | VLF | <1% |
| *Holcus lanatus* | Yorkshire-fog | F | 5% |
| *Juncus effusus* | Soft-rush | O | <1% |
| *Lolium perenne* | Perennial Rye-grass | A* | 60% |
| *Poa annua* | Annual Meadow-grass | F | 1% |
| *Poa trivialis* | Rough Meadow-grass | F | 5% |
| *Ranunculus repens* | Creeping Buttercup | O | <1% |
| *Rubus fruticosus* agg. | Bramble | VLA | <1% |
| *Stellaria media* | Common Chickweed | O | <1% |
| *Taraxacum officinale* agg. | Dandelion | O | <1% |
| *Urtica dioica* | Common Nettle | O/VLF | <1% |
| [1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species | | | |

**Table 8.10: Plant Species List for Hedgerow H1: South of the PRoW Access**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| **Woody Species** | | | |
| *Crataegus monogyna* | Hawthorn | A* | 100% |
| *Ilex aquifolium* | Holly | LF | 2% |
| *Fagus sylvatica* | Beech | O | <1% |
| *Sambucus nigra* | Elder | O | <1% |
| *Quercus robur* | Oak | LF | 1% |
| *Acer pseudoplatanus* | Sycamore | LF | 1% |
| **Understorey** | | | |
| *Alliaria petiolata* | Garlic Mustard | VLF | <1% |
| *Allium ursinum* | Ramsons | VLA | <1% |
| *Bistorta officinalis* | Common Bistort | VLF | <1% |
| *Cerastium fontanum* | Common Mouse-ear | O | <1% |
| *Dactylis glomerata* | Cock's-foot | O | <1% |
| *Epilobium hirsutum* | Great Willowherb | O | <1% |
| *Ficaria verna* | Lesser Celandine | R | <1% |
| *Galium aparine* | Cleavers | O | <1% |
| *Geranium lucidum* | Shining Crane's-bill | R | <1% |
| *Geranium robertianum* | Herb-Robert | O | <1% |
| *Hedera helix* | Ivy | VLA | 1% |
| *Hyacinthoides non-scripta* | Bluebell | O | <1% |
| *Hyacinthoides* sp. | Non-native Bluebell | VLF | <1% |
| *Lolium perenne* | Perennial Rye-grass | R | <1% |
| *Narcissus pseudonarcissus* | Daffodil | VLF | <1% |
| *Rumex obtusifolius* | Broad-leaved Dock | O | <1% |
| *Saxifraga x urbium* | London Pride | VLF | <1% |
| *Taraxacum officinale* agg. | Dandelion | O | <1% |
| [1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species | | | |

**Table 8.11: Plant Species List for Hedgerow H2: North of PRoW Access**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| **Woody Species** | | | |
| *Acer pseudoplatanus* | Sycamore | LF | 1% |
| *Aesculus hippocastanum* | Horse-chestnut | LA | 5% |
| *Crataegus monogyna* | Hawthorn | A* | 90% |
| *Fagus sylvatica* | Beech | R | <1% |
| *Fraxinus excelsior* | Ash | LA | 2% |
| *Ilex aquifolium* | Holly | LA | 1% |
| *Quercus robur* | Oak | LF | 1% |
| *Taxus baccata* | Yew | R | <1% |
| *Tilia* sp. | Lime | R | <1% |
| **Understorey** | | | |
| *Alliaria petiolata* | Garlic Mustard | VLA | <1% |
| *Arctium minus* | Lesser Burdock | R | <1% |
| *Bellis perennis* | Daisy | R | <1% |
| *Dryopteris filix-mas* | Male-fern | R | <1% |
| *Festuca rubra* | Red Fescue | VLA | <1% |
| *Ficaria verna* | Lesser Celandine | R | <1% |
| *Galium aparine* | Cleavers | F* | <1% |
| *Geranium robertianum* | Herb-Robert | O | <1% |
| *Geum urbanum* | Wood Avens | VLF | <1% |
| *Hedera helix* | Ivy | LA | 2% |
| *Hyacinthoides non-scripta* | Bluebell | VLA | 1% |
| *Lapsana communis* | Nipplewort | F | <1% |
| *Lonicera periclymenum* | Honeysuckle | LA | <1% |
| *Ranunculus acris* | Meadow Buttercup | R | <1% |
| *Ranunculus repens* | Creeping Buttercup | O | <1% |
| *Rubus fruticosus* agg. | Bramble | F* | 5% |
| *Rubus idaeus* | Raspberry | VLA | <1% |
| *Sonchus oleraceus* | Smooth Sow-thistle | O | <1% |
| *Taraxacum officinale* agg. | Dandelion | O | <1% |
| *Veronica persica* | Common Field Speedwell | VLA | <1% |

[1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

## 8.3 Assessment in Accordance with The Hedgerows Regulations 1997

**Table 8.12: Hedgerow Description and Assessment in Accordance with *The Hedgerows Regulations 1997***

| | Hedgerow Name | Hedgerow H1 | | | Hedgerow H2 | | |
|---|---|---|---|---|---|---|---|
| Description | Height x width (metres) | 2-3 x 0.8 metres | | | 3 to 5 x 1 metres | | |
| | Length (metres) | 198 metres | | | 333 metres | | |
| | Continuity | 100% | | | 100% | | |
| | Management | Cut on top and west side | | | Cut on west side | | |
| Woody Species | Section number[1] | 1 | 2 | 3 | 1 | 2 | 3 |
| | Qualifying woody species | 2 | 2 | 2 | 3 | 4 | 3 |
| | ***Average Number*** | ***2*** | | | ***3 (rounded from 3.33)*** | | |
| Number of Features Present | (a) Bank or wall along at least ½ length | No | | | No | | |
| | (b) Gaps which in agg. do not exceed 10% | Yes | | | Yes | | |
| | (c)-(e) 1 standard tree per 50m | No | | | Yes | | |
| | (f) At least 3 woodland species within 1m | Yes | | | Yes | | |
| | (g) Ditch along at least ½ its length | No | | | No | | |
| | (h) Connections scoring 4 points or more | No | | | No | | |
| | (i) Parallel hedge within 15m | No | | | No | | |
| | ***Total Features*** | ***3*** | | | ***3*** | | |
| Hedgerow Importance | ***Criteria for Hedgerow Importance 1*** | ***No*** | | | ***No*** | | |
| | ***Criteria for Hedgerow Importance 2:*** | ***No*** | | | ***No*** | | |
| | ***Criteria for Hedgerow Importance 3***: | ***No*** | | | ***No*** | | |
| Hedgerow Important Criteria | ***Criteria for Hedgerow Importance 1:***<br>Hedgerow contains species listed as:<br>(1) Part 1 of Schedule 1, Schedule 5 or Schedule 8 of *Wildlife and Countryside Act 1981* (as amended);<br>(2) Declining breeders in 'Red Data Birds of Britain'; and / or<br>(3) Categorised as 'endangered', 'extinct' or 'vulnerable' | | | | | | |
| | ***Criteria for Hedgerow Importance 2:***<br>Hedgerow includes:<br>(i) At least 7 woody species (on average);<br>(ii) At least 6 woody species (on average) and at least 3 features;<br>(iii) At least 6 woody species (on average), including one of: Black Poplar, Large-leaved Lime, Small-leaved Lime or Wild Service Tree; and / or;<br>(iv) At least 5 woody species (on average), and has 4 features | | | | | | |
| | ***Criteria for Hedgerow Importance 3***:<br>Is adjacent to is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g). | | | | | | |

[1]Up to and including 100 metres length = 1 section required.
100 to 200 metres length = 2 sections required
Greater than 200 metres length = 3 sections required.

Hedgerow H3 is less than 30 metres and *The Hedgerows Regulations 1997* do not apply.

## 8.4 Results of Ground Level Tree Assessment for Bats

**Table 8.13: Results of Licensed Ground Level Tree Assessment of Category U Trees**

| Tree Number (AWA Tree Consultants, 2026) | Species | Actions Relevant to Site Proposals | Presence of Potential Roost Features (PRF) | Photo Reference (if relevant) | Assessment (based on Table 4.1 of the *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)* (Collins, J. (ed), 2023)) |
|---|---|---|---|---|---|
| **T5** | Ash | Category U | Minor dead wood but no PRF | | None |
| **T7** | Elder | Category U | None | | None |
| **T39** | Ash | Category U | None | | None |
| **T40** | Ash | Category U | None | | None |
| **T51** | Apple | Category U | None | | None |
| **T68** | Goat Willow | Category U | None | | None |
| **T72** | Goat Willow | Category U | None | | None |
| **T81** | Ash | Category U | None | | None |
| **T96** | Swedish Whitebeam | Category U | None. Tree has actually fallen. | | None |
| **T114** | Hawthorn | Category U | None | | None |
| **T117** | Hawthorn | Category U | None | | None |
| **T128** | Oak | Category U | None | | None |
| **T210** | Ash | Category U | None | | None |
| **T217** | Ash | Category U | None | | None |

**Table 8.14: Results of Licensed Ground Level Tree Assessment of Trees Likely to be Removed**

| Tree Number (AWA Tree Consultants, 2026) | Species | Actions Relevant to Site Proposals | Presence of Potential Roost Features (PRF) | Photo Reference (if relevant) | Assessment (based on Table 4.1 of the *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)* (Collins, J. (ed), 2023)) |
|---|---|---|---|---|---|
| **G181** | Horse-chestnut, Ash and Willow | In location of northern site access off Walmersley Road so removal is likely. | None | | None |
| **G178** | Oak, Ash and Goat Willow | In location of southern site access off Walmersley Road so removal is likely. | Leaning Goat Willow with a hollow stem | **Photo 44** | Leaning Goat Willow is **PRF-I**.<br><br>Other trees are 'none'. |
| **G167** | Oak, Sycamore and Holly | In location of likely site access over tributary of Walmersley Brook | None | | None |

| Tree Number (AWA Tree Consultants, 2026) | Species | Actions Relevant to Site Proposals | Presence of Potential Roost Features (PRF) | Photo Reference (if relevant) | Assessment (based on Table 4.1 of the *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)* (Collins, J. (ed), 2023)) |
|---|---|---|---|---|---|
| **T1** | Sycamore | Removal likely to create access and visibility | None | | None |
| **T37** | Oak | Developable area | None | | None |
| **T38** | Oak | Developable area | None | | None |
| **T47** | Oak | Developable area | None | | None |
| **T86** | Willow | Developable area | None | | None |
| **T93** | Hawthorn | Developable area | None | | None |
| **T94** | Willow | Developable area | None | | None |
| **T95** | Oak | Developable area | None | | None |
| **T97** | Oak | Developable area | Damage and butt-rot as base which extends at least 0.5 metres into the hollow stem of the tree. No bats or bat droppings present on inspection on 26th March 2026. | **Photo 45** | **PRF-I** |
| **T98** | Oak | Developable area | None | | None |
| **T99** | Hawthorn | Developable area | None | | None |
| **T101** | Oak | Developable area | None | | None |
| **T102** | Hawthorn | Developable area | None | | None |
| **T103** | Oak | Developable area | None | | None |
| **G104** | Holly | Developable area | None | | None |
| **T105** | Oak | Developable area | None | | None |
| **T106** | Hawthorn | Developable area | None | | None |
| **T107** | Oak and Bramble | Developable area | None | | None |
| **G108** | Hawthorn and Ash | Developable area | None | | None |
| **T109** | Hawthorn | Developable area | None | | None |
| **T110** | Ash | Developable area | None | | None |
| **T111** | Ash | Developable area | None | | None |
| **T112** | Hawthorn | Developable area | None | | None |
| **T113** | Hawthorn | Developable area | None | | None |
| **T114** | Hawthorn | Developable area | None | | None |
| **T115** | Hawthorn | Developable area | None | | None |
| **T142** | Oak | Developable area | None | | None |
| **T145** | Oak | Retained but included for completeness | None | | None |
| **T146** | Oak | Developable area | None | | None |
| **T147** | Oak | Developable area | None | | None |
| **T148** | Oak | Developable area | None | | None |
| **T149** | Oak | Developable area | None | | None |
| **T150** | Oak | Developable area | None | | None |
| **T151** | Oak | Developable area | None | | None |
| **T152** | Oak | Developable area | None | | None |
| **T153** | Oak | Developable area | None | | None |
| **T154** | Oak | Developable area | None | | None |
| **T155** | Oak | Developable area | None | | None |
| **T156** | Oak | Developable area | None | | None |

| Tree Number (AWA Tree Consultants, 2026) | Species | Actions Relevant to Site Proposals | Presence of Potential Roost Features (PRF) | Photo Reference (if relevant) | Assessment (based on Table 4.1 of the *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)* (Collins, J. (ed), 2023)) |
|---|---|---|---|---|---|
| **T157** | Oak | Developable area | None | | None |
| **T158** | Oak | Developable area | None | | None |
| **G159** | Oak, Holly, Elder | Developable area | None | | None |
| **T160** | Oak | Developable area | None | | None |
| **T161** | Oak | Developable area | None | | None |
| **Incidental Observations at Trees Scheduled to be Retained** | | | | | |
| **Lime in central woodland** | Lime | Retained | Vertical frost crack (or similar) which extends into a shallow cavity. No bats present on inspection with endoscope | **Photo 48** | PRF-I |
| **T20** | Willow | Retained | Fissures and shallow cavities; no bats present on inspection | **Photo 49** | PRF-I |

## 8.5 Water Vole Habitat Suitability Assessment

**Table 8.15: Reproduction of Table 2.1, *Water Vole Field Signs and Habitat Assessment, A Practical Guide to Water Vole Surveys***

| Habitat Category | Dry Areas for Burrows or Nests | | | Herbaceous Vegetation | Water |
|---|---|---|---|---|---|
| | Bank Profile | Bank Substrate | Variation in Water Level | | |
| Optimal[1] | Steep (approaching 1:1) on at least on side of the watercourse. Steep or shallow banks on static waterbodies or fen-type habitat, where water levels do not fluctuate significantly. | Earth or peat. | No noticeable variation during the summer months; banks are not overtopped regularly. | Continuous swathe of tall and luxurious riparian vegetation providing 90-100% cover on the banks (tall tussocky grassland) and marginal / in-channel vegetation is present (emergent species). | Permanent water. |
| Good[1] | Steep (approaching 1:1) on at least one side of a watercourse. Steep or shallow banks on static waterbodies or fen-type habitat, where water levels do not fluctuate significantly. | Earth or peat banks, or stony / reinforced banks with gaps allowing access to the earth behind. | No noticeable variation during the summer months; banks are not overtopped regularly. | Continuous swathe of bankside or in-channel (emergent) vegetation providing at least 60% ground cover. May be dominated by grasses and weeds, rather than luxurious riparian vegetation. The vegetation should generally be tall, except in urban or suburban areas, where shorter bankside vegetation may also qualify. | Permanent water, or routinely wet for at least 2 to 3 months during the summer, and where other 'good' habitat is present in immediately adjacent areas with permanent water. |
| Negligible value[2] | Shallow profile on both banks, or vertical bank face with no burrowing opportunities behind it. | Rocky or gravel, unsuitable for burrowing, or reinforced banks with no gaps. | Considerable variation in water level – the bank toe can move by more than 1 metre horizontally over the breeding season. | No or limited bankside and marginal vegetation (due to shading or other 'permanent' factors – note that management can change and is often a 'temporary' factor). | N/A. |
| Suitable but poor | Any habitat that falls short of the criteria to qualify as 'good' but does not meet the criteria of 'negligible value' could reasonably be considered to be 'suitable but poor' | | | | |

[1]All criteria need to be met.
[2]Will generally need to meet the criteria for herbaceous vegetation and at least one other.

## 8.6 Figures

**Figure 1: Aerial Image of the Site and its Surroundings**

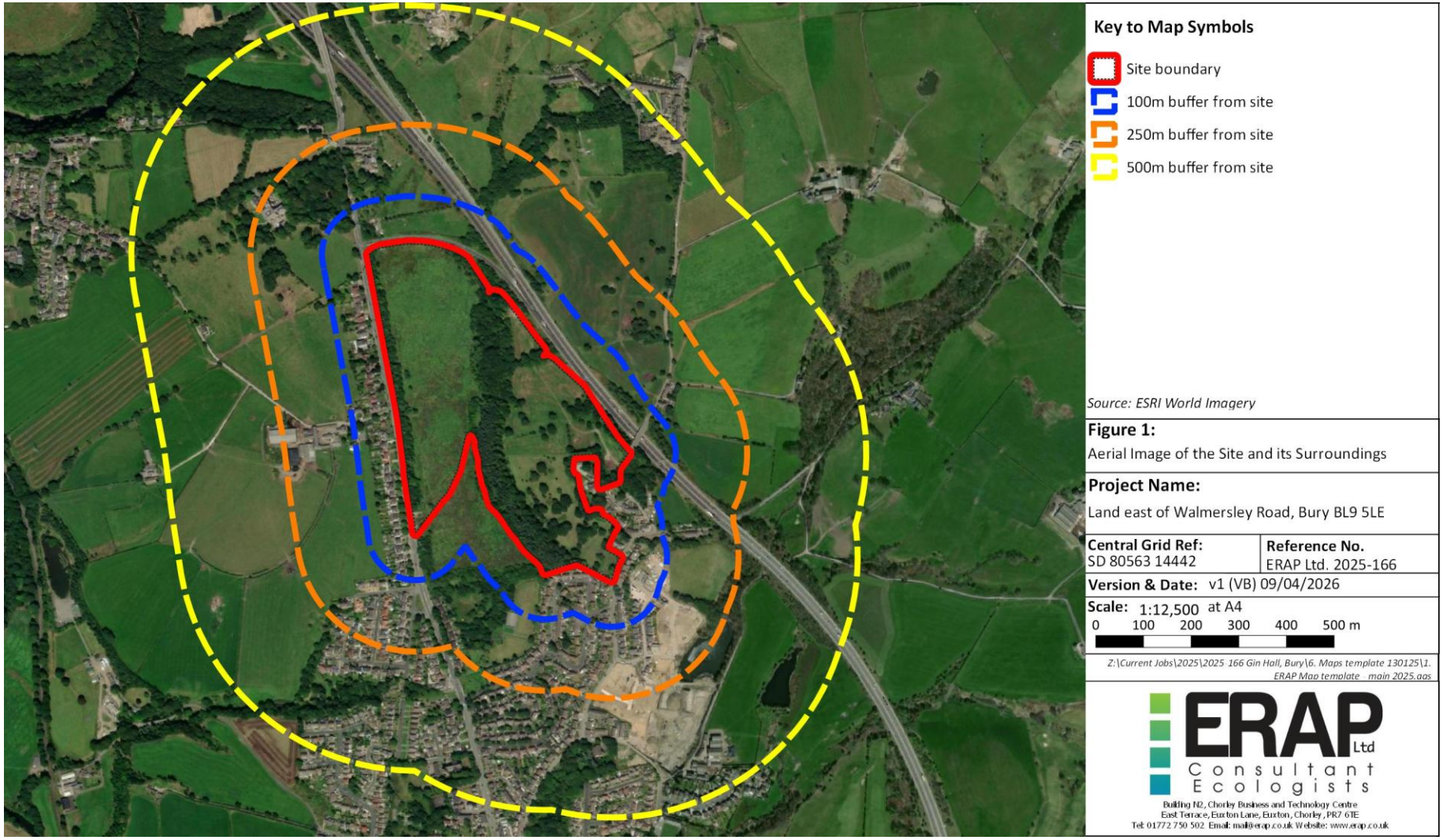
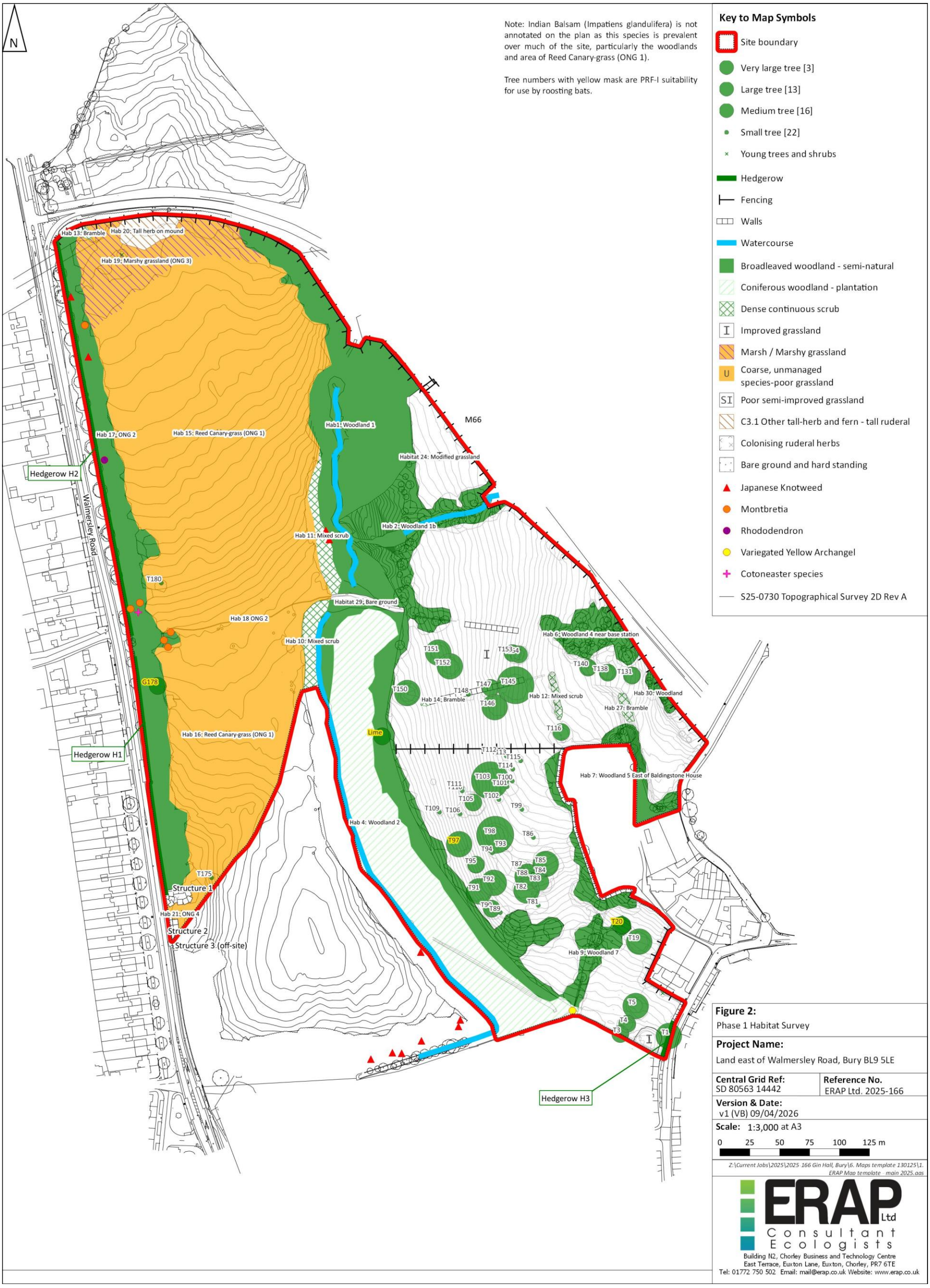
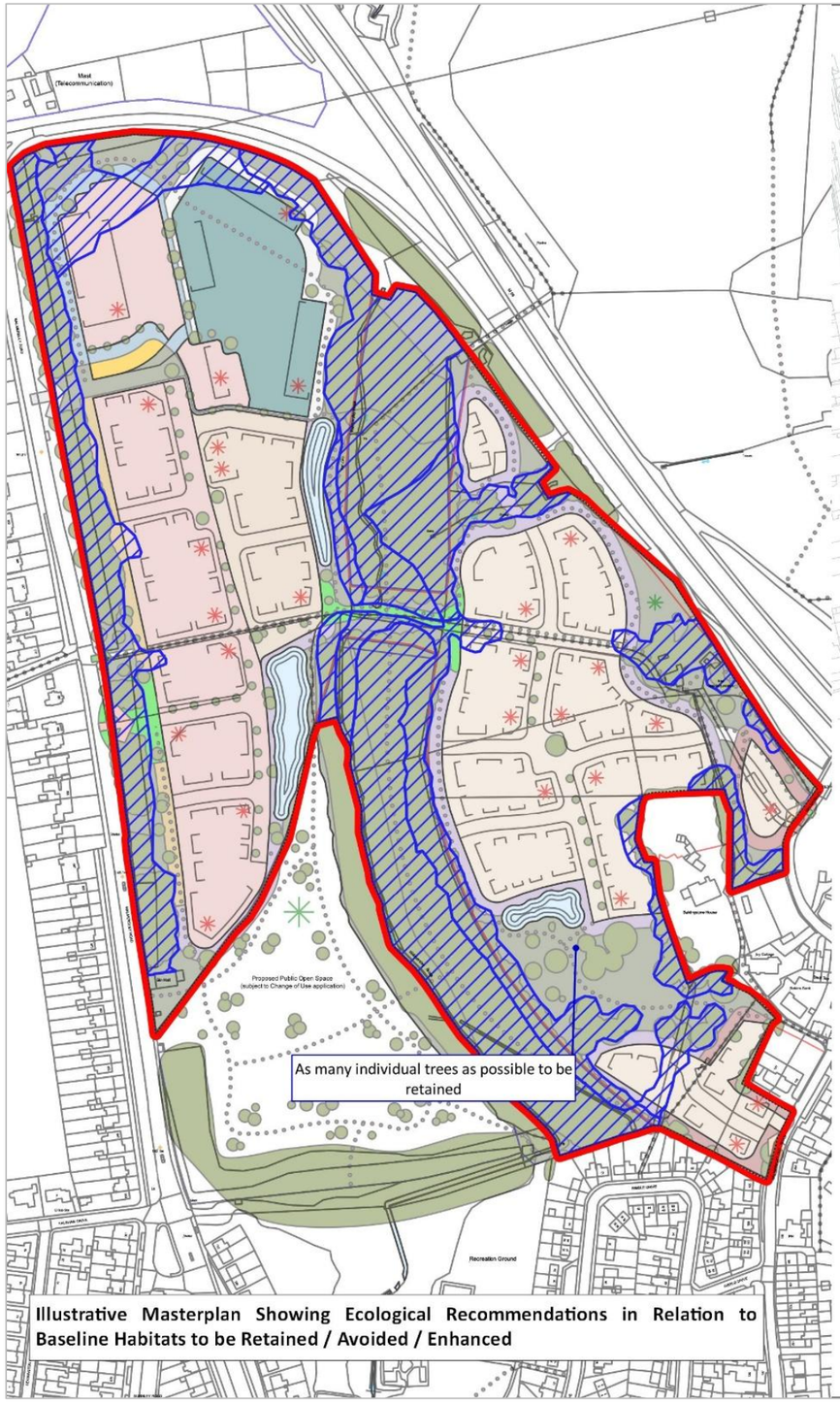


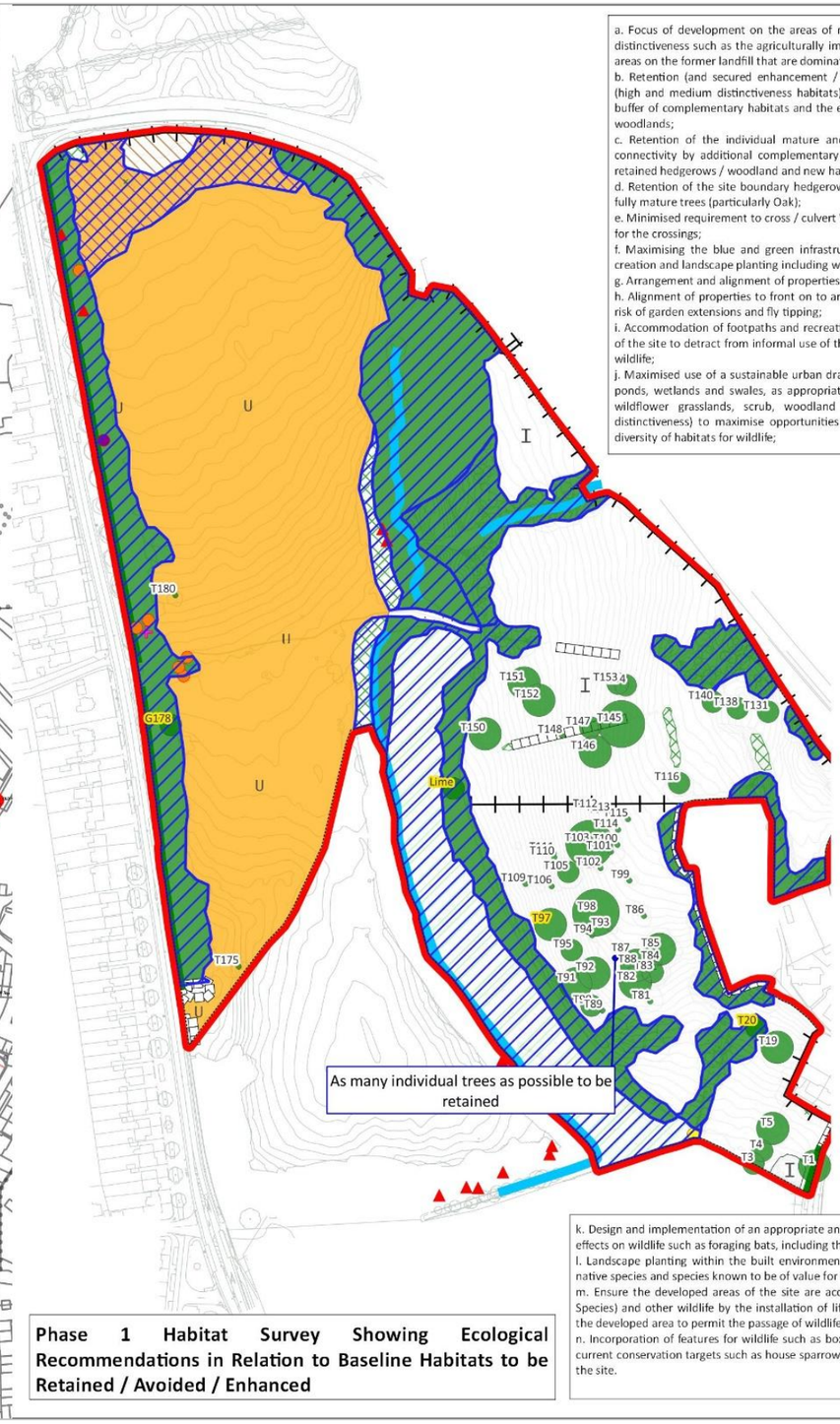
**Figure 2:** **Phase 1 Habitat Survey**



## 8.7 Ecological Constraints and Opportunities




**Illustrative Masterplan Showing Ecological Recommendations in Relation to Baseline Habitats to be Retained / Avoided / Enhanced**




**Phase 1 Habitat Survey Showing Ecological Recommendations in Relation to Baseline Habitats to be Retained / Avoided / Enhanced**

a. Focus of development on the areas of no / low ecological value and / or habitats of low distinctiveness such as the agriculturally improved and poor semi-improved grasslands and the areas on the former landfill that are dominated by dense Reed Canary-grass;
b. Retention (and secured enhancement / long-term management) of the woodland habitats (high and medium distinctiveness habitats), including the accommodation of an undeveloped buffer of complementary habitats and the extension of woodland / scrub habitat to bolster the woodlands;
c. Retention of the individual mature and semi-mature trees and enhancement of habitat connectivity by additional complementary planting and habitat creation to link the trees to retained hedgerows / woodland and new habitats;
d. Retention of the site boundary hedgerows. Positioning of site accesses to avoid mature and fully mature trees (particularly Oak);
e. Minimised requirement to cross / culvert Walmersley Brook by utilising existing piped sections for the crossings;
f. Maximising the blue and green infrastructure and green links through the site by habitat creation and landscape planting including wildflower grasslands, scrub and tree planting;
g. Arrangement and alignment of properties to create contiguous gardens;
h. Alignment of properties to front on to areas of retained and created habitat to minimise the risk of garden extensions and fly tipping;
i. Accommodation of footpaths and recreational areas / dog walking areas within specific areas of the site to detract from informal use of the retained woodland and new habitats designed for wildlife;
j. Maximised use of a sustainable urban drainage system (SuDS) across the site with the use of ponds, wetlands and swales, as appropriate, with buffers of complementary habitats such as wildflower grasslands, scrub, woodland and individual trees (i.e. habitats of medium distinctiveness) to maximise opportunities to secure Biodiversity Net Gain and to provide a diversity of habitats for wildlife;

k. Design and implementation of an appropriate and sensitive lighting strategy to avoid any adverse effects on wildlife such as foraging bats, including the avoidance of lighting where not required;
l. Landscape planting within the built environment / residential development to be composed of native species and species known to be of value for the attraction of wildlife;
m. Ensure the developed areas of the site are accessible to wildlife such as hedgehog (a Priority Species) and other wildlife by the installation of lifted gates and plot boundary fences throughout the developed area to permit the passage of wildlife beneath; and
n. Incorporation of features for wildlife such as boxes for roosting bats and nesting birds including current conservation targets such as house sparrow, starling and swift within the developed areas of the site.

**Key to Map Symbols**

- Site boundary
- Habitats recommended for protection or enhancement
- Japanese Knotweed
- Montbretia
- Rhododendron
- Variegated Yellow Archangel
- Cotoneaster species
- Very large tree [3]
- Large tree [13]
- Medium tree [16]
- Small tree [22]
- Young trees and shrubs
- Hedgerow
- Fencing
- Walls
- Ditches
- Broadleaved woodland - semi-natural
- Coniferous woodland - plantation
- Dense continuous scrub
- I Improved grassland
- Marsh / Marshy grassland
- U Coarse, unmanaged species-poor grassland
- SI Poor semi-improved grassland
- C3.1 Other tall-herb and fern - tall ruderal
- Colonising ruderal herbs
- Bare ground and hard standing
- S25-0730 Topographical Survey 2D Rev A

**Figure A:**
Ecological Constraints and Opportunities

**Project Name:**
Land east of Walmersley Road, Bury BL9 5LE

**Central Grid Ref:** SD 80563 14442
**Reference No.** ERAP Ltd. 2025-166

**Version & Date:** v1 (VB) 09/04/2026

**Scale:** 1:4,000 at A3

0 50 100 150 200 m

*Z:\Current Jobs\2025\2025 166 Gin Hall, Bury\6. Maps template 130125\1. ERAP Map template - main 2025.qgs*

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**Land East of Walmersley Road, Bury BL9 5LE**

# PRELIMINARY ASSESSMENT OF BIODIVERSITY NET GAIN BASED ON ILLUSTRATIVE MASTERPLAN

**April 2026**

**ERAP (Consultant Ecologists) Ltd Reference: 2025-166b**

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## Document Control

| **Survey Type:** | **Surveyors** | **Survey Date(s)** |
|---|---|---|
| UK Habitat Classification Survey (including Condition Assessments of habitats) for On-site Habitats | Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM<br>Principal Ecologist | 11th August 2025<br>1st October 2025<br>15th March 2026<br>26th March 2026 |
| MoRPh Watercourse Survey | Amy Sharples B.Sc. (Hons) ACIEEM<br>Senior Ecologist | 12th February 2026 |
| **Reporting** | **Personnel** | **Date** |
| **Author** | Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM<br>Principal Ecologist | 10th April 2026 |
| **Signature(s)** |  | |
| **Checked by** | ERAP | 10th April 2026 |
| **Revised and issued by** | Victoria Burrows | 10th April 2026 |
| **Report issued to** | Hollins Strategic Land | |
| **Version Number** | 1 | |
| **Metric Version** | Statutory Metric version 1.0.4 of the metric published 3rd July 2025 | |

## 1.0 INTRODUCTION

### 1.1 Background and Rationale

1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned by Hollins Strategic Land to carry out a preliminary assessment of Biodiversity Net Gain (BNG) at land east of Walmersley Road, Bury BL9 5LE (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SD 80563 14442.

1.1.2 The assessment was required to inform an outline planning application described as *'Outline planning application with all matters reserved other than access for mixed use development for up to 350 dwellings (Use Class C3), up to 2,500 sq mts employment/commercial uses (Use Classes E(c), E(d), E(e), E(f), E(g)(ii) and E(g)(iii)), a local centre comprising up to 249 sq mts of retail floorspace (Use Class E(a)), mobility hub, public open space and associated infrastructure*.'

1.1.3 This BNG assessment has been prepared to provide an accurate assessment of the biodiversity value of the baseline of the site, an assessment of the value of post-intervention habitats based on the parameters of an Illustrative Masterplan and ecological guidance, and provides guidance in relation to the requirements to attain a net gain in accordance with *Biodiversity Net Gain: Good Practice Principles for Development* (CIEEM, 2016).

1.1.4 This report also advises on how compliance with Chapter 15, paragraph 193(d) of the *National Planning Policy Framework* (Ministry of Housing, Communities & Local Government, 2024)[1] can be achieved, which states '*opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate'*.

### 1.2 Site Description

1.2.1 An aerial image of the site is appended at **Figure 1**. The total site area is **19.9380 hectares**[2].

1.2.2 The habitats present within the site are described and assessed in *2025-166 Land East of Walmersley Brook, Bury BL9 5LE, Ecological Survey and Assessment* (ERAP (Consultant Ecologists) Ltd, 2026), hereafter referred to as the 'ecology report'.

1.2.3 A summary of the habitats present within the site is presented at **Section 3.1** of this report.

### 1.3 Proposed Development Description

1.3.1 As the mixed use development planning application is made in outline a detailed layout and a landscape strategy are not available. This assessment of BNG is based on a series of parameters, as informed by the *Illustrative Masterplan* (The Urbanists, 2025) (refer to **Section 7.5**). The Illustrative Masterplan has been prepared in accordance with arboricultural and ecological guidance and the application of mitigation hierarchy, as outlined in **Section 4.0**.

[1] Hereafter the NPPF

[2] As measured by ERAP (Consultant Ecologists) Ltd; detail on the methods used to measure the area of the site are presented at **Section 2.0**. It has been considered suitable in this instance to measure the area habitats in hectares to four decimal places (i.e. to a $m^2$ level of accuracy).

### 1.4 Scope of Study

1.4.1 This report has been prepared to accompany a completed assessment of BNG using *The Statutory Biodiversity Metric Calculation Tool* (Natural England, 2025). The completed Microsoft Excel spreadsheet assessment is presented as a separate document, named '*ERAP Ltd 2025-166b Walmersley Road, Bury BNG Metric v1_10.04.26*', hereafter referred to as the 'BNG Metric'.

1.4.2 It is intended that this report provides a transparent assessment to demonstrate the calculation of net gain, based on the reasonable parameters assumed for the proposals (refer to **Section 2.3**). This approach has been applied on a number of other sites ERAP (Consultant Ecologists) Ltd has assisted with and has been accepted by the relevant Local Planning Authorities (LPA) and their ecological advisors to enable a planning application to progress.

## 2.0 METHOD OF SURVEY

### 2.1 Habitat Assessment and Mapping

**Baseline Habitats**

2.1.1 A Phase 1 Habitat Survey including an assessment in accordance with the UKHab and condition assessments of the habitats present was carried out by Victoria Burrows on the following dates:

- 11th August 2025: Weather conditions were dry and sunny with a light air (Beaufort scale 1) and an air temperature of 25°C.
- 1st October 2025: Weather conditions were dry with sunny intervals with a light air (Beaufort scale 1) and an air temperature of 16°C.
- 15th March 2026: Dry with sunny intervals with a light air (Beaufort scale 1) and an air temperature of 9°C.
- 26th March 2026: Dry and sunny with a light air (Beaufort scale 1) and an air temperature of 8°C.

2.1.2 On site habitat mapping was assisted via use of GPS technology using ERSI world imagery and a site topographical plan as a baseplan.

2.1.3 Each of the habitats within the site has been assessed in accordance with the UKHab to determine each habitat type present. This has allowed a reliable classification of habitats in accordance with those used by the BNG Metric.

2.1.4 The UKHab has been designed to function at two scales: fine scale (25m$^2$ or 5 metres length) and large scale (400m$^2$ or 20m$^2$ length). It has been considered for the purposes of this survey (where the UKHab has been used to inform the BNG calculation of a relatively small area) that a finer scale of 5m$^2$ is appropriate for the classification of habitats.

2.1.5 A plan showing the baseline habitats present within the site is appended at **Figure 2**.

2.1.6 Where relevant, Condition Assessments for each of the habitats present within the site have been completed in accordance with *The Statutory Biodiversity Metric – Technical Annex 1: Condition Assessment Sheets and Methodology* (Natural England, July 2025) and are appended at **Section 7.2**.

2.1.7 A baseline assessment of Walmersley Brook using the MoRPh River survey was completed on 12th February 2026; Amy Sharples has completed the appropriate River Condition Assessment training for MoRPh Surveys for Biodiversity Net Gain. The predominant river width of the surveyed section of the Walmersley Brook is 5 metres. Module length was therefore set to 20 metres. The length of open watercourse adjacent to / within the site boundary is 617 metres; 10 module lengths (i.e. 2 subreaches / 200 metres) is greater than 20% of this length, and therefore two subreach (2 MultiMoRPh surveys) surveys were required to inform the assessment.

2.1.8 The OS grid reference points for the reach start and end locations and the central point of each module are presented at **Table 2.1**.

**Table 2.1: Reach Start and End and Module Grid References**

| Location | OS Grid Reference Subreach 1 | OS Grid Reference Subreach 2 |
|---|---|---|
| Reach start | SD 80560 14720 | |
| Reach end | SD 80541 13895 | |
| Module 1 | SD 80551 14586 | SD 80593 14215 |
| Module 2 | SD 80554 14555 | SD 80608 14190 |
| Module 3 | SD 80556 14529 | SD 80634 14166 |
| Module 4 | SD 80562 14503 | SD 80647 14139 |
| Module 5 | SD 80563 14476 | SD 80665 14118 |

2.1.9 The total reach length (i.e. the length located between major tributaries or flow obstructions such as large weirs or dams) is 950 metres; the upstream and downstream grid references for the start and end points of the reach are SD 80560 14720 and SD 80541 13895 respectively.

2.1.10 The proposals plans have been used to determine the post intervention condition of Walmersley Brook. Factors such as the proposed land use at the bank top habitats within 10 metres of the brook, the effects of habitat management (for example the removal of litter and control of invasive plant species), and the presence of any culverts, pipes or bridges have been considered when assessing the condition of the brook following the completion of the proposed development at the site.

2.1.11 All baseline data and proposed river condition data has been entered onto the Cartographer website to obtain baseline and possible post intervention condition assessments for Walmersley Brook.

**Post Intervention Habitats**

2.1.12 The post-intervention habitats have been calculated using the Illustrative Masterplan. This plan has been provided to ERAP (Consultant Ecologists) Ltd as a spatially referenced .dwg files; the file has been converted to .dxf format and inputted into QGIS.

2.1.13 A plan showing the parameters of the post-intervention habitats is appended at **Figure 3** and target condition assessments for each of the proposed habitats are appended at **Section 7.3**.

## 2.2 Survey and Reporting Limitations

2.2.1 All measurements have been either estimated whilst on site or measured using QGIS.

2.2.2 The surveys were carried out in late summer and early spring when some plant species may be dying back or dormant; the surveyor is experienced in identifying plant species from their vegetative characteristics however, and a reliable assessment of the habitats present was possible. Where it is considered that a

survey at these times of year is not within the optimum time for the maximum detection of plant species and characterisation of the habitat (particularly in consideration of the collation of baseline data to inform the condition assessments) this is discussed in Section 4.3 of the ecology report and recommendations are made in Section 5.2 of the ecology report.

## 2.3 Evaluation Methods and Rules Applied

### Habitats and Assessment

2.3.1 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities* (NERC) *Act 2006*. Where suitable, the ecological value of the habitats present have been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).

2.3.2 QGIS has been used to calculate the total area / length of each baseline habitat present within the site and the area / length of the proposed habitats at the site.

2.3.3 Each habitat and individual trees have been assessed to determine whether they are 'irreplaceable habitat', defined in NPPF as '*Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen'.* The further detail presented in *The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024* (GOV.UK, 2024) has also been referred to.

2.3.4 The size of the existing trees has been obtained from the *Arboricultural Report to BS5837: 2012 at Land east of Walmersley Road, Bury BL9 6RX* (AWA Tree Consultants, 2026), hereafter referred to as the 'tree report'.

2.3.5 Proposed urban trees have been entered in the metric in accordance with the Tree Helper provided within the BNG Metric.

### Relevant Guidance

2.3.6 Government advice on wildlife, as set out in the NPPF and associated government circulars has been taken into consideration.

### Strategic Significance

2.3.7 The site and adjoining land do not support any Core Local Nature Sites as identified on the Greater Manchester Nature Network (now published). Habitats annotated on the Nature Network as 'g4 modified grassland' and 'w1h mixed woodland mainly conifer' opportunity areas are identified at the site. The LNRS describes the following actions:

- **Grassland, farmland and lowland heath:** Enhance and appropriately manage remaining semi-natural grasslands and heath to good condition, including increasing species richness.
- **Grassland, farmland and lowland heath:** Creation or restoration of species-rich grasslands and lowland heath, particularly where they will expand or act as stepping stones or corridor.

- **Grassland, farmland and lowland heath:** Enhance and manage improved or semi-improved grasslands to boost species richness.
- **Rivers, canals and waterbodies:** Enhance and maintain existing habitats within our waterbodies and adjacent grassland, wetland and woodland habitats to increase species richness.
- **Rivers, canals and waterbodies:** Expansion, creation or restoration of a variety of waterside habitats, including woodlands, wetlands and meadows, where they will better connect existing habitats.
- **Upland moorlands:** Create transitional habitats or corridors to increase linkage between our uplands and lowland habitats, where conditions allow.

2.3.8 In accordance with Table 7 of *The Statutory Biodiversity Metric User Guide*(DEFRA, 2025) where a habitat parcel lies within a mapped area on the LNRS and the proposed intervention is considered to be consistent with the mapped potential measure (or action of the 'opportunity area') then a high strategic significance (i.e. Formally identified in local strategy) has been applied at the post-intervention stage.

**Assumptions**

2.3.9 Reasonable assumptions have been made in relation to the condition assessments for the proposed habitats at the site; the proposed condition assessment for each habitat is appended at **Section 7.3**. Long-term management of the proposed habitats is required to secure the proposed condition.

## 3.0 BASELINE HABITATS

### 3.1 Site Description

3.1.1 The approximately 19.9380 hectares site is located to the east of Walmersley Road in an area to the north of Bury. The site is bisected by Walmersley Brook which is bordered by scrub to the west and woodland to the east with deciduous woodland at the northern end and mixed, mainly coniferous woodland to the south. Land east of the brook on land sloping towards the M66 motorway is colonised by improved and semi-improved grassland with scattered individual trees and woodland fragments. Land west and north of the brook is colonised by dense stands of Reed Canary-grass and areas of neutral grassland which is understood to have colonised an inert landfill. Along the western site boundary with Walmersley Road is a narrow belt of woodland and roadside hedgerows. Towards the south-western corner of the site are the stone walls and former buildings associated with Gin Hall.

3.1.2 The northern site boundary meets the M66 motorway slip road. Walmersley Road marks the western site boundary, the covered reservoir at Carr Bank is present to the south and the M66 motorway and existing properties and residential gardens associated with Baldingstone House are present to the east. The infilled former reservoir at Carr Bank lies to the south of the site.

### 3.2 Assessment of Baseline Habitats

3.2.1 **Tables 3.1** to **3.4** provide a summary of the habitats present, their condition assessment result and their area / length within the site. Condition assessments for each habitat are appended at **Section 7.2**. Photographs of relevant habitats are presented in **Section 7.1**.

**Table 3.1: Summary of Baseline Area Habitats within the Site**

| Habitat Reference | UK Habitat Classification Type | BNG Habitat Equivalent | Habitat Distinctiveness | Condition Assessment Result | Area (ha) |
|---|---|---|---|---|---|
| ***Habitat 1*** Woodland 1 | w1f7 other lowland mixed deciduous woodland with the secondary code 524 invasive non-native species. | Woodland and forest - Lowland mixed deciduous woodland | High | Moderate | 1.449 |
| ***Habitat 2*** Woodland 1b | w1f7 other lowland mixed deciduous woodland with the secondary code 524 invasive non-native species. | Woodland and forest - Lowland mixed deciduous woodland | High | Poor | 0.5361 |
| ***Habitat 3*** Woodland 1c | w1f7 other lowland mixed deciduous woodland with the secondary code 524 invasive non-native species. | Woodland and forest - Lowland mixed deciduous woodland | High | Moderate | 0.7509 |
| ***Habitat 4*** Woodland 2 | w1h6 other woodland; mixed; mainly conifer. | Woodland and forest - Other Scot's pine woodland | Medium | Poor | 1.5812 |
| ***Habitat 5*** Woodland 3 | w1h5 other woodland; mixed; mainly broadleaved with the secondary code 524 invasive non-native species. | Woodland and forest - Other woodland; broadleaved | Medium | Poor | 1.1183 |
| ***Habitat 6*** Woodland 4 | w1g other woodland: broadleaved. | Woodland and forest - Other woodland; broadleaved | Medium | Poor | 0.224 |
| ***Habitat 7*** Woodland 5 | w1g other woodland: broadleaved. | Woodland and forest - Other woodland; broadleaved | Medium | Poor | 0.1269 |
| ***Habitat 8*** Woodland 6 | w1g other woodland: broadleaved. | Woodland and forest - Other woodland; broadleaved | Medium | Poor | 0.1569 |
| ***Habitat 9*** Woodland 7 | w1g other woodland: broadleaved with the secondary code 524 invasive non-native species. | Woodland and forest - Other woodland; broadleaved | Medium | Poor | 0.3439 |
| ***Habitat 10*** Mixed scrub | h3h mixed scrub. | Heathland and shrub - Mixed scrub | Medium | Poor | 0.0894 |
| ***Habitat 11*** Mixed scrub | h3h mixed scrub. | Heathland and shrub - Mixed scrub | Medium | Poor | 0.1089 |
| ***Habitat 12*** Mixed scrub | h3h mixed scrub. | Heathland and shrub - Mixed scrub | Medium | Poor | 0.0201 |

| Habitat Reference | UK Habitat Classification Type | BNG Habitat Equivalent | Habitat Distinctiveness | Condition Assessment Result | Area (ha) |
|---|---|---|---|---|---|
| ***Habitat 13*** Bramble scrub | h3d Bramble scrub. | Heathland and shrub - Bramble scrub | Medium | Condition Assessment N/A | 0.0103 |
| ***Habitat 14*** Bramble scrub | h3d Bramble scrub. | Heathland and shrub - Bramble scrub | Medium | Condition Assessment N/A | 0.0119 |
| ***Habitat 15*** Reed Canary-grass | g3c other neutral grassland with the secondary codes 10 Scattered scrub, 14 scattered rushes and 524 invasive non-native species. | Grassland - Other neutral grassland | Medium | Poor | 4.4374 |
| ***Habitat 16*** Reed Canary-grass | g3c other neutral grassland with the secondary codes 10 Scattered scrub, 14 scattered rushes and 524 invasive non-native species. | Grassland - Other neutral grassland | Medium | Poor | 1.89 |
| ***Habitat 17*** Other neutral grassland (ONG) 2 | g3c other neutral grassland. | Grassland - Other neutral grassland | Medium | Moderate | 0.0841 |
| ***Habitat 18*** ONG 2 | g3c other neutral grassland. | Grassland - Other neutral grassland | Medium | Moderate | 0.2165 |
| ***Habitat 19*** Marshy grassland ONG 3 | g3c other neutral grassland. | Grassland - Other neutral grassland | Medium | Moderate | 0.6069 |
| ***Habitat 20*** Tall-herb on mound | g3c other neutral grassland with the secondary codes 16 tall forbs and 524 invasive non-native species. | Sparsely vegetated land - Tall forbs | Low | Poor | 0.1027 |
| ***Habitat 21*** ONG 4 | g3c other neutral grassland. | Grassland - Other neutral grassland | Medium | Moderate | 0.0347 |
| ***Habitat 22*** Sparse ruderal vegetation | g3c other neutral grassland with the secondary code 16 tall forbs. | Sparsely vegetated land - Ruderal/Ephemeral | Low | Moderate | 0.0187 |
| ***Habitat 23*** Sparse ruderal vegetation | g3c other neutral grassland with the secondary code 16 tall forbs. | Sparsely vegetated land - Ruderal/Ephemeral | Low | Moderate | 0.0052 |

| Habitat Reference | UK Habitat Classification Type | BNG Habitat Equivalent | Habitat Distinctiveness | Condition Assessment Result | Area (ha) |
|---|---|---|---|---|---|
| ***Habitat 24*** Modified grassland | g4 modified grassland with the secondary codes 14 scattered rushes and 100 grazed. | Grassland - Modified grassland | Low | Poor | 0.3471 |
| ***Habitat 25*** Poor semi-improved grassland | g4 modified grassland with the secondary codes 200 tree and 104 other grazed. | Grassland - Modified grassland | Low | Moderate | 2.3385 |
| ***Habitat 26*** Modified grassland | g4 modified grassland. | Grassland - Modified grassland | Low | Poor | 3.2165 |
| ***Habitat 27*** Bramble | h3d Bramble scrub. | Heathland and shrub - Bramble scrub | Medium | Condition Assessment N/A | 0.0183 |
| ***Habitat 28*** Damp hollow | g4 modified grassland. | Grassland - Modified grassland | Low | Poor | 0.0329 |
| ***Habitat 29*** Bare ground | u - urban with the secondary code 510 bare ground. | Urban - Bare ground | Low | Poor | 0.0331 |
| ***Habitat 30*** Woodland 8 | w1g other woodland: broadleaved. | Woodland and forest - Other woodland; broadleaved | Medium | Poor | 0.0276 |
| | | | | **Total:** | **19.9380** |

**Table 3.2: Summary of Individual Trees within the Site**

| Habitat Reference | UK Habitat Classification Type | BNG Habitat Equivalent | Habitat Distinctiveness | Condition Assessment Result | Area (ha)[3] |
|---|---|---|---|---|---|
| ***Habitat 31*** T003 | secondary code 32 scattered trees within an area of g4 modified grassland | Individual trees – urban tree | Medium | Moderate | 0.0163 |
| T004 | As above | Individual trees – urban tree | Medium | Moderate | 0.0163 |
| T005 | As above | Individual trees – urban tree | Medium | Good | 0.0366 |
| T019 | As above | Individual trees – urban tree | Medium | Good | 0.0366 |
| T081 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T082 | As above | Individual trees – urban tree | Medium | Good | 0.0366 |
| T083 | As above | Individual trees – urban tree | Medium | Good | 0.0163 |
| T084 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T085 | As above | Individual trees – urban tree | Medium | Good | 0.0366 |
| T086 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T087 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T088 | As above | Individual trees – urban tree | Medium | Moderate | 0.0366 |
| T089 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T090 | As above | Individual trees – urban tree | Medium | Moderate | 0.0163 |
| T091 | As above | Individual trees – urban tree | Medium | Good | 0.0366 |
| T092 | As above | Individual trees – urban tree | Medium | Moderate | 0.0366 |
| T093 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T094 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T095 | As above | Individual trees – urban tree | Medium | Moderate | 0.0163 |
| T097 | As above | Individual trees – urban tree | Medium | Good | 0.0366 |
| T098 | As above | Individual trees – urban tree | Medium | Good | 0.0765 |

[3] Due to the way individual trees are calculated by the metric they do not contribute to the total habitat area calculation, but are additional to it.

| Habitat Reference | UK Habitat Classification Type | BNG Habitat Equivalent | Habitat Distinctiveness | Condition Assessment Result | Area (ha)[3] |
|---|---|---|---|---|---|
| T099 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T100 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T101 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T102 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T103 | As above | Individual trees – urban tree | Medium | Good | 0.0765 |
| T105 | As above | Individual trees – urban tree | Medium | Moderate | 0.0163 |
| T106 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T109 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T110 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T111 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T112 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T113 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T114 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T115 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T116 | As above | Individual trees – urban tree | Medium | Good | 0.0163 |
| T131 | As above | Individual trees – urban tree | Medium | Moderate | 0.0163 |
| T138 | As above | Individual trees – urban tree | Medium | Moderate | 0.0163 |
| T140 | As above | Individual trees – urban tree | Medium | Moderate | 0.0163 |
| T145 | As above | Individual trees – urban tree | Medium | Good | 0.0765 |
| T146 | As above | Individual trees – urban tree | Medium | Good | 0.0366 |
| T147 | As above | Individual trees – urban tree | Medium | Good | 0.0163 |
| T148 | As above | Individual trees – urban tree | Medium | Good | 0.0041 |
| T149 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| T150 | As above | Individual trees – urban tree | Medium | Good | 0.0366 |

| Habitat Reference | UK Habitat Classification Type | BNG Habitat Equivalent | Habitat Distinctiveness | Condition Assessment Result | Area (ha)[3] |
|---|---|---|---|---|---|
| T151 | As above | Individual trees – urban tree | Medium | Good | 0.0366 |
| T152 | As above | Individual trees – urban tree | Medium | Good | 0.0366 |
| T153 | As above | Individual trees – urban tree | Medium | Moderate | 0.0163 |
| T154 | As above | Individual trees – urban tree | Medium | Moderate | 0.0163 |
| T175 | As above | Individual trees – urban tree | Medium | Moderate | 0.0041 |
| | | | | **Total:** | **0.9749** |

**Table 3.3: Summary of Baseline Hedgerow Habitats within Site**

| Habitat Reference | UK Habitat Classification Type | BNG Habitat Equivalent | Habitat Distinctiveness | Condition Assessment Result | Length (km) |
|---|---|---|---|---|---|
| ***Habitat 32*** Hedgerow H2 | h2a6 other native hedgerows | Hedgerow – native hedgerow with trees | Medium | Moderate | 0.333 |
| ***Habitat 33*** Hedgerow H1 | h2a6 other native hedgerows | Hedgerow – native hedgerow | Low | Moderate | 0.198 |
| ***Habitat 34*** Hedgerow H3 | h2a6 other native hedgerows | Hedgerow – native hedgerow with trees | Medium | Moderate | 0.028 |
| | | | | **Total** | **0.559** |

**Table 3.4: Summary of Baseline Watercourse Habitats within Site**

| Habitat Reference | UK Habitat Classification Type | BNG Habitat Equivalent | Habitat Distinctiveness | Condition Assessment Result | Length (km) |
|---|---|---|---|---|---|
| ***Habitat 35*** Walmersley Brook | r2b other rivers and streams | Other rivers and streams | High | Moderate | 0.617 |
| ***Habitat 36*** Culvert | r2b other rivers and streams | Culvert | Low | Poor | 0.073 |
| | | | | **Total** | **0.69** |

3.2.2 The baseline BNG score for the site is provided at **Section 5.0**.

## 4.0 POST INTERVENTION HABITATS

### 4.1 Consideration of Mitigation Hierarchy and Target Condition Assessments

4.1.1 The proposals comprise an '*Outline planning application with all matters reserved other than access for mixed use development for up to 350 dwellings, up to 2,500 sq mts employment/commercial uses, a local centre comprising up to 249 sq mts of retail floorspace, mobility hub, public open space and associated infrastructure.'*

4.1.2 Ecological guidance, based on the baseline surveys and as outlined in Section 5.3 of the ecology report, has been provided to the design team throughout the preparation of the Illustrative Masterplan (The Urbanists, 2025). This approach has ensured that the mitigation hierarchy has been applied and the Masterplan has, as much as possible, been informed by the ecological surveys and assessment to achieve a sympathetic scheme which avoids features of ecological interest (where possible), conserves the habitats and function of habitats identified to be of ecological value with appropriate buffers, conserves habitat connectivity, and seeks to minimise and mitigate / compensate adverse effects where avoidance is not possible.

4.1.3 The *Illustrative Masterplan* (The Urbanists, 2025) and the annotations on Figure A at Section 8.7 of the ecology report aim to demonstrate that appropriate and sustainable development to make efficient use of the land can be achieved whilst protecting and enhancing the identified areas of ecological value / considerations, avoiding significant adverse effects on protected species and Priority Species and securing practical and achievable opportunities for biodiversity net gain in accordance with the National Planning Policy Framework (NPPF), other relevant planning policy and best practice.

4.1.4 None of the habitats at the site are of very high distinctiveness. No irreplaceable habitats are present.

4.1.5 As presented on Figure A in the ecology report the Illustrative Masterplan the proposals seek to retain / conserve and enhance, where feasible, all habitats of high distinctiveness, namely the areas of Lowland Mixed Deciduous Woodland and Walmersley Brook.

4.1.6 The remainder of the proposals are in accordance with the following parameters:

a. The woodlands at Habitats 1, 3 and 7 will be retained and protected;

b. Woodlands at Habitats 2, 4, 5, 6, 8 and 9 will be enhanced from 'poor' to 'moderate' condition by actions such as the removal of livestock grazing and the application of appropriate management (refer to **Table 7.2**);

c. The mixed scrub at Habitats 10 and 11 will be enhanced from 'poor' to 'moderate' condition by management such as the treatment / control / eradication of invasive non-native species (refer to **Table 7.3**);

d. The marshy grassland at Habitat 19 will be enhanced to 'good' condition by the application of appropriate management to increase the areas of bare ground allowing for plant colonisation, control of invasive species and an increase in species diversity (refer to **Table 7.4**);

e. It is considered that the grasslands at Habitats 17, 24, 25 , 26 and 27 can be retained;

f. The number of individual trees to be removed has been informed by the tree report and includes all relevant Category U trees (outside of woodland) and trees outside of woodland and hedgerows that

are indicated for removal by the Illustrative Masterplan. The trees likely to be retained are annotated on **Table 7.7** (19 trees);

g. In accordance with *The Statutory Biodiversity Metric User Guide* (DEFRA, 2025) the houses and gardens at Habitat B are currently entered in the BNG Metric with a 70:30 split of houses:gardens;

h. Other new / assumed habitats at the site and their target condition assessments have been informed by the conditions present, the likely use of the Public Open Space by the residents / public and the trading rules relevant to the BNG Metric. New habitats comprise Habitat F: SuDS / Wildflower grassland, Habitat G: ONG / Wildflower, Habitat H: Modified grassland, Habitat I Mixed scrub and Habitat J: New trees;

i. Hedgerows at Habitats 32 to 34 will be retained with the exception of the requirement to remove sections to gain access to the site. Compensation (with gains) for the losses is entirely feasible via the planting of new native hedgerows and this is indicated on **Figure 3** and entered into the BNG Metric (see also **Table 4.3** below); and

j. Walmersley Brook will be retained with the exception of the likely need to culvert sections to construct road crossings as show on the Illustrative Masterplan and this has been accommodated by the BNG Metric (see also **Table 4.4** below).

4.1.7 Please note: As the post-intervention proposals are based on an Illustrative Masterplan a number of habitats have not yet been taken into account such as habitats associated with the developed areas of the site namely any ornamental planting / grasslands within Habitat C: Mobility Hub, Habitat D: Employment and Habitat E: Local Centre.

## 4.2 Summary of Post Intervention Habitats

4.2.1 **Tables 4.1** to **4.4** provide a summary of the habitats to be retained, enhanced and created at the site, their target condition assessment result and their area / length. Target condition assessments for each habitat are appended at **Section 7.2** and **7.3**.

**Table 4.1: Summary of Area-based Habitats to be Retained, Enhanced and Created at the Site**

| Habitat Type | BNG Equivalent Habitat | Habitat Distinctiveness | Target Condition | Area (ha) | Sub-totals (ha) |
|---|---|---|---|---|---|
| **Retained Habitats** | | | | | |
| ***Habitat 1*** Woodland 1 | Woodland and forest - Lowland mixed deciduous woodland | High | Moderate | 1.4439 | |
| ***Habitat 3*** Woodland 1c | Woodland and forest - Lowland mixed deciduous woodland | High | Moderate | 0.7498 | |
| ***Habitat 7*** Woodland 5 | Woodland and forest - Other woodland; broadleaved | Medium | Poor | 0.1269 | |
| ***Habitat 13*** Bramble | Heathland and shrub – Bramble scrub | Medium | Condition assessment N/a | 0.0103 | |
| ***Habitat 17*** ONG 2 | Grassland - Other neutral grassland | Medium | Moderate | 0.0668 | |

| Habitat Type | BNG Equivalent Habitat | Habitat Distinctiveness | Target Condition | Area (ha) | Sub-totals (ha) |
|---|---|---|---|---|---|
| ***Habitat 24*** Modified grassland | Grassland - Modified grassland | Low | Poor | 0.2172 | |
| ***Habitat 25*** Poor semi-improved grassland | Grassland - Modified grassland | Low | Moderate | 1.0071 | |
| ***Habitat 26*** Modified grassland | Grassland - Modified grassland | Low | Poor | 0.5380 | |
| ***Habitat 27*** Bramble | Heathland and shrub – Bramble scrub | Medium | Condition assessment N/a | 0.0183 | ***4.1783*** |
| **Enhanced Habitats** | | | | | |
| ***Habitat 2*** Woodland 1b | Woodland and forest - Lowland mixed deciduous woodland | High | Poor to Moderate | 0.5171 | |
| ***Habitat 4*** Woodland 2 | Woodland and forest - Other Scot's pine woodland | Medium | Poor to Moderate | 1.5812 | |
| ***Habitat 5*** Woodland 3 | Woodland and forest - Other woodland; broadleaved | Medium | Poor to Moderate | 1.0657 | |
| ***Habitat 6*** Woodland 4 | Woodland and forest - Other woodland; broadleaved | Medium | Poor to Moderate | 0.2179 | |
| ***Habitat 8*** Woodland 6 | Woodland and forest - Other woodland; broadleaved | Medium | Poor to Moderate | 0.1569 | |
| ***Habitat 9*** Woodland 7 | Woodland and forest - Other woodland; broadleaved | Medium | Poor to Moderate | 0.2577 | |
| ***Habitat 10*** Mixed scrub | Heathland and shrub - Mixed scrub | Medium | Poor to Moderate | 0.0893 | |
| ***Habitat 11*** Mixed scrub | Heathland and shrub - Mixed scrub | Medium | Poor to Moderate | 0.1089 | |
| ***Habitat 19*** Marshy grassland | Grassland - Other neutral grassland | Medium | Moderate to Good | 0.3653 | |
| ***Habitat 30*** Woodland 8 | Woodland and forest - Other woodland; broadleaved | Medium | Poor to Moderate | 0.0276 | ***4.3876*** |
| **Proposed Habitats** | | | | | |
| ***Habitat A*** Roads | Urban – developed land; sealed surface | V.low | N/a - Other | 1.5946 | |
| ***Habitat B*** Houses (70%) | Urban – developed land; sealed surface | V.low | N/a - Other | 3.9950 | |
| ***Habitat B*** Gardens (30%) | Urban – vegetated garden | Low | Condition assessment – N/a | 1.7122 | |
| ***Habitat C*** Mobility hub | Urban – developed land; sealed surface | V.low | N/a - Other | 0.1082 | |

| Habitat Type | BNG Equivalent Habitat | Habitat Distinctiveness | Target Condition | Area (ha) | Sub-totals (ha) |
|---|---|---|---|---|---|
| ***Habitat D*** Employment | Urban – developed land; sealed surface | V.low | N/a - Other | 1.1143 | |
| ***Habitat E*** Local Centre | Urban – developed land; sealed surface | V.low | N/a - Other | 0.8518 | |
| ***Habitat F*** SuDS / Wildflower | Grassland – other neutral grassland | Medium | Moderate | 0.4444 | |
| ***Habitat G*** ONG / Wildflower | Grassland – other neutral grassland | Medium | Moderate | 1.1884 | |
| ***Habitat H*** Modified grassland | Grassland – modified grassland | Low | Moderate | 0.2573 | |
| ***Habitat I*** Mixed scrub | Heathland and shrub – mixed scrub | Medium | Moderate | 0.1059 | ***11.3721*** |
| | | | **Total** | **19.9380** | |

**Table 4.2: Summary of Individual Trees to be Retained and Created at the Site**

| Habitat Reference | BNG Habitat Equivalent | Habitat Distinctiveness | Target Condition | Area (ha)[4] | Sub-totals (ha) |
|---|---|---|---|---|---|
| **Retained Habitats** | | | | | |
| ***Habitat 31*** | | | | | |
| T019 | Individual trees – urban trees | Medium | Good | 0.0366 | |
| T081 | Individual trees – urban trees | Medium | Moderate | 0.0041 | |
| T082 | Individual trees – urban trees | Medium | Good | 0.0366 | |
| T083 | Individual trees – urban trees | Medium | Good | 0.0163 | |
| T084 | Individual trees – urban trees | Medium | Moderate | 0.0041 | |
| T085 | Individual trees – urban trees | Medium | Good | 0.0366 | |
| T086 | Individual trees – urban trees | Medium | Moderate | 0.0041 | |
| T087 | Individual trees – urban trees | Medium | Moderate | 0.0041 | |
| T088 | Individual trees – urban trees | Medium | Moderate | 0.0366 | |
| T089 | Individual trees – urban trees | Medium | Moderate | 0.0041 | |
| T090 | Individual trees – urban trees | Medium | Moderate | 0.0163 | |
| T091 | Individual trees – urban trees | Medium | Good | 0.0366 | |

[4] Small urban trees have a diameter at breast height (DBH) of up to 30cm, medium urban trees have a DBH of 30 to 60cm, large urban trees have a DBH of 60 to 90cm and very large trees have DBH of more than 90cm. Due to the way individual trees are calculated by the metric they do not contribute to the total habitat area calculation, but are additional to it.

| Habitat Reference | BNG Habitat Equivalent | Habitat Distinctiveness | Target Condition | Area (ha)[4] | Sub-totals (ha) |
|---|---|---|---|---|---|
| T092 | Individual trees – urban trees | Medium | Moderate | 0.0366 | |
| T094 | Individual trees – urban trees | Medium | Moderate | 0.0041 | |
| T095 | Individual trees – urban trees | Medium | Moderate | 0.0163 | |
| T131 | Individual trees – urban trees | Medium | Moderate | 0.0163 | |
| T138 | Individual trees – urban trees | Medium | Moderate | 0.0163 | |
| T140 | Individual trees – urban trees | Medium | Moderate | 0.0163 | |
| T146 | Individual trees – urban trees | Medium | Good | 0.0366 | |
| T175 | Individual trees – urban trees | Medium | Moderate | 0.0041 | ***0.3827*** |
| **Proposed Habitats** | | | | | |
| ***Habitat J*** Individual trees (250No.) | Individual trees – urban trees | Medium | Moderate | 1.0179 | ***1.0179*** |
| | | | | **Total** | **1.4006** |

**Table 4.3: Summary of Hedgerow Habitats to be Retained and Created at the Site**

| Habitat Type | BNG Equivalent Habitat | Habitat Distinctiveness | Target Condition | Length (km) | Sub-totals (km) |
|---|---|---|---|---|---|
| **Retained Habitats** | | | | | |
| ***Habitat 32*** Hedgerow H2 | Hedgerow – native hedgerow with trees | Medium | Moderate | 0.303 | |
| ***Habitat 33*** Hedgerow H1 | Hedgerow – native hedgerow | Low | Moderate | 0.185 | |
| ***Habitat 34*** Hedgerow H3 | Hedgerow – native hedgerow with trees | Medium | Moderate | 0.020 | ***0.508*** |
| **Proposed Habitats** | | | | | |
| ***Habitat K*** | Hedgerow – native hedgerow | Low | moderate | 0.151 | |
| ***Habitat L*** | Hedgerow – native hedgerow with trees | Medium | Moderate | 0.132 | ***0.283*** |
| | | | | **Total** | ***0.791*** |

**Table 4.4: Summary of Watercourse Habitats to be Retained and Created at the Site**

| Habitat Type | BNG Equivalent Habitat | Habitat Distinctiveness | Target Condition | Length (km) | Sub-totals (km) |
|---|---|---|---|---|---|
| **Retained Habitats** | | | | | |
| ***Habitat 36*** Culvert / Pipe | Culvert | Low | Poor | 0.073 | ***0.073*** |
| **Enhanced Habitats** | | | | | |
| ***Habitat 35*** Walmersley Brook | Other rivers and streams | High | Moderate | 0.597 | ***0.597*** |
| **Proposed Habitats** | | | | | |
| ***Habitat M*** New culvert | Culvert | Low | Poor | 0.02 | ***0.020*** |
| | | | | **Total** | **0.690** |

## 5.0 HEADLINE RESULTS, EVALUATION AND CONCLUSION

5.1 The headline results of the BNG Metric are presented at **Table 5.1** below.

**Table 5.1: Results of Statutory Biodiversity Metric Calculation Tool**

| | | | |
|---|---|---|---|
| **On-site Baseline** | Area habitat units | 105.12 | |
| | Hedgerow units | 3.68 | |
| | Watercourse units | 7.50 | |
| **On-site Post Intervention** | Area habitat units | 90.62 | |
| | Hedgerow units | 4.57 | |
| | Watercourse units | 8.36 | |
| **On—site net change (units % percentage)** | Area habitat units | -14.50 | -13.80% |
| | Hedgerow units | 0.89 | 24.16% |
| | Watercourse units | 0.85 | 11.36% |

| | | |
|---|---|---|
| **Total Net Unit Change** | Area habitat units | **-14.50** |
| | Hedgerow units | **0.86** |
| | Watercourse units | **0.85** |
| **Total Net % Change** | **Area habitat units** | **-13.80%** |
| | **Hedgerow units** | **24.16%** |
| | **Watercourse units** | **11.36%** |

| | |
|---|---|
| **Trading Rules Satisfied?** | **No** |

| Unit Type | Target | Baseline Units | Units Required | Unit Deficit | Comment |
|---|---|---|---|---|---|
| Area habitat units | 10% | 105.12 | 115.63 | 25.02 | |
| Hedgerow units | 10% | 3.68 | 4.05 | 0.00 | No additional hedgerow units required to meet target |
| Watercourse units | 10% | 7.50 | 8.25 | 0.00 | No additional watercourse units required to meet target |

5.2 As demonstrated at **Table 5.1**, the BNG Worksheet confirms that, based on the parameters at **Tables 4.1** to **4.4** and **Figure 3**, a net gain is not achieved by the habitat area units and the trading rules are not satisfied currently. It is indicated that statutory net gain for hedgerow units and watercourse units can be achieved and the trading rules are satisfied.

5.3 If net gain for area habitats cannot be attained at the site in accordance with any future site proposals and a detailed landscape plan then, in accordance with the BNG hierarchy, the following options are available (a combination of the approaches outlined below may be appropriate):

a. Enhancement of off-site habitats to compensate for the loss of units associated with the proposed development; and / or

b. Agreeing a biodiversity payment for the loss of area habitat units associated with the site with a habitat bank / the LPA or other similar provider.

5.4 It is recommended that any such approach is only finalised following the completion of the detailed site design and a landscape planting plan (and a revised BNG Assessment) to ensure that the final calculation represents an accurate assessment of the habitat unit change at the site.

5.5 Note that any habitats managed within the site and any off-site compensatory habitats to be enhanced by the client / a Management Company will be subject to a long-term habitat and monitoring management plan.

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## 7.0 APPENDIX: PHOTOGRAPHS, CONDITION ASSESSMENTS AND FIGURES

### 7.1 Photographs

**Table 7.1: Photographs**



**Photo 1:** Broad-leaved woodland (Habitat 01: Woodland 1)



**Photo 2:** Broad-leaved woodland (Habitat 02: Woodland 1b) at tributary to Walmersley Brook



**Photo 3:** Grazed broad-leaved woodland (Habitat 02: Woodland 1b)



**Photo 4:** Mixed woodland mainly coniferous (Habitat 04: Woodland 2)



**Photo 5:** Coniferous woodland (Habitat 04: Woodland 2)



**Photo 6:** Woodland along western site margin (Habitat 05: Woodland 3)



**Photo 7:** Woodland fragment near the base station at the M66 (Habitat 06: Woodland 4)



**Photo 8:** Woodland fragment around margins of Baldingstone House (Habitat 07: Woodland 5)



**Photo 9:** Mixed scrub along western edge of Walmersley Brook (Habitat 10)



**Photo 10:** Other neutral grassland 1: Reed Canary-grass (Habitat 15)



**Photo 11:** Other neutral grassland (Habitat 17) at margins of Reed Canary-grass (Habitat 15)



**Photo 12:** Marshy grassland near pylon (Habitat 19)



**Photo 13:** Mound of soil with tall-herb vegetation (Habitat 20)



**Photo 14:** Poor semi-improved grassland (Habitat 25)



**Photo 15:** Improved / modified grassland (Habitat 26)



**Photo 16:** Improved / modified grassland (Habitat 26)



**Photo 17:** Scattered trees over semi-improved and improved grassland (Habitat 31)



**Photo 18:** Habitat 33: Hedgerow H1



**Photo 19:** Habitat 32: Hedgerow H2



**Photo 20:** Habitat 34: Hedgerow H3



**Photo 21:** Habitat 35: Walmersley Brook (downstream)



**Photo 22:** Habitat 35: Walmersley Brook (middle of site)



**Photo 23:** Habitat 35: Walmersley Brook (northern end of site)



**Photo 24:** Habitat 36: Piped / Culverted section of Walmersley Brook

## 7.2 Condition Assessments of Baseline Habitats and Enhanced Habitats

**Note:** Condition assessments are not required for Habitat 13, 14 and 27: Bramble scrub

**Table 7.2: Condition Assessments for Habitats 01, 02, 03, 04, 05, 06, 07, 08, 09 and 30 and Recommended Enhancements**

| Habitat Reference | A | B | C | D | E | F | G | H | I | J | K | L | M | Total No. of Criterion Passed | Condition Assessment Result |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Habitat 01:** Woodland 1 | 1 | 3 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 1 | 1 | 2 | 29 | Moderate |
| **Habitat 02:** Woodland 1b | 1 | 1 | 2 | 3 | 3 | 3 | 1 | 3 | 2 | 2 | 1 | 1 | 1 | 24 | Poor |
| ***Enhanced* Habitat 02:** Woodland 1b | 1 | **3** | **3** | 3 | 3 | 3 | **2** | 3 | 1 | 2 | 1 | 1 | **2** | **28** | **Moderate** |
| **Habitat 03:** Woodland 1c | 2 | 3 | 1 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | 2 | 29 | Moderate |
| **Habitat 04:** Woodland 2 | 1 | 3 | 1 | 2 | 1 | 3 | 1 | 3 | 3 | 2 | 1 | 1 | 2 | 24 | Poor |
| ***Enhanced* Habitat 04:** Woodland 2 | 1 | 3 | **2** | **3** | **2** | 3 | **2** | 3 | 3 | 2 | 1 | 1 | 2 | **28** | **Moderate** |
| **Habitat 05:** Woodland 3 | 2 | 2 | 1 | 3 | 1 | 3 | 2 | 3 | 1 | 1 | 1 | 1 | 2 | 23 | Poor |
| ***Enhanced* Habitat 05:** Woodland 3 | 2 | **3** | **2** | 3 | **2** | 3 | 2 | 3 | **2** | **2** | 1 | 1 | 2 | **28** | **Moderate** |
| **Habitat 06:** Woodland 4 | 1 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 1 | 2 | 1 | 1 | 1 | 25 | Poor |
| ***Enhanced* Habitat 06:** Woodland 4 | 1 | **3** | 3 | 2 | 3 | 3 | 2 | 3 | 1 | 2 | 1 | 1 | 1 | **26** | **Moderate** |
| **Habitat 07:** Woodland 5 | 1 | 1 | 2 | 2 | 2 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 18 | Poor |
| **Habitat 08:** Woodland 6 | 1 | 3 | 2 | 2 | 2 | 3 | 1 | 3 | 1 | 1 | 1 | 1 | 3 | 24 | Poor |
| ***Enhanced* Habitat 08:** Woodland 6 | 1 | 3 | 2 | **3** | 2 | 3 | **2** | 3 | 1 | 1 | 1 | 1 | 3 | **26** | **Moderate** |
| **Habitat 09:** Woodland 7 | 1 | 1 | 3 | 2 | 2 | 3 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 21 | Poor |
| ***Enhanced* Habitat 09:** Woodland 7 | 1 | **3** | 3 | **3** | **3** | 3 | **3** | 3 | 1 | **2** | 1 | 1 | 1 | **28** | **Moderate** |
| **Habitat 30:** Woodland 8 | 1 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 1 | 2 | 1 | 1 | 1 | 25 | Poor |
| ***Enhanced* Habitat 30:** Woodland 8 | 1 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 1 | 2 | 1 | 1 | **2** | **26** | **Moderate** |
| | | | | | | | | | | | | | | | **Good (total score >32)** |
| | | | | | | | | | | | | | | | **Moderate (total score 26 to 32)** |
| | | | | | | | | | | | | | | | **Poor (total score 13 to 25)** |

**Note:** Numbers in bold indicate where enhancements contribute to an improved condition assessment score.

| Indicator | Good (3 points) | Moderate (2 points) | Poor (1 point) |
|---|---|---|---|
| **A.** Age distribution of trees.<br>See EWBG method INDICATOR 1 for more information. If tree species is not a birch Betula sp., cherry (Prunus sp). or Sorbus sp.: 0 – 20 years (Young); 21 - 150 years (Intermediate); and >150 years (Old). For birch, cherry or Sorbus species; 0 - 20 years = Young; 21 - 60 years =Intermediate; >60 years = Old. A recognisable age-class should be a consistent recognisable layer across the woodland or stand being assessed. Presence of a few saplings would not indicate that the woodland has an 'age-class' of young trees. | Three age classes present. | Two age classes present. | One age class present. |

| Indicator | Good (3 points) | Moderate (2 points) | Poor (1 point) |
|---|---|---|---|
| **B.** Wild, domestic and feral herbivore damage.<br>See EWBG method INDICATOR 2 for more information. Browsing pressure is considered to be significant where >20% of vegetation visible within each survey plot shows damage from any type of browsing pressure listed. | No significant browsing damage evident in woodland. | Evidence of significant browsing pressure is present in 40% or less of whole woodland. | Evidence of significant browsing pressure is present in 40% or more of whole woodland. |
| **C.** Invasive plant species.<br>See EWBG method INDICATOR 3 for more information. Assessed for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, the habitat has been split into parcels accordingly.<br>Check for the presence of all plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), particularly the following invasive non-native species: American Skunk Cabbage, Indian Balsam, Japanese Knotweed, Cherry Laurel, Shallon, Snowberry, Variegated Yellow-archangel, Rhododendron and Tree-of-heaven. | No invasive species present in woodland. | Rhododendron or cherry laurel not present, other invasive species <10% cover. | Rhododendron or cherry laurel present, or other invasive species >10% cover. |
| **D.** Number of native tree species.<br>See EWBG method INDICATOR 4 and Table 2 for more information. The number of different native tree or shrub species including young trees and shrubs. A list of commonly found native tree and shrub species is provided in Table 2. Not all species listed are native to all parts of the UK. Note a list of commonly found non-native tree species are also included and should be recorded if present. | Five or more native tree or shrub species found across woodland parcel. | Three to four native tree or shrub species found across woodland parcel. | None to two native tree or shrub species across woodland parcel. |
| **E.** Cover of native tree and shrub species.<br>See EWBG method INDICATOR 5 and for more information. The abundance of native tree species in upper (>5 m) and understorey (up to 5 m) layers including young trees and shrubs. | > 80% of canopy trees and >80% of understory shrubs are native. | 50-80% of canopy trees and 50-80% of understory shrubs are native. | < 50% of canopy trees and <50% of understory shrubs are native. |
| **F.** Open space within woodland.<br>See EWBG method INDICATOR 6 for more information. Open space within woodland in this context is temporary open space in which trees can be expected to regenerate (for example, glades, rides, footpaths, areas of clear-fell). This differs from permanent open space where tree regeneration is not possible or desirable (for example, tarmac, buildings, rivers). Area is at least 10 m wide with less than 20% covered by shrubs or trees.<br>Automatically 'Good' if woodland is less than 10 hectares, given the increased ratio of edge habitat to woodland where the woodland is less than 10ha. | 10 - 20% of woodland has areas of temporary open space.<br>Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted. | 21- 40% of woodland has areas of temporary open space[6]. | <10% or >40% of woodland has areas of temporary open space[6]. But if woodland <10ha has <10% temporary open space, please see Good category. |
| **G.** Woodland regeneration.<br>See EWBG method INDICATOR 8 for more information. This indicator measures regeneration potential of the woodland by considering three classes: seedlings; saplings; and young trees of 4-7 cm DBH. All three classes would fall in the 'young' category of the 'age distribution of trees' indicator, but the regeneration indicator gathers additional information by considering regeneration potential - if seedlings, saplings and young trees are all present that means natural regeneration processes are happening. | All three classes present in woodland; trees 4-7cm DBH, saplings and seedlings or advanced coppice regrowth. | One or two classes only present in woodland. | No classes or coppice regrowth present in woodland. |
| **H.** Tree health.<br>See EWBG method INDICATOR 9 for more information and Table 3 for a list of diseases and pests and their risk level. | Tree mortality less than 10%, no pests or diseases and no crown dieback. | 11% to 25% mortality and/or crown dieback or low risk pest or disease present. | Greater than 25% tree mortality and or any high-risk pest or disease present. |
| **I.** Vegetation and ground flora.<br>See EWBG method INDICATOR 10 directing to NVC key for more information. The 'UKHab to NVC translation table' in the UK Habitat Classification resources may also be useful to assess this. | Recognisable NVC plant community[10] at ground layer present, strongly characterised by ancient woodland flora specialists. | Recognisable woodland NVC plant community[10] at ground layer present. | No recognisable woodland NVC plant community10 at ground layer present. |

| Indicator | Good (3 points) | Moderate (2 points) | Poor (1 point) |
|---|---|---|---|
| **J.** Woodland vertical structure.<br>This criterion looks at structural diversity and is useful to understand in conjunction with the age of trees in a woodland. Vertical structure is defined as the number of canopy storeys present. Possible storey values are: 1) Upper; 2) Complex: recorded when the stand is composed of multiple tree heights that cannot easily be stratified into broad height bands (such as upper, middle or lower); 3) Middle; 4) Lower; and 5) Shrub layer. There might be no storeys where the woodland has been felled. See EWBG INDICATOR 11 for more information. | Three or more storeys across all survey plots or a complex woodland. | Two storeys across all survey plots. | One or less storey across all survey plots. |
| **K.** Veteran trees.<br>See EWBG method INDICATOR 12 for more information. See gov.uk standing advice on ancient and veteran trees. Available from: Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk) and: *Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK* (www.gov.uk). | Two or more veteran trees per hectare. | One veteran tree per hectare. | No veteran trees present in woodland. |
| **L.** Amount of deadwood.<br>See EWBG method INDICATOR 13 for more information. This includes logs, large dead branches on the forest floor and stumps (<1 m tall) >20 cm diameter at narrowest point and >50 cm long. Also includes standing dead trees (>1 m tall) and also deadwood on standing live trees. Diameter is measured at the narrowest point on the stem. Minimum diameter of 20 cm. | 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems, branch stubs and stumps or an abundance of small cavities. | Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems, branch stubs and stumps or an abundance of small cavities. | Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems, stubs and stumps or an abundance of small cavities. |
| **M.** Woodland disturbance.<br>See EWBG method INDICATOR 15 for more information. Examples of disturbance are: significant nutrient enrichment; soil compaction from trampling, machinery, animal poaching or litter. | No nutrient enrichment or damaged ground evident. | Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground. | 1 hectare or more of nutrient enrichment and / or more than 20% of woodland area has damaged ground. |

**Table 7.3: Condition Assessments for Habitats 10, 11 and 12: Mixed Scrub and Recommended Enhancements**

| Habitat Reference | A | B | C | D | E | Total No. of Criterion Passed | Condition Assessment Result |
|---|---|---|---|---|---|---|---|
| **Habitat 10:** Mixed scrub | Yes | No | No | Yes | No | 2 | Poor |
| ***Enhanced* Habitat 10:** Mixed scrub | Yes | No | **Yes** | Yes | No | **3** | **Moderate** |
| **Habitat 11:** Mixed scrub | Yes | No | No | Yes | No | 2 | Poor |
| ***Enhanced* Habitat 11:** Mixed scrub | Yes | No | **Yes** | Yes | No | **3** | **Moderate** |
| **Habitat 12:** Mixed scrub | Yes | No | Yes | No | No | 2 | Poor |
| | | | | | | | **Good:** passes 5 criteria |
| | | | | | | | **Moderate:** passes 3 or 4 criteria |
| | | | | | | | **Poor:** passes 2 or fewer criteria |

| **Condition Assessment Criteria** |
|---|
| **A.** The scrub is a good representation of the habitat type – the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range). Professional judgement should be used alongside the UKHab description.<br>At least 80% of scrub is native, and there are at least three native woody species, with no single species comprising more than 75% of the cover, except Hazel (*Corylus avellana*), Common Juniper (*Juniperus communis*), Sea Buckthorn (*Hippophae rhamnoides*) or Box (*Buxus sempervirens*), which can be up to 100% cover.<br>Native woody species as defined and listed in the Hedgerow Survey Handbook: DEFRA (2007) *Hedgerow Survey Handbook: A standard procedure for local surveys in the UK. 2nd ed.* [online]. Defra, London. PB1195. Available from: Hedgerow Survey Handbook (publishing.service.gov.uk). |
| **B.** Seedlings, saplings, young shrubs and mature (or ancient or veteran) shrubs are all present.<br>See gov.uk standing advice on ancient and veteran species. Available from *Keepers of time: ancient and native woodland and trees policy in England* (publishing.service.gov.uk) and *Ancient woodland, ancient trees and veteran trees: advice for making planning decisions* (www.gov.uk). |
| **C.** There is an absence of invasive non-native plant species[4] (as listed on Schedule 9 of *Wildlife and Countryside Act 1981* (as amended)) and species indicative of sub-optimal condition[6] make up less than 5% of ground cover.<br>This is assessed for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, the habitat is split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement. |
| **D.** The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat. |
| **E.** There are clearings, glades or rides present within the scrub, providing sheltered edges. |

**Table 7.4: Condition Assessments for Habitats 15, 16, 17 18, 19 and 21: Medium Distinctiveness Grasslands**

| Habitat Reference | A | B | C | D | E | F | Total No. of Criterion Passed | Condition Assessment Result |
|---|---|---|---|---|---|---|---|---|
| **Habitat 15:** Reed Canary-grass (ONG 1) | No | No | No | Yes | No | No | 1 | Poor |
| **Habitat 16:** Reed Canary-grass (ONG 1) | No | No | No | Yes | No | No | 1 | Poor |
| **Habitat 17:** ONG 2 | Yes | Yes | Yes | Yes | No | No | 4 | Moderate |
| **Habitat 18:** ONG 2 | Yes | Yes | Yes | Yes | No | No | 4 | Moderate |
| **Habitat 19:** Marshy grassland (ONG 3) | Yes | No | No | Yes | No | Yes | 3 | Moderate |
| ***Enhanced* Habitat 19:** Marshy grassland (ONG 3) | Yes | No | **Yes** | Yes | **Yes** | **Yes** | **5** | **Good** |
| **Habitat 21:** ONG 4 | Yes | Yes | Yes | Yes | No | No | 4 | Moderate |
| **Acid Grassland Types** | | | | | **Non-acid Grassland Types** | | | |
| **Good:** passes 5 criteria | | | | | **Good:** passes 5 or 6 criteria, including essential criteria A and additional criterion F | | | |
| **Moderate:** passes 3 or 4 criteria | | | | | **Moderate:** passes 3 to 5 criteria, including essential criterion A | | | |
| **Poor:** passes 2 or fewer criteria | | | | | **Poor:** passes 2 or fewer criteria; or passes 3 or 4 criteria excluding criterion A and F | | | |

| **Condition Assessment Criteria** |
|---|
| **A.** The grassland is a good representation of the habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description). Professional judgement should be used alongside the UKHab description.<br>*Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.* |
| **B.** Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. |
| **C.** Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens. For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover. |
| **D.** Cover of Bracken less than 20% and cover of scrub (including Bramble) less than 5%. |
| **E.** Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area (species are listed below).<br>If any invasive non-native plant species as listed on Schedule 9 of *Wildlife and Countryside Act 1981* (as amended) are present, this criterion is automatically failed. This is assessed for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement.<br>*Species indicative of sub-optimal condition for this habitat type include:* Creeping Thistle, Spear Thistle, Curled Dock, Broad-leaved Dock, Common Nettle, Creeping Buttercup, Greater Plantain, White Clover, Cow Parsley. There may be additional relevant species local to the region and / or site. |
| **Additional Group – non-acid grassland types only** |
| **F.** There are 10 or more vascular plant species per $m^2$ present, including forbs that are characteristic of the habitat type (species referenced at Criterion 'E' cannot contribute towards this count).<br>*Note - this criterion is essential for achieving Good condition for non-acid grassland types only.* |

Additional Information:

Footnote 1: Professional judgement should be used alongside the UKHab description.

Footnote 2: For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover.

Footnote 3: Species indicative of sub-optimal condition for this habitat type include:

Creeping Thistle (*Cirsium arvense*), Spear Thistle (*Cirsium vulgare*), Curled Dock (*Rumex crispus*), Broad-leaved Dock (*Rumex obtusifolius*), Common Nettle (*Urtica dioica*), Creeping Buttercup (*Ranunculus repens*), Greater Plantain (*Plantago major*), White Clover (*Trifolium repens*), Cow Parsley (*Anthriscus sylvestris*). There may be additional relevant species local to the region and / or site.

Footnote 4: Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement.

Footnote 5: *Wildlife and Countryside Act 1981* (as amended)

**Table 7.5: Condition Assessments for Habitats 20: Tall-herbs on Mound, Habitats 22 and 23: Sparse Ruderal Vegetation and Habitat 29: Bare Ground**

| Habitat Reference | A | B | C | Total No. of Criterion Passed | Condition Assessment Result |
|---|---|---|---|---|---|
| **Habitat 20:** Tall herbs on mound | No | No | No | 0 | Poor |
| **Habitat 22:** Sparse ruderal vegetation | Yes | Yes | No | 2 | Moderate |
| **Habitat 23:** Sparse ruderal vegetation | Yes | Yes | No | 2 | Moderate |
| **Habitat 29:** Bare ground | No | No | Yes | 1 | Poor |
| **If only 3 core Criteria Assessed** | | | | | |
| **Good:** Passes all 3 core criteria; AND Meets the requirements for Good condition within criterion C. | | | | | |
| **Moderate:** Passes 2 core criteria; OR Passes 3 core criteria but does not meet the requirements for Good condition within criterion C. | | | | | |
| **Poor:** Passes 1 or fewer of core criteria | | | | | |

| **Condition Assessment Criteria** |
|---|
| **A.** Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area. |
| **B.** The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year. |
| **C.** Invasive non-native plant species listed on Schedule 9 of *Wildlife and Countryside Act 1981* (as amended) and others which are to the detriment of native wildlife (using professional judgement)[2] cover less than 5% of the total vegetated area. This is assessed for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement<br>*Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).*<br>Sources of information about detrimental non-native species can be found on the GB Non-native Species Secretariat (GBNNSS) website: Home » NNSS (nonnativespecies.org) and Natural England Access to Evidence page should also be checked for up-to-date information: Horizon-scanning for invasive non-native plants in Great Britain - NECR053 (naturalengland.org.uk).<br>*For green roof habitat types only* – Buddleia (*Buddleja davidii*) should be assessed alongside Schedule 9 species. This species impairs the health of the local ecosystem and reduces the biodiversity potential of the roof. It is also a sign that a roof has not been planted and seeded correctly in subsequent years. |

**Table 7.6: Condition Assessments for Habitats 24, 25, 26 and 28: Low Distinctiveness / Modified Grassland**

| Habitat Reference | A | B | C | D | E | F | G | Total No. of Criterion Passed | Condition Assessment Result[1] |
|---|---|---|---|---|---|---|---|---|---|
| **Habitat 24:** Modified grassland | No | No | Yes | No | No | Yes | Yes | 3 | Poor |
| **Habitat 25:** Poor semi-improved grassland | Yes | No | Yes | Yes | No | Yes | Yes | 5 | Moderate |
| **Habitat 26:** Modified grassland | No | No | Yes | Yes | No | Yes | Yes | 4 | Poor (fails criterion A) |
| **Habitat 27:** Damp hollow in modified grassland | No | Yes | Yes | Yes | Yes | Yes | Yes | 6 | Poor (fails criterion A) |
| **Good:** Passes 6 or 7 criteria including essential criterion A | | | | | | | | | |
| **Moderate:** Passes 4 or 5 criteria including essential criterion A | | | | | | | | | |
| **Poor:** Passes 3 or fewer criteria OR passes 4 to 6 criteria, but failing criterion A | | | | | | | | | |

| **Condition Assessment Criteria** |
|---|
| **A.** There are 6 to 8 vascular plant species per m2 present, including at least 2 forbs (this may include those listed in below). Note - this criterion is essential for achieving Moderate or Good condition.<br>Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m2 (excluding those listed below), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.<br>*Plant Species:* Creeping Thistle (*Cirsium arvense*), Spear Thistle (*Cirsium vulgare*), Curled Dock (*Rumex crispus*), Broad-leaved Dock (*Rumex obtusifolius*), Common Nettle (*Urtica dioica*), Creeping Buttercup (*Ranunculus repens*), Greater Plantain (*Plantago major*), White Clover (*Trifolium repens*) and Cow Parsley (*Anthriscus sylvestris*). |
| **B.** Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. |
| **C.** Any scrub present accounts for less than 20% of total grassland area (some scattered scrub such as Bramble may be present).<br>Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type. |
| **D.** Physical damage evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities. |
| **E.** Cover of bare ground between 1% and 10%, including localised areas, for example, rabbit warrens.<br>For example, this could include small, scattered areas of bare ground allowing establishment of new species, or localised patches where not exceeding 10% cover |
| **F.** Cover of Bracken less than 20%. |
| **G.** There is an absence of invasive non-native species as listed on Schedule 9 of *Wildlife and Countryside Act 1981* (as amended).<br>This is assessed for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement |

**Table 7.7: Condition Assessments for Habitat 32: Trees**

| Tree Reference | Species | A | B | C | D | E | F | Size Category | Total No. of Criterion Passed | Condition Assessment Result | Fate in Accordance with Illustrative Masterplan |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T001 | Sycamore | No | Yes | Yes | Yes | No | Yes | Large | 4 | Moderate | Retained but in a hedgerow so not counted as an individual tree |
| T003 | Pedunculate Oak | Yes | Yes | No | No | No | Yes | Medium | 3 | Moderate | |
| T004 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Medium | 4 | Moderate | |
| T005 | Ash | Yes | Yes | Yes | Yes | No | Yes | Large | 5 | Good | |
| T019 | Pedunculate Oak | Yes | Yes | Yes | Yes | No | Yes | Large | 5 | Good | Retained |
| T081 | Ash | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | Retained |
| T082 | Pedunculate Oak | Yes | Yes | Yes | Yes | No | Yes | Large | 5 | Good | Retained |
| T083 | Pedunculate Oak | Yes | Yes | Yes | Yes | No | Yes | Medium | 5 | Good | Retained |
| T084 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | Retained |
| T085 | Pedunculate Oak | Yes | Yes | Yes | Yes | No | Yes | Large | 5 | Good | Retained |
| T086 | Goat Willow | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | Retained |
| T087 | Swedish Whitebeam | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | Retained |
| T088 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Large | 4 | Moderate | Retained |
| T089 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | Retained |
| T090 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Medium | 4 | Moderate | Retained |
| T091 | Pedunculate Oak | Yes | Yes | Yes | Yes | Yes | Yes | Large | 6 | Good | Retained |
| T092 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Large | 4 | Moderate | Retained |
| T093 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T094 | Goat Willow | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | Retained |
| T095 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Medium | 4 | Moderate | Retained |
| T097 | Pedunculate Oak | Yes | Yes | Yes | Yes | Yes | Yes | Large | 6 | Good | |
| T098 | Pedunculate Oak | Yes | Yes | Yes | Yes | No | Yes | Very large | 5 | Good | |
| T099 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T100 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T101 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T102 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T103 | Pedunculate Oak | Yes | Yes | Yes | Yes | No | Yes | Very large | 5 | Good | |
| T105 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Medium | 4 | Moderate | |
| T106 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T109 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T110 | Ash | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T111 | Ash | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T112 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T113 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T114 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T115 | Hawthorn | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T116 | Pedunculate Oak | Yes | Yes | Yes | Yes | No | Yes | Medium | 5 | Good | |
| T131 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Medium | 4 | Moderate | Retained |
| T138 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Medium | 4 | Moderate | Retained |
| T140 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Medium | 4 | Moderate | Retained |
| T145 | Pedunculate Oak | Yes | Yes | Yes | Yes | No | Yes | Very large | 5 | Good | |
| T146 | Pedunculate Oak | Yes | Yes | Yes | Yes | Yes | Yes | Large | 6 | Good | Retained |
| T147 | Pedunculate Oak | Yes | Yes | Yes | Yes | No | Yes | Medium | 5 | Good | |
| T148 | Pedunculate Oak | Yes | Yes | No | Yes | Yes | Yes | Small | 5 | Good | |

| Tree Reference | Species | A | B | C | D | E | F | Size Category | Total No. of Criterion Passed | Condition Assessment Result | Fate in Accordance with Illustrative Masterplan |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T149 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| T150 | Pedunculate Oak | Yes | Yes | Yes | Yes | No | Yes | Large | 5 | Good | |
| T151 | | Yes | Yes | Yes | Yes | No | Yes | Large | 5 | Good | |
| T152 | Pedunculate Oak | Yes | Yes | Yes | Yes | No | Yes | Large | 5 | Good | |
| T153 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Medium | 4 | Moderate | |
| T154 | Pedunculate Oak | Yes | Yes | No | Yes | No | Yes | Medium | 4 | Moderate | |
| T175 | Willow species | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | Retained |
| T180 | Goat Willow | Yes | Yes | No | Yes | No | Yes | Small | 4 | Moderate | |
| | | | | | | | | | | **Good:** Passes 5 or 6 criteria | |
| | | | | | | | | | | **Moderate:** Passes 3 or 4 criteria | |
| | | | | | | | | | | **Poor:** Passes 2 or fewer criteria | |

| **Condition Assessment Criteria** |
|---|
| **A.** The tree is a native species (or more than 70% within the block are native species) |
| **B.** Tree canopy is predominantly continuous with gaps in canopy cover making up less than 10% of total area and no individual gap being more than 5 metres wide. Individual trees automatically pass this criterion. |
| **C.** The tree is mature (or more than 50% within the block are mature). See gov.uk standing advice on ancient and veteran trees, available from:<br>*Keepers of time: ancient and native woodland and trees policy in England* (publishing.service.gov.uk) and *Ancient woodland, ancient trees and veteran trees: advice for making planning decisions* (www.gov.uk).<br>Enhancement of this habitat type is only possible by improving the habitat so that it meets Criteria B, D and F. It is not possible or appropriate to enhance individual trees through meeting just one of those Criteria, nor by meeting Criteria A, C or E. |
| **D.** There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height. |
| **E.** Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark. |
| **F.** More than 20% of the tree canopy area is oversailing vegetation beneath |

**Table 7.8: Condition Assessments for Habitats 32 to 34: Hedgerows H1 to H3**

| Habitat Reference | A1 | A2 | B1 | B2 | C1 | C2 | D1 | D2 | E1 | E2 | Total No. of Group Failures | Total No. of Criteria Failures | Condition Assessment Result |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Habitat 32:** H2 | Yes | No | Yes | Yes | No | Yes | No | No | No | Yes | 1 | 5 | Moderate |
| **Habitat 33:** H1 | Yes | No | Yes | Yes | Yes | No | No | Yes | N/A | N/A | 0 | 3 | Moderate |
| **Habitat 34:** H3 | No | Yes | Yes | Yes | Yes | No | Yes | Yes | No | Yes | 0 | 3 | Moderate |

| Hedgerows Without Trees | Hedgerows With Trees |
|---|---|
| **Good:** No more than 2 failures in total; AND no more than 1 in any functional group. | **Good:** No more than 2 failures in total; AND no more than 1 failure in any functional group. |
| **Moderate:** No more than 4 failures in total; AND does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition). | **Moderate:** No more than 5 failures in total; AND does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition). |
| **Poor:** Fails a total of more than 4 attributes; OR fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition). | **Poor:** Fails a total of more than 5 attributes; OR fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition). |

| Condition Assessment Criteria | |
|---|---|
| **A1. Height:**<br>>1.5m average along length<br>The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees.<br>Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of 4 years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is > 1.5 m height). | **A2. Width:**<br>>1.5m average along length.<br>The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees.<br>Outgrowths (e.g. Blackthorn suckers) are only included in the width estimate when they >0.5 m in height.<br>Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of 4 years (if undertaken according to good practice) |
| **B1. Gap - hedge base.**<br>Gap between ground and base of canopy is less than 0.5m, for more than 90% of length (unless line of trees).<br>This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (e.g. a Hazel dominated hedgerow or where the hedgerow is affected by shading from other vegetation such as woodland, see page 65 of *Hedgerow Survey Handbook*. | **B2. Gap - hedge canopy continuity.**<br>Gaps make up less than 10% of total length and no canopy gaps are greater than 5m. Gates and access points are not subject to the greater than 5m criterion.<br>This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small).<br>Access points and gates contribute to the overall 'gappiness', but are not subject to the greater than 5 m criterion (as this is the typical size of a gate). |
| **C1. Undisturbed ground and perennial vegetation.**<br>More than 1m width ground with perennial herbaceous vegetation for more than 90% of the hedgerow length, as measured from outer edge of the hedgerow, and is present on at least 1 side of the hedgerow. | **C2. Nutrient-enriched perennial vegetation.**<br>Plant species indicative of nutrient enrichment of soils do not dominate more than 20% cover of the ground area of undisturbed ground. |

| **Condition Assessment Criteria** | |
|---|---|
| This is the level of disturbance (excluding wildlife disturbance) at the base of the hedge. Undisturbed ground should be present for at least 90% of the hedgerow length, greater than 1m in width and must be present along at least one side of the hedge. This criterion recognises the value of the hedge base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches. | The indicator species used are nettles (*Urtica* spp.), Cleavers (*Galium aparine*) and docks (*Rumex* spp.). Their presence, either singly or together, should not exceed the 20% cover threshold. |
| **D1. Invasive and neophyte species.**<br>More than 90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA) and recently introduced species.<br>Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website, as well as the BSBI website where the 'Online Atlas of the British and Irish Flora' contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website. | **D2. Current damage.**<br>More than 90% of the hedgerow or undisturbed ground is free of damaged caused by human activities.<br>This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes.<br>This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g. excessive hedge cutting). |
| **Additional group – ONLY if trees are present** | |
| **E1. Tree Class**<br>There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient[8]), and there is on average at least one mature, ancient or veteran tree present per 20 to 50m of hedgerow. This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species. | **E1. Tree health**<br>At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.<br>This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens. |

**Table 7.9: River Condition Assessment Reporting Sheet**

| | | | |
|---|---|---|---|
| ***Site Name / Location*** | Walmersley Road, Bury | ***Unique River Section Reference*** | Walmersley Brook |
| ***GPS of Morph5*** | SD 80556 14529<br>SD 80634 14166 | ***River Section Length*** | 617 metres |

***The Results of the 32 RCA indicators for Each River Section Are Provided Below with Notes to Explain Recommendations for the Whole Channel***

| | RCA Index ID | RCA Index Name<br>***Positive indicators are presented in green, and negative indicators are presented in red.*** | RCA Indicator Values<br>***-4 to 0, or 0 to 4. All values greater than 2 are highlighted in green. All values less than -2 are highlighted in red.*** | | Notes / Justification<br>***Explanation (where significant) the influence of high/low RCA indices on overall river condition.*** |
|---|---|---|---|---|---|
| **Bank Top** | B1 | Vegetation structure | 2 | 1 | |
| | B2 | Tree feature richness | 3 | 3 | |
| | B3 | Water-related features | 0 | 0 | |
| | B4 | NNIPS cover | -3 | -3 | |
| | B5 | Managed ground cover | 0 | 0 | |
| **Bank Face** | C1 | Riparian vegetation structure | 0 | 0 | |
| | C2 | Tree feature richness | 0 | 0 | |
| | C3 | Natural bank profile extent | 3 | 3 | |
| | C4 | Natural bank profile richness | 1 | 1 | |
| | C5 | Natural bank material richness | 1 | 1 | |
| | C6 | Bare sediment extent | 1 | 1 | |
| | C7 | Artificial bank profile extent | 0 | 0 | |
| | C8 | Reinforcement extent | 0 | 0 | |
| | C9 | Reinforcement material severity | 0 | 0 | |
| | C10 | NNIPS cover | 0 | 0 | |
| **Channel Margin** | D1 | Aquatic vegetation extent | 0 | 0 | |
| | D2 | Aquatic morphotype richness | 0 | 0 | |
| | D3 | Physical feature extent | 0 | 0 | |
| | D4 | Physical feature richness | 0 | 0 | |
| | D5 | Artificial features | 0 | 0 | |
| **Channel Bed** | E1 | Aquatic morphotype richness | 0 | 1 | |
| | E2 | Tree features richness | 0 | 0 | |
| | E3 | Hydraulic features richness | 1 | 1 | |
| | E4 | Natural features extent | 0 | 1 | |
| | E5 | Natural features richness | 0 | 1 | |
| | E6 | Material richness | 1 | 1 | |
| | E7 | Siltation | 0 | 0 | |
| | E8 | Reinforcement extent | 0 | 0 | |
| | E9 | Reinforcement severity | 0 | 0 | |
| | E10 | Artificial features severity | 0 | 0 | |
| | E11 | NNIPS extent | 0 | 0 | |
| | E12 | Filamentous algae extent | 0 | 0 | |

| | | | |
|---|---|---|---|
| **River Condition Assessment Preliminary Score** | 0.506<br>0.599 | **River Type and Class Bands** | K- Straight / sinuous; coarsest SA, average SI<br>K- Straight / sinuous; coarsest SA, average SI |
| **River Shape Index** | 3.333<br>3.333 | **Is the River Channel Overdeep?** | No<br>No |
| **River Condition Final Class** | Moderate<br>Moderate | **Is the RCA Final Class Modified?** | No<br>No |
| ***Summary of RCA Results (and Encroachment where applicable) with Recommendations for Improvements*** | | | |

## 7.3 Target Condition Assessments of Proposed Post-intervention Habitats

**Note:** Condition assessments are not required for Habitat A: Roads, Habitat B: Houses and Gardens, Habitat C: Mobility Hub, Habitat D: Employment and Habitat E: Local Centre

**Table 7.10: Condition Assessments for Other Neutral Grasslands: Habitats F and G**

| Habitat Reference | A | B | C | D | E | F | Total No. of Criterion Passed | Condition Assessment Result |
|---|---|---|---|---|---|---|---|---|
| **Habitat F:** SuDS / Wildflower | Yes | No | Yes | Yes | Yes | No | 4 | Moderate |
| **Habitat G:** ONG / Wildflower | Yes | No | No | Yes | Yes | Yes | 4 | Moderate |
| **Acid Grassland Types** | | | | **Non-acid Grassland Types** | | | | |
| **Good:** passes 5 criteria | | | | **Good:** passes 5 or 6 criteria, including essential criteria A and additional criterion F | | | | |
| **Moderate:** passes 3 or 4 criteria | | | | **Moderate:** passes 3 to 5 criteria, including essential criterion A | | | | |
| **Poor:** passes 2 or fewer criteria | | | | **Poor:** passes 2 or fewer criteria; or passes 3 or 4 criteria excluding criterion A and F | | | | |

| **Condition Assessment Criteria** |
|---|
| **A.** The grassland is a good representation of the habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description). Professional judgement should be used alongside the UKHab description.<br>*Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.* |
| **B.** Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. |
| **C.** Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens. For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover. |
| **D.** Cover of Bracken less than 20% and cover of scrub (including Bramble) less than 5%. |
| **E.** Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area (species are listed below).<br>If any invasive non-native plant species as listed on Schedule 9 of *Wildlife and Countryside Act 1981* (as amended) are present, this criterion is automatically failed. This is assessed for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement.<br>*Species indicative of sub-optimal condition for this habitat type include:* Creeping Thistle, Spear Thistle, Curled Dock, Broad-leaved Dock, Common Nettle, Creeping Buttercup, Greater Plantain, White Clover, Cow Parsley. There may be additional relevant species local to the region and / or site. |
| **Additional Group – non-acid grassland types only** |
| **F.** There are 10 or more vascular plant species per $m^2$ present, including forbs that are characteristic of the habitat type (species referenced at Criterion 'E' cannot contribute towards this count).<br>*Note - this criterion is essential for achieving Good condition for non-acid grassland types only.* |

Additional Information:

Footnote 1: Professional judgement should be used alongside the UKHab description.

Footnote 2: For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover.

Footnote 3: Species indicative of sub-optimal condition for this habitat type include:

Creeping Thistle (*Cirsium arvense*), Spear Thistle (*Cirsium vulgare*), Curled Dock (*Rumex crispus*), Broad-leaved Dock (*Rumex obtusifolius*), Common Nettle (*Urtica dioica*), Creeping Buttercup (*Ranunculus repens*), Greater Plantain (*Plantago major*), White Clover (*Trifolium repens*), Cow Parsley (*Anthriscus sylvestris*). There may be additional relevant species local to the region and / or site.

Footnote 4: Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement.

Footnote 5: *Wildlife and Countryside Act 1981* (as amended)

**Table 7.11: Condition Assessments for Habitat H: Modified Grassland**

| Habitat Reference | A | B | C | D | E | F | G | Total No. of Criterion Passed | Condition Assessment Result[1] |
|---|---|---|---|---|---|---|---|---|---|
| **Habitat H:** Modified grassland | Yes | No | Yes | No | Yes | Yes | Yes | 5 | Moderate |
| **Good:** Passes 6 or 7 criteria including essential criterion A | | | | | | | | | |
| **Moderate:** Passes 4 or 5 criteria including essential criterion A | | | | | | | | | |
| **Poor:** Passes 3 or fewer criteria OR passes 4 to 6 criteria, but failing criterion A | | | | | | | | | |

| **Condition Assessment Criteria** |
|---|
| **A.** There are 6 to 8 vascular plant species per m2 present, including at least 2 forbs (this may include those listed in below). Note - this criterion is essential for achieving Moderate or Good condition.<br>Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m2 (excluding those listed below), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.<br>*Plant Species:* Creeping Thistle (*Cirsium arvense*), Spear Thistle (*Cirsium vulgare*), Curled Dock (*Rumex crispus*), Broad-leaved Dock (*Rumex obtusifolius*), Common Nettle (*Urtica dioica*), Creeping Buttercup (*Ranunculus repens*), Greater Plantain (*Plantago major*), White Clover (*Trifolium repens*) and Cow Parsley (*Anthriscus sylvestris*). |
| **B.** Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. |
| **C.** Any scrub present accounts for less than 20% of total grassland area (some scattered scrub such as Bramble may be present).<br>Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type. |
| **D.** Physical damage evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities. |
| **E.** Cover of bare ground between 1% and 10%, including localised areas, for example, rabbit warrens.<br>For example, this could include small, scattered areas of bare ground allowing establishment of new species, or localised patches where not exceeding 10% cover |
| **F.** Cover of Bracken less than 20%. |
| **G.** There is an absence of invasive non-native species as listed on Schedule 9 of *Wildlife and Countryside Act 1981* (as amended).<br>This is assessed for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement |

**Table 7.12: Condition Assessments for Habitat I: Mixed Scrub**

| Habitat Reference | A | B | C | D | E | Total No. of Criterion Passed | Condition Assessment Result |
|---|---|---|---|---|---|---|---|
| **Habitat I:** Mixed scrub | Yes | No | Yes | Yes | No | 3 | Moderate |
| | | | | | | | **Good:** passes 5 criteria |
| | | | | | | | **Moderate:** passes 3 or 4 criteria |
| | | | | | | | **Poor:** passes 2 or fewer criteria |

| **Condition Assessment Criteria** |
|---|
| **A.** The scrub is a good representation of the habitat type – the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range). Professional judgement should be used alongside the UKHab description.<br>At least 80% of scrub is native, and there are at least three native woody species, with no single species comprising more than 75% of the cover, except Hazel (*Corylus avellana*), Common Juniper (*Juniperus communis*), Sea Buckthorn (*Hippophae rhamnoides*) or Box (*Buxus sempervirens*), which can be up to 100% cover.<br>Native woody species as defined and listed in the Hedgerow Survey Handbook: DEFRA (2007) *Hedgerow Survey Handbook: A standard procedure for local surveys in the UK. 2nd ed.* [online]. Defra, London. PB1195. Available from: Hedgerow Survey Handbook (publishing.service.gov.uk). |
| **B.** Seedlings, saplings, young shrubs and mature (or ancient or veteran) shrubs are all present.<br>See gov.uk standing advice on ancient and veteran species. Available from *Keepers of time: ancient and native woodland and trees policy in England* (publishing.service.gov.uk) and *Ancient woodland, ancient trees and veteran trees: advice for making planning decisions* (www.gov.uk). |
| **C.** There is an absence of invasive non-native plant species[4] (as listed on Schedule 9 of *Wildlife and Countryside Act 1981* (as amended)) and species indicative of sub-optimal condition[6] make up less than 5% of ground cover.<br>This is assessed for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, the habitat is split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement. |
| **D.** The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat. |
| **E.** There are clearings, glades or rides present within the scrub, providing sheltered edges. |

## Table 7.13: Condition Assessments for Habitat J: Proposed Trees

| Tree Reference | Species | A | B | C | D | E | F | Size Category | Total No. of Criterion Passed | Condition Assessment Result |
|---|---|---|---|---|---|---|---|---|---|---|
| **Habitat J:** Proposed New Trees | Native and non-native | Yes /No | Yes | No | Yes | No | Yes | Small | 3/4 | Moderate |
| | | | | | | | | | | **Good:** Passes 5 or 6 criteria |
| | | | | | | | | | | **Moderate:** Passes 3 or 4 criteria |
| | | | | | | | | | | **Poor:** Passes 2 or fewer criteria |

| **Condition Assessment Criteria** |
|---|
| **A.** The tree is a native species (or more than 70% within the block are native species) |
| **B.** Tree canopy is predominantly continuous with gaps in canopy cover making up less than 10% of total area and no individual gap being more than 5 metres wide. Individual trees automatically pass this criterion. |
| **C.** The tree is mature (or more than 50% within the block are mature). See gov.uk standing advice on ancient and veteran trees, available from:<br>*Keepers of time: ancient and native woodland and trees policy in England* (publishing.service.gov.uk) and *Ancient woodland, ancient trees and veteran trees: advice for making planning decisions* (www.gov.uk).<br>Enhancement of this habitat type is only possible by improving the habitat so that it meets Criteria B, D and F. It is not possible or appropriate to enhance individual trees through meeting just one of those Criteria, nor by meeting Criteria A, C or E. |
| **D.** There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height. |
| **E.** Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark. |
| **F.** More than 20% of the tree canopy area is oversailing vegetation beneath |

## Table 7.14: Condition Assessments for Habitat K: New Native Hedgerows and Habitat L: Hedgerows with Trees

| Habitat Reference | A1 | A2 | B1 | B2 | C1 | C2 | D1 | D2 | E1 | E2 | Total No. of Group Failures | Total No. of Criteria Failures | Condition Assessment Result |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Habitat K:** New native hedgerows | Yes | No | Yes | Yes | Yes | No | Yes | No | - | - | 0 | 3 | Moderate |
| **Habitat L:** New native hedgerows with trees | Yes | No | Yes | Yes | Yes | No | Yes | Yes | No | Yes | 0 | 3 | Moderate |

| **Hedgerows Without Trees** | **Hedgerows With Trees** |
|---|---|
| **Good:** No more than 2 failures in total; AND no more than 1 in any functional group. | **Good:** No more than 2 failures in total; AND no more than 1 failure in any functional group. |
| **Moderate:** No more than 4 failures in total; AND does not fail both attributes in more than one functional group<br>(e.g. fails attributes A1, A2, B1 & C2 = Moderate condition). | **Moderate:** No more than 5 failures in total; AND does not fail both attributes in more than one functional group<br>(e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition). |
| **Poor:** Fails a total of more than 4 attributes; OR fails both attributes in more than one functional group | **Poor:** Fails a total of more than 5 attributes; OR fails both attributes in more than one functional group |

| | |
|---|---|
| (e.g. fails attributes A1, A2, B1 & B2 = Poor condition). | (e.g. fails attributes A1, A2, B1 & B2 = Poor condition). |

| **Condition Assessment Criteria** | |
|---|---|
| **A1. Height:**<br>>1.5m average along length<br>The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees.<br>Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of 4 years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is > 1.5 m height). | **A2. Width:**<br>>1.5m average along length.<br>The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees.<br>Outgrowths (e.g. Blackthorn suckers) are only included in the width estimate when they >0.5 m in height.<br>Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of 4 years (if undertaken according to good practice) |
| **B1. Gap - hedge base.**<br>Gap between ground and base of canopy is less than 0.5m, for more than 90% of length (unless line of trees).<br>This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (e.g. a Hazel dominated hedgerow or where the hedgerow is affected by shading from other vegetation such as woodland, see page 65 of *Hedgerow Survey Handbook*. | **B2. Gap - hedge canopy continuity.**<br>Gaps make up less than 10% of total length and no canopy gaps are greater than 5m. Gates and access points are not subject to the greater than 5m criterion.<br>This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small).<br>Access points and gates contribute to the overall 'gappiness', but are not subject to the greater than 5 m criterion (as this is the typical size of a gate). |
| **C1. Undisturbed ground and perennial vegetation.**<br>More than 1m width ground with perennial herbaceous vegetation for more than 90% of the hedgerow length, as measured from outer edge of the hedgerow, and is present on at least 1 side of the hedgerow.<br>This is the level of disturbance (excluding wildlife disturbance) at the base of the hedge. Undisturbed ground should be present for at least 90% of the hedgerow length, greater than 1m in width and must be present along at least one side of the hedge. This criterion recognises the value of the hedge base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches. | **C2. Nutrient-enriched perennial vegetation.**<br>Plant species indicative of nutrient enrichment of soils do not dominate more than 20% cover of the ground area of undisturbed ground.<br>The indicator species used are nettles (*Urtica* spp.), Cleavers (*Galium aparine*) and docks (*Rumex* spp.). Their presence, either singly or together, should not exceed the 20% cover threshold. |
| **D1. Invasive and neophyte species.**<br>More than 90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA) and recently introduced species.<br>Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website, as well as the BSBI website where the 'Online Atlas of the British and Irish Flora' contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website. | **D2. Current damage.**<br>More than 90% of the hedgerow or undisturbed ground is free of damaged caused by human activities.<br>This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes.<br>This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g. excessive hedge cutting). |
| **Additional group – ONLY if trees are present** | |
| **E1. Tree Class**<br>There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient[8]), and there is on average at least one mature, ancient or veteran tree present per 20 to 50m of hedgerow. This criterion addresses if there are a range | **E1. Tree health** |

| Condition Assessment Criteria | |
|---|---|
| of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species. | At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.<br>This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens. |

## 7.4 Figures

**Figure 1: Aerial Image of the Site and Surroundings**

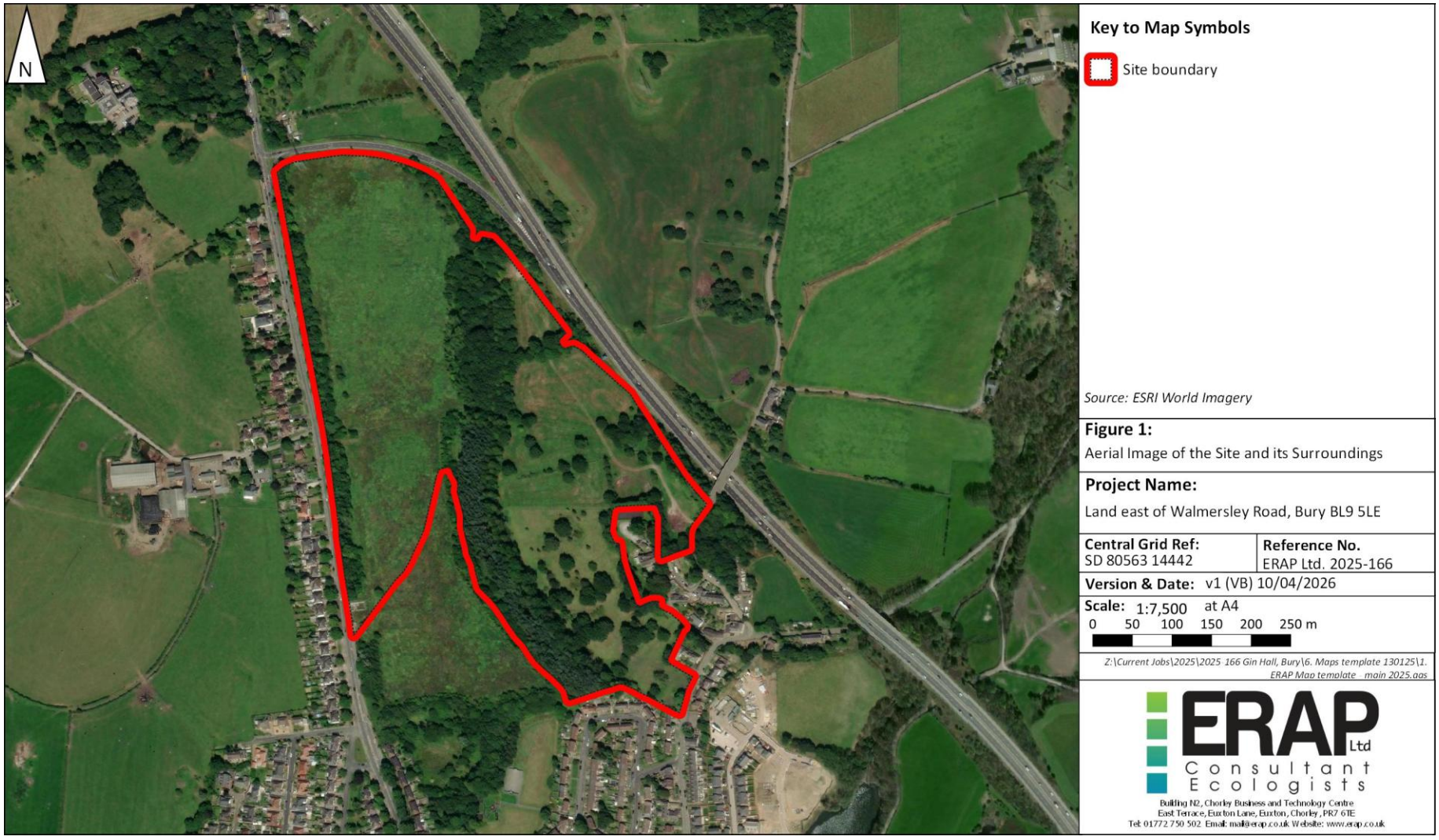


**Figure 2:** **BNG Plan: Baseline**

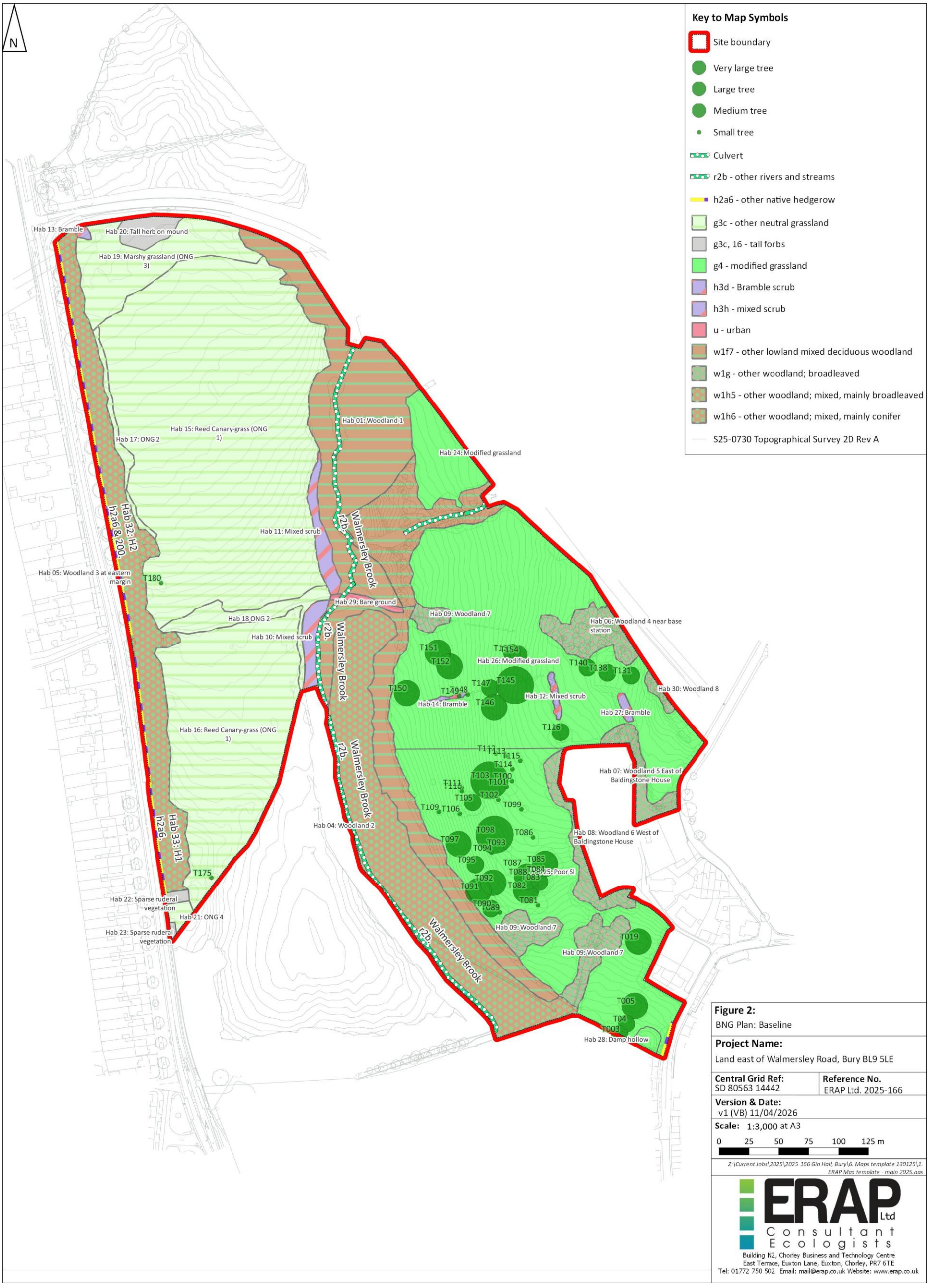
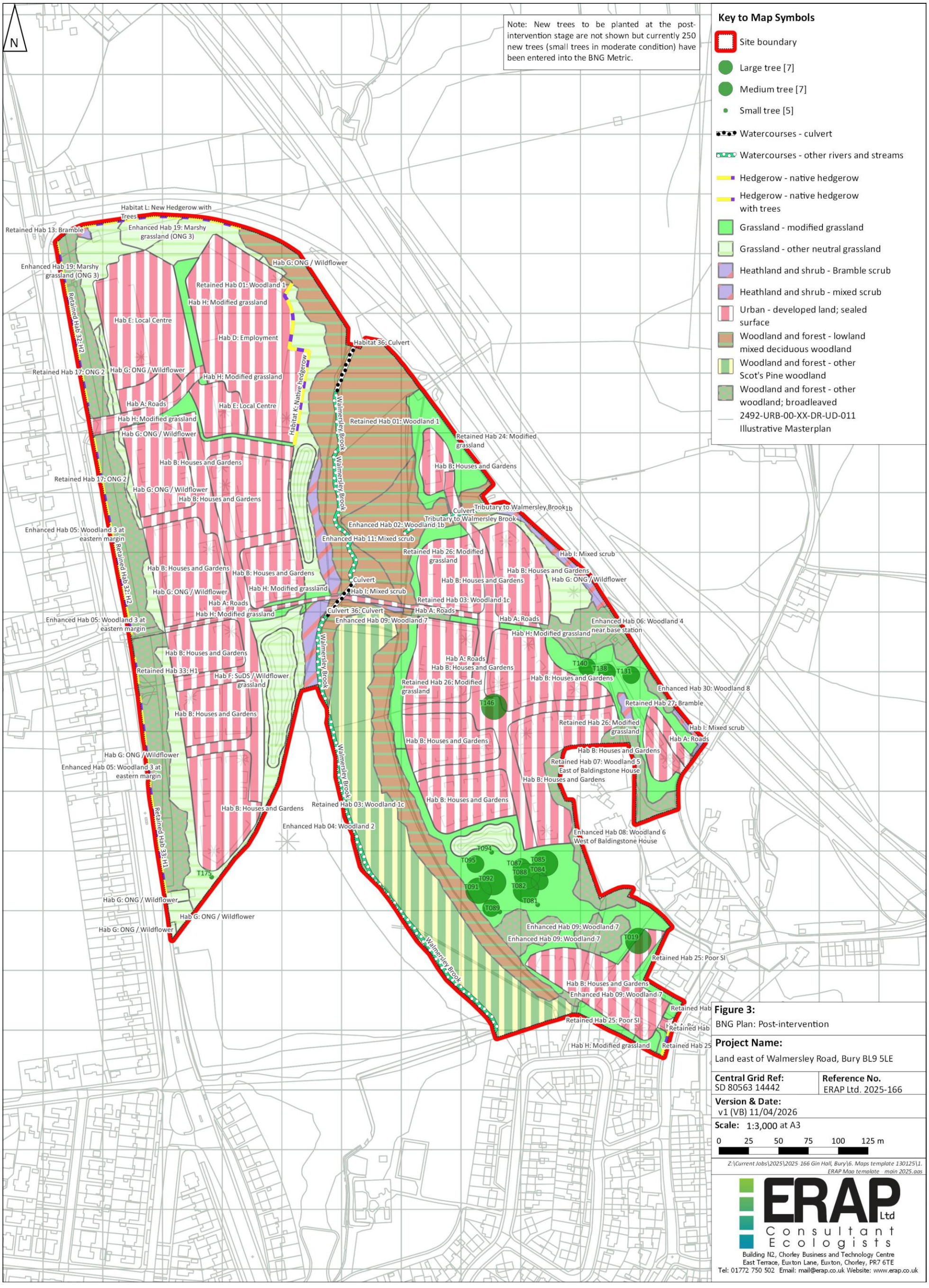


**Figure 3:** **BNG Plan: Post-intervention**



## 7.5 Illustrative Masterplan



# APPENDIX 12 – HERITAGE STATEMENT (KATHRYN SATHER & ASSOCIATES)

# LAND EAST OF WALMERSLEY ROAD
# BURY

# HERITAGE STATEMENT



**Kathryn Sather & Associates**
**Heritage Conservation Consultants**

**March 2026**

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# Section 1 Introduction

This Heritage Statement has been prepared to support the application for outline permission for residential development, employment and a local centre (all matters reserved other than access) at land east of Walmersley Road, Bury, BL9 6RX. The Grade II listed Baldingstone House lies to the southeast of the proposal site. To the north of the development site is Bassfield Farm, House and Cottage which has been put forward for the Bury Councill draft list of locally listed buildings and could be considered a non-designated heritage asset. This Heritage Statement should be read in conjunction with the proposed parameter plan other reports submitted with the planning application.

This Heritage Statement has been prepared in accordance with the NPPF, the NPPG and relevant local planning policy. It has been prepared by Kathryn Sather & Associates, Heritage Conservation Consultants. This Heritage Statement aims to provide sufficient information specific to the proposal site and its immediate surroundings. To this end the statement provides a summary of the history and development of the local area, the history and description of the site. It assesses the significance of the nearby listed structure and non-designated heritage assets and the contribution that the proposed development site makes to the settings of the heritage assets. The Statement also describes the proposed works, sets out the desirability of the proposed works and assesses the impact of the proposed works upon the settings of the heritage assets.

# Section 2 Planning Policy Context

## 2.1 Introduction

Both national and local planning policies and guidance affect the planning policy context for the proposal site. These include the Bury Unitary Development Plan, Places for Everyone Joint Development Plan Document 2022 To 2039, NPPG, the NPPF Chapter 16, and guidance from Historic England.

## 2.2 Bury Unitary Development Plan (Adopted 1997)

The current Bury UDP was adopted by the Council on 29 August 1997. The Council is now working to replace the adopted UDP with a new document called the Bury Local Plan. Until the new Local Plan is produced the UDP will continue be used to make planning decisions. Relevant extracts from the plan include:

**EN1 - BUILT ENVIRONMENT**
The Council will seek to protect, preserve and enhance the character, appearance and amenity of the Borough's built environment.

**EN1/1 - Visual Amenity**
Development will not be permitted where proposals would have a detrimental effect on:

- public views of prominent or important buildings, especially those in areas of architectural or historic interest;
- the visual amenity both within, or viewed from, areas of environmental interest such as the Green Belt, Special Landscape Areas or the river valleys.

**EN1/2 - Townscape and Built Design**
The Council will give favourable consideration to proposals which do not have an unacceptable adverse effect on the particular character and townscape of the Borough's towns, villages and other settlements. Factors to be considered when assessing proposals will include:

- the external appearance and design of the proposal in relation to its height, scale, density and layout;
- the relationship of the proposal to the surrounding area;
- the choice and use of materials;
- access and other design features for the mobility impaired;
- the design and appearance of access, parking and service provision;
- landscaping, including the use of natural landscape features, and open space provision;
- the use of lighting.

**EN2 - CONSERVATION AND LISTED BUILDINGS**
The Council will seek to preserve the Borough's built heritage through the control of development, especially that affecting Conservation Areas, Listed Buildings and areas of local historical importance.

**EN2/1 - Character of Conservation Areas**
The Council will take action as appropriate to preserve or enhance the character or appearance of the Borough's Conservation Areas.
The Council will be especially concerned with encouraging and, where appropriate, implementing measures to:

- retain, replace and restore features of historical and architectural interest;
- retain and enhance existing landscape features including trees, parks and gardens;
- initiate and promote environmental improvement/enhancement schemes such as landscaping, refurbishment of street furniture, traffic management and pedestrian schemes;

- remove dereliction and bring unused land or buildings back into beneficial use;
- prepare and promote design guidelines to ensure sympathetic development.

**EN2/2 - Conservation Area Control**
Development within a Conservation Area will only be acceptable if it preserves or enhances the special character or appearance of the area.
In considering proposals for development in Conservation Areas, regard will be had to the following criteria:

- the nature of the development in terms of its bulk, height, materials, colour, design and detailing;
- the relationship between the proposed development and the architectural and visual qualities of the surrounding area;
- where demolition is proposed, the contribution of any proposed new building to the character or appearance of the area as compared to the building to be demolished;
- in the case of the re-use of buildings or the introduction of new uses, the impact of the proposal on the character or appearance of the area and the fabric of the existing building.

**EN2/3 - Listed Buildings**
The Council will actively safeguard the character and setting of Listed Buildings by not permitting works, alterations or changes of use which would have a detrimental effect on their historical or architectural character and features. Proposals for demolition will be opposed and will only be considered where it is demonstrated conclusively that the building(s) cannot be retained.
In considering applications for Listed Building Consent, the Council will have regard to the following criteria: a) the impact of the proposal on the historic fabric of the building;

- the relationship of any extension to the Listed Building in terms of its height, size, design, and roofscape;
- the need to protect the setting of the Listed Building;
- the impact of associated ancillary facilities and infrastructure works.

## 2.3 Places for Everyone Joint Development Plan Document for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan 2022 To 2039 (Adopted 21 March 2024)

Places for Everyone is a long-term plan of nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth. It has been published by the GMCA on behalf of the nine districts. The plan is a joint development plan of the nine districts which will determine the kind of development that takes place in their boroughs, maximising the use of brownfield land and urban spaces while protecting Green Belt land from the risk of unplanned development. The Places for Everyone Plan took effect and became part of the statutory development plan for each of the nine PfE authorities on March 21, 2024.

**Policy JP-P2: Heritage**
We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place.
Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive management and integration of our heritage by:
1. Setting out a clear vision that recognises and embeds the role of heritage in place-making;

2. Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;
3. Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;
4. Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and
5. Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.
Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value.
Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning policy.
Where heritage assets have been identified as being at risk, Local Plans should identify specific opportunities for them to contribute to regeneration and placemaking, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan.
Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.

## 2.4 The Planning (Listed Building and Conservation Areas) Act

Local Planning Authorities have statutory duties regarding decisions involving heritage assets. The following provisions are relevant to the site:

Section 66 (1) of the Planning (Listed Building & Conservation Areas) Act 1990 states: 'in granting planning permission for development which affects a listed building or its setting,' a LPA must have 'special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.'

## 2.5 National Planning Policy Framework and National Planning Practice Guidance

Section 16 of the NPPF, 'Conserving and enhancing the historic environment', provides the policy framework for the conservation of the historic environment. The following guidance is relevant to the application site.

**Proposals affecting heritage assets**

**207**. In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should

require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

**208**. Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this into account when considering the impact of a proposal on a heritage asset, to avoid or minimise any conflict between the heritage asset's conservation and any aspect of the proposal.

**210**. In determining applications, local planning authorities should take account of:

a) the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;

b) the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and

c) the desirability of new development making a positive contribution to local character and distinctiveness.

**Considering potential impacts**

**212**. When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.

**213**. Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:

a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;

b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.

**214.** Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

a) the nature of the heritage asset prevents all reasonable uses of the site; and

b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and

c)conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and

d) the harm or loss is outweighed by the benefit of bringing the site back into use.

**216.** The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

**215**. Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.

**217.** Local planning authorities should not permit the loss of the whole or part of a heritage asset without taking all reasonable steps to ensure the new development will proceed after the loss has occurred.

**218.** Local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.

**219.** Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.

## 2.6 Other National Guidance Documents: Historic England

Several Historic England documents provide relevant guidance. These include *The Setting of Heritage Assets*: *Historic Environment Good Practice Advice in Planning: 3* (2017) and *Statements of Heritage Significance: Analysing Significance in Heritage Assets Historic England Advice Note 12* (2019).

The Historic England document *The Setting of Heritage Assets* defines setting as: 'the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of the asset, may affect the ability to appreciate that significance or may be neutral.'

Setting is also described as being a separate term to curtilage, character and context. Curtilage is largely a legal term referring to the extent of a property boundary, as prescribed by ownership and the character of a place depends upon a sum of all of its attributes. Setting is largely a visual term and thus the way in which an asset is experienced, can also be affected by noise, vibration, odour and other factors. The guidance sets out a five staged process for assessing the implications of proposed developments on setting. The steps are as follows:

**1: Identifying the heritage assets and their settings**
The first stage of the analysis is to identify which heritage assets and associated settings are likely to be affected by the proposed development.

**2: Assessing whether, how and to what degree settings make a contribution to the significance of the heritage asset**
Initially, the significance of the heritage asset needs to be assessed. This assessment should be informed by both archival research and site survey. In assessing the contribution of the setting to significance, the physical surroundings of the asset should be considered, as well as the relationship with other heritage assets, the way in which the asset is experienced, the asset's associations with people and events and patterns of use. This information will provide a baseline for establishing the effects of a proposed development on the significance of a heritage asset.

**3: Assessing the effect of the proposed development on the significance of the asset**
The range of effects the proposals may have on the setting and the resultant degree of harm or benefit to the significance of the heritage asset can now be considered. The guidance advises on the best approach for assessing the effects of the specific proposals on the heritage assets concerned. In general: 'The assessment should address the key attributes of the proposed development in terms of its: location and siting, form and appearance, additional effects and permanence.'

**4: Maximising enhancement and minimising harm**
The guidance advises that adverse affects can be limited and the maximum advantage achieved if proposals liable to affect setting are considered from the project's inception. Further limitation of harm can be achieved by producing a well-designed scheme that will minimise detrimental impacts and identify opportunities for enhancement.

Steps to reduce the harm caused by proposals to the significance of a heritage asset include the relocation of a development or its elements, changes to the proposed designs, the creation of visual or acoustic screening, or management measures secured by planning conditions or legal agreements. When harm cannot be avoided, screening should be implemented, although the design of this should be in keeping with the surroundings and avoid having a further negative impact on the area.

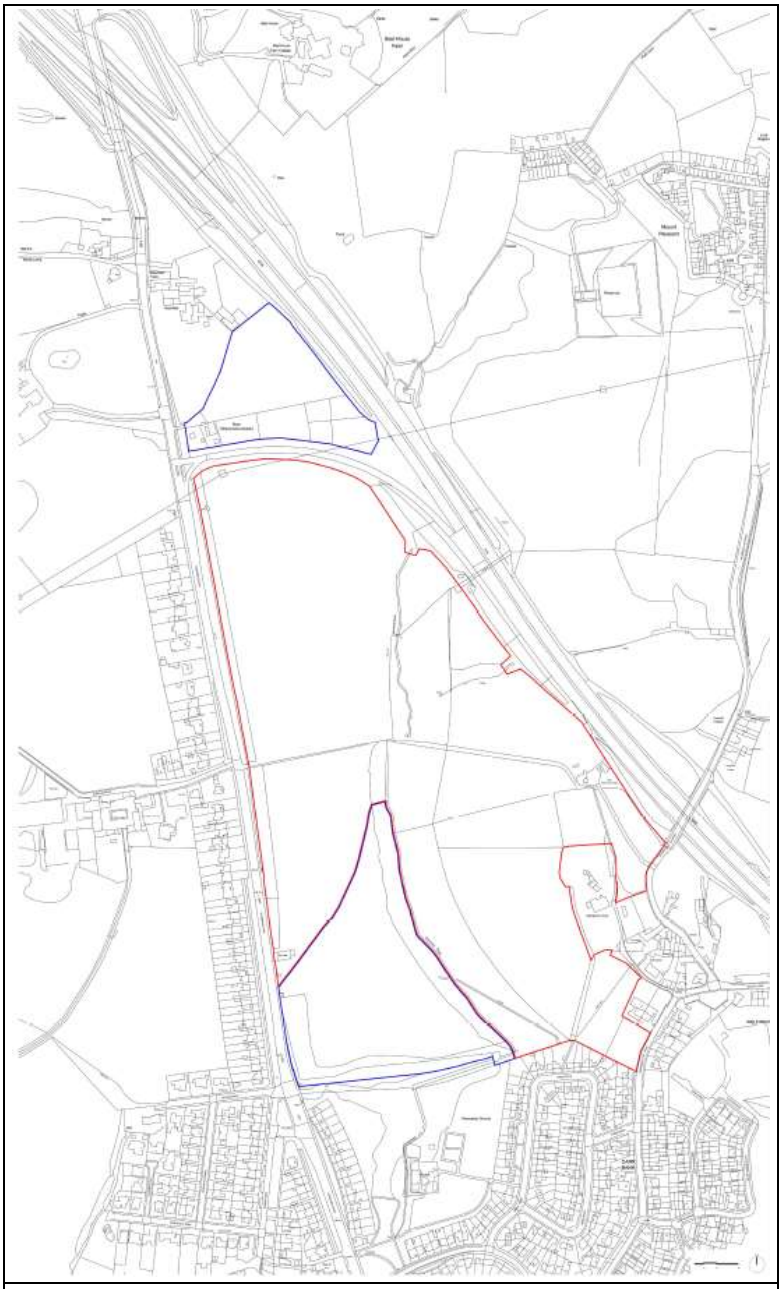
**5: Making and documenting the decision and monitoring outcomes**
The final phase of the process is to come to the final decision about the proposals. All of the information gathered from the previous steps must be considered. It must also be considered that all heritage assets are not of equal importance and the contribution made by their setting to their significance also varies. The capacity for a setting to accommodate change must also be considered and therefore decisions are therefore made on a case by case basis.

# Section 3 Description of the Site

## 3.1 Location

The proposal site lies 2.5 miles north of Bury Town Centre, 14 miles east is Rochdale and Egerton is 8 miles to the west.

The proposal site is located to the west of the M66 motorway with the Junction 1 slip road to the north. To the south is a residential development and a public open space with Walmersley Road and housing developments to the west. Walmersley Brook runs from north to south through the proposal site. Baldingstone House a Grade II listed property is located to the southeast and accessed off Baldingstone/Walmersley Old Road. Walmersley Conservation Area is located some way south of the proposal site within the built up area of Walmersley village, while Mount Pleasant Conservation Area is located to the northeast beyond the M66 motorway. Carr Bank Park is a protected recreation provision and lies to the south boundary of the proposal site.



***Location Plan***

## 3.2 The Proposal Site

The proposal site is irregular in plan and bounded by the M66 motorway, Walmersley Road and residential developments. It is approximately 19.9 hectares and consists mostly of an overgrown green field, known as Walmersley Brook.

The boundaries are:

- To the east are thick high hedgerows and mature trees with the M66 beyond. To the southeast is the Grade II listed Baldingstone House and grounds.
- Junction 1 slip road is to the north, with mature vegetation and trees on part of the proposal site, on the other side of the slip road is open green space.
- Walmersley Road forms the west boundary with mature vegetation and trees separating the proposal site from the road. Part way along Walmersley Road is a break in the trees and metal gates affording access on to the proposal site. Houses line the west side of Walmersley Road.
- Large mature tree and vegetation form the south boundary with Carr Bank Park beyond the mature growth. At the southeast corner of the south boundary is a housing development.

Walmersley Brook runs north to south through the centre on the site surrounded by mature vegetation.



***East Boundary***



***Mature Vegetation along Walmersley Brook***





***Proposal Site***





***South Boundary***

# Section 4 History and Development

## 4.1 History and Development of Bury

The archaeological find of an urn containing bronze coins discovered just north of what is now the town centre suggests human activity dating from prehistoric times. During the Roman occupation, under Gnaeus Julius Agricola, the General responsible for most of the road building in Britain.[1] A road was formed stretching from Manchester (Mamucium) to Ribchester (Bremetennacum) which ran through the townships of Bury, Radcliffe and Affetside. The road which now skirts Seddon's Farm on the west side of Bury (now named Watling Street), approximately follows the route.

Following the Norman conquest, the area was held by the Lords of the manor of Tottington, from 1193-1219 the manor was held by one Adam de Bury as "one knight's fee of ancient tenure. In the 14th century his descendent Alice married Roger Pilkington. The town of Bury was formed around an ancient market place (although the borough charter was not granted until the 19th century) and, before the River Irwell was diverted to its present course, this was the core of the historic settlement; a church and a fortified house alongside some smaller residential dwellings. The 14th century outbreaks of plague caused as elsewhere significant decline in the population and economic activity. It is probably that pasturing of sheep and the origins of a cottage textile industry date from this period.

The medieval fortified manor house, Bury Castle, was built in 1469 by Sir Thomas Pilkington. It was located on high ground overlooking the Irwell Valley on high ground, giving it a good defensive position. During the War of the Roses the family supported the House of York despite the Lancastrian location. When Richard III fell, during the Battle of Bosworth 1485, Thomas Pilkington was captured and later executed. His lands were gifted to a supporter of the newly crowned Henry VII, Sir Thomas Stanley. Stanley later earned the title of the Earl of Derby. The Castle is now in ruins and, as Pevsner points out, this was probably the case in John Leland's time. In the 1970s archaeological work aimed at rediscovering the boundaries of the castle, following the 1868 construction of the Castle Armouries on the site to house the 8th Lancashire Rifle Volunteers.[2]

Despite having their seat at Knowsley Hall in the outskirts of Liverpool, the Stanley family has many connections to Bury – they held the advowson for the parish church, enabling them to name the incumbent. The Stanley family gave support and donated land to the Bury Grammar School, founded 1557, helping out financially and donating land (the school has a House named Derby). This patronage continued into the 20th century; in 1959 when Derby High school was opened in Bury, it took its name from its Patron the 18th Earl of Derby and has the Derby coats of arms as its badge.

During the 16th century there is reference to the discovery of coal and the presence of a sizeable Puritan presence. In the 17th century the town was Royalist, following the interests of the Rector and the Earl of Derby. However non-Conformists were numerous, with the Rector reporting to the Bishop of Chester in 1669 that meetings were held in private houses by various groups, mainly attended by 'yeomanry and other inferiors.'[3]

Expansion beyond the church and market place began in the second half of the 18th century[4] when the industrial revolution was in its early throes. Inventions, the availability of water power and later coal and the climate and soft water all contributed to the success and growth of the cotton industry in the northwest. Factories, mines and foundries with their steam engines and spinning machines began to dominate the landscape and the population doubled. John Kay, born at Walmersley, Bury, invented his famous 'picking peg' in 1733, which made the shuttle in his hand loom move more quickly. It became known as the 'Flying Shuttle' and revolutionised cotton weaving.[5]

[1] Tacitus, *Agricola, Dio Cassius,* Roman History, 66:20.
[2] Historic England, 1067290.
[3] British History Online, http://www.british-history.ac.uk/vch/lancs/vol5/pp122-128.
[4] Pevsner,N., *The Buildings of England; South Lancashire,* Penguin Group, 1969, p.96.
[5] Aspin,C., *The First Industrial Society, Lancashire,* Carnegie Publishing, 1995, 1.

However in the age reminisced as the 'great industrial revolution' the people working in Lancashire were living in extremely poor conditions and frequently were being exploited. In January of 1820 William Varley of Higham near Burnley expressed the feelings of many a worker when he wrote in his diary 'Alas, poor weaver, thy fond hopes of better days always proves abortive; distress and scorn is thy true companions; thy haggard and meagre looks plainly indicate thy hard usage, slavery which knows no bounds.'[6] By the middle of 1842 thousands of Lancashire people had been reduced to utter wretchedness and despair. Dr P.M. McDouall, the Ramsbottom Chartist, told the Select Committee on Payment of Wages that he had seen as many as five hundred handloom weavers and factory workers begging through the villages around Blackburn, Clitheroe and Bury.[7]

Although Bury can be seen to play an important role in the Industrial Revolution in terms of the output of manufactured goods it produced and exported, and the growth of the town because of this, it seems that the quality of the ordinary workers life was not improved. The growth of Bury in the second half of the 19th century can be seen in the historical maps of 1851 and 1893; although there are two cotton mills and a gas works in the area near Freetown and Lower Chesham, there is no 'planned housing' and there are large areas of open spaces with small dwellings dotted in between in 1853. This changes by 1893 where there are not only more mills and industrial works but also back to back terraces to house the many workers that needed for the growth of the factories.

The name Walmersley is derived from an old English word meaning Waldmer's Wood. The small rural village was part on the ancient parish of Bury, called Walmersley cum Shuttleworth. It became civil township in 1866. The Church of Our Saviour Christ was the first church in Walmersley built by public subscription and opened in 1838. The following year the school was built in connection to the church.

## 4.2 Brief Description and History of Baldingstone House

Baldingstone House was likely built c.1680, although some sources offer c.1615 as a date with no evidence. The house is situated at the top of a private road off Walmersley Old Road. It is likely that the house was built by Richard Kay, a local blacksmith. Richard Kay's father John Kay was a blacksmith and together they operated the smithy on Walmersley Old Road. After the Civil War the Kay family acquired several properties in the area. Richard Kay died in 1697. Documents from the time mention a cottage to the rear of the house. A grandson of Richard Kay, also named Richard Kay, was born at Baldingstone House in 1716 and kept a diary. Richard Kay's diary describes the house as having 3 rooms to the ground floor and 3 rooms above, with three cottages to the rear which were also lived in by family members. Richard Kay, the diarist, was a doctor that ran his practice from the house, as did his father before him. Due to a typhus epidemic many Kay family members died and by 1751, only two family members remained alive.

Historically, the word Baldingstone not only refers to the house but also to a small community in the area. Through census and directory research it is not always clear who lived in the house and who lived in the Baldingstone community. The census from 1841 to 1911 refers to the area of Baldingstone, never the house specifically. Though in the 1851 census, John Heall a cotton manufacturer resided in Baldingstone with his wife, five children, a housemaid, a cook and a nurse. At this time no other houses in the Baldingstone area were big enough to house 10 people, therefore it is assumed the Heall family resided in Baldingstone House in 1851.

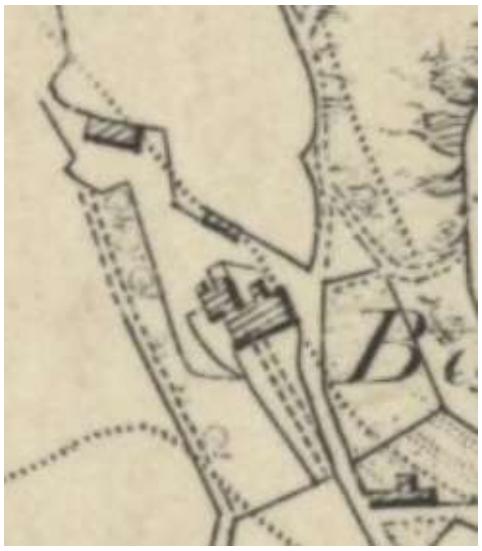
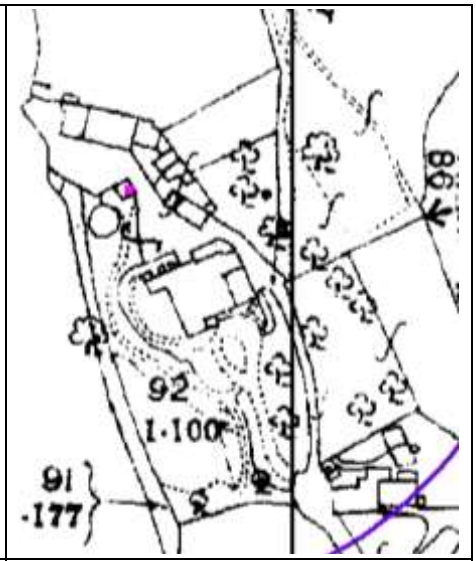
In 1891, James Hoyle, his wife Mabel, a housemaid and cook may have also lived in Baldingstone House. James Hoyle is listed as being a cotton spinner and manufacturer. In 1911, John Ashworth a retired master felt hat manufacturer is believed to have lived in Baldingstone House with his wife and five mature children. He is also listed in Kelly's 1905 Directory as a private resident. In Kelly's 1924 Directory John Ashworth remained listed as a resident of Baldingstone. In Kelly's 1895

[6] Aspin, C., *The First Industrial Society, Lancashire,* Carnegie Publishing, 1995, 62.
[7] Aspin, C., *The First Industrial Society, Lancashire*, Carnegie Publishing, 1995, 82-3.

Directory, James Smallpage Hoyle, County Magistrate is listed as living in Baldingstone. There is more than sufficient evidence to ascertain that Baldingstone House was built by local landowning family, and lived in by a succession of doctors, cotton manufacturers and a magistrate, with servants documented by the census returns.

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|---|---|
|  |  |
| ***Baldingstone House c.1890 with Sash Windows (Bury Archive)*** | **Baldingstone House c2001 (Images of England ©Ms Pamela Jackson LRPS )** |

Baldingstone House is built of stone, with a stone slate roof and mullion windows to the front earlier section of the house. Later rear extensions have sash windows. Later side and rear extensions greatly extended the house from the original 3 rooms each floor. Historic plans document several extensions to the rear on the 1851 OS map, with further rear and front extensions by 1893. A side (east) bay extension which has sash windows is documented in a photograph of c.1890, along with a front porch and conservatory to the front west side. The sash windows to the side (east) bay extension from the 1890 photograph have been replaced with mullion windows in the photograph from 2001. Several cottages to the rear also have stone mullion windows. Additional cottages and outbuildings to the rear were also built between 1851- 1893.

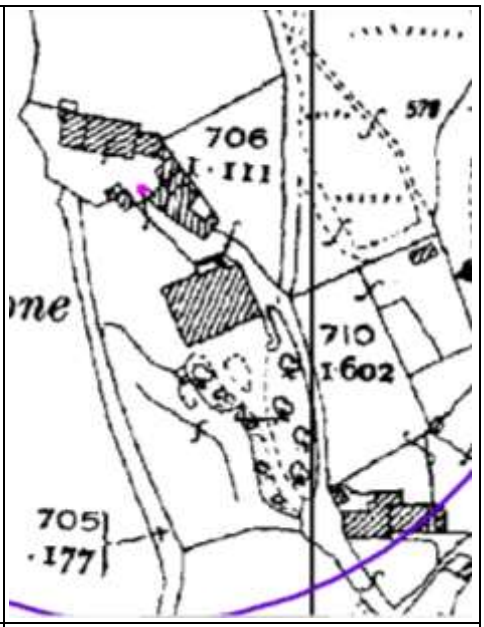
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|---|---|
|  |  |
| ***OS Map1851*** | ***OS Map 1893*** |

The ground falls from higher ground to the east of the house towards the west across the site of Baldingstone House and continues down to Walmersley Brook. The OS maps document the garden area to the front of the house, with the access drive leading to the front of the house. A secondary narrow drive to the east, flanked by stone walls, leads to the rear of the house. Although the front and western side garden boundaries appear to have remained constant, the existing boundaries of

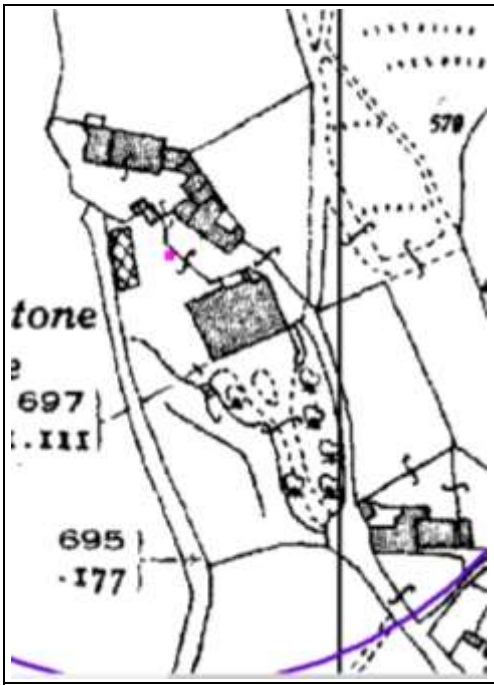
the grounds now extend further north to the rear of the cottages and outbuildings. The boundaries are characterised by a stone wall to the east of the front garden, and hedges shrubs and mature trees to the other boundaries.




***OS Map 1910***



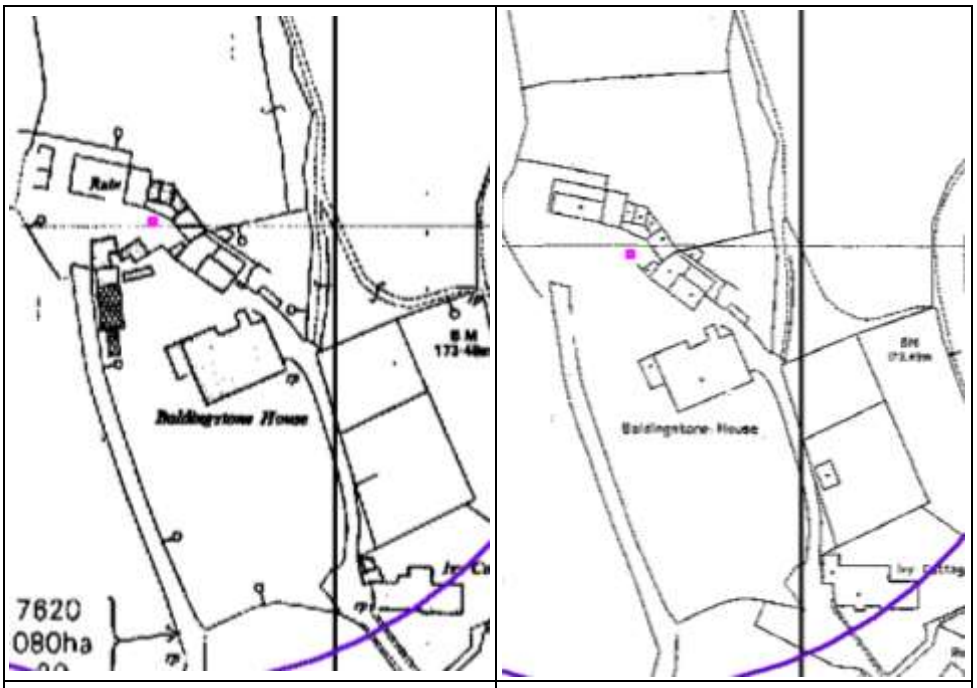

***OS Map1930***




***OS Map 1937***




***OS Map1963-64***



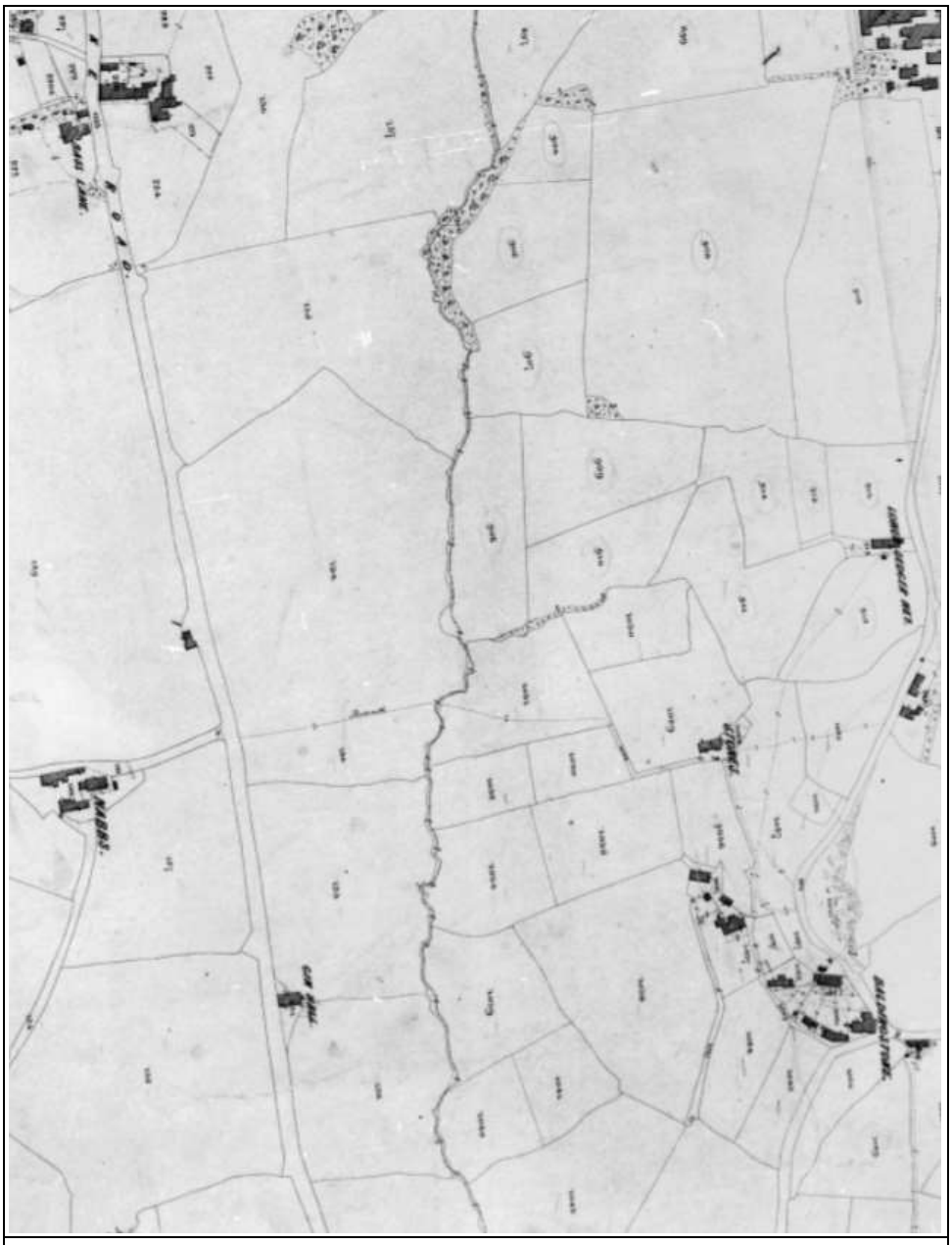

| OS Map 1987 | OS Map1992 |
|---|---|

## 4.3 History and Development of the Proposal Site

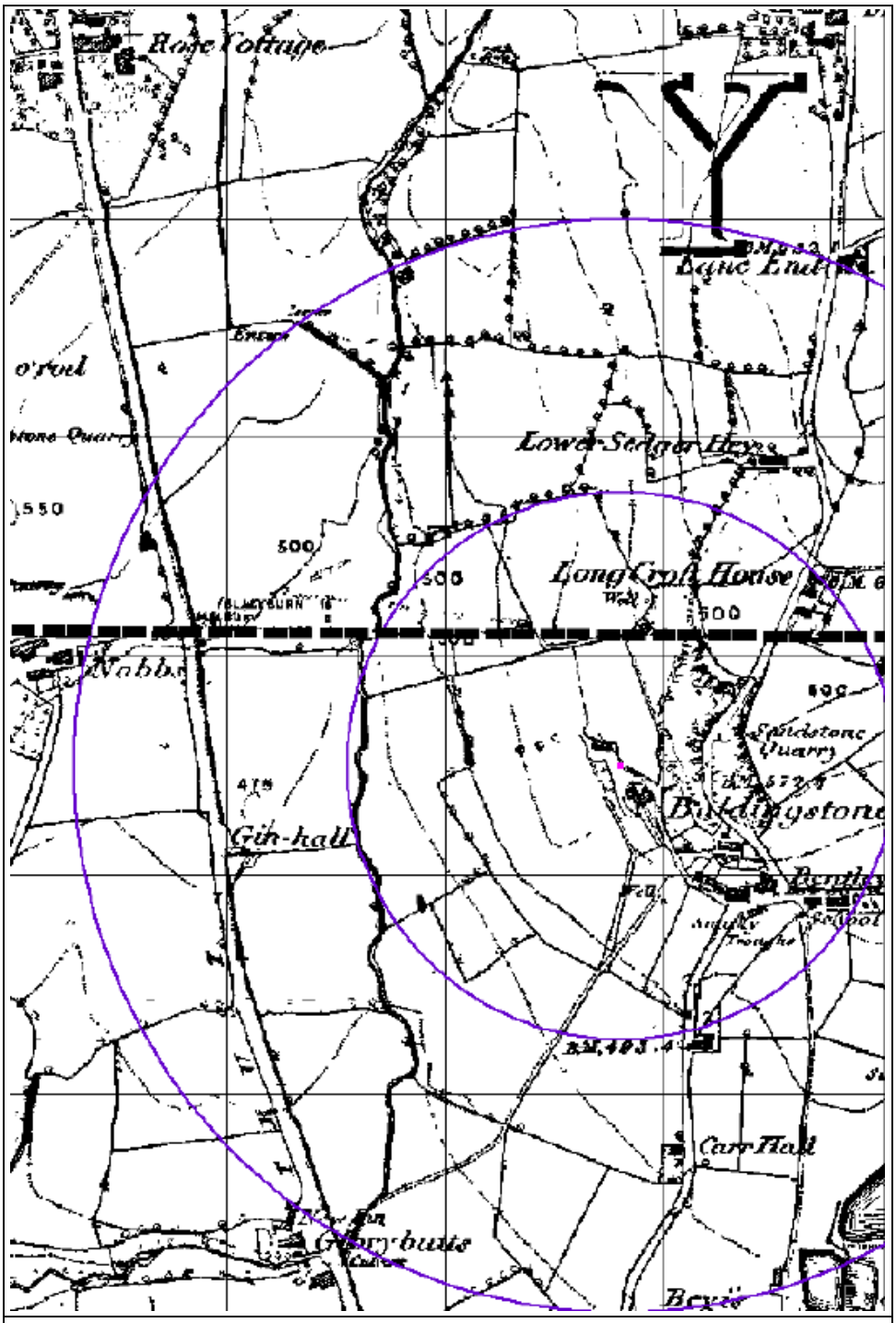
### 4.3.1 Development of the Proposal Site

The Historic Environment record does not record any prehistoric or Roman evidence on the site. The 1838 Tithe map and apportionment of Walmersley cum Shuttleworth shows that the main part of the proposal site to the east of Walmersley Brook was owned by the Earl of Derby and occupied by John Spencer who was also listed at Baldingstone House and Stones Farm to the north of Baldingstone House. The northernmost tip of this east section beyond a horizontal band of trees was owned by a Richard Grime and occupied by William Kay who lived at Lower Sedger Hey to the east of this land. The land to the west of Walmersley Brook is also listed as owned by the Earl of Derby but occupied by Robert Butterworth who is also listed at Gin Hall, a building half way along the west boundary to the proposal site on Walmersley Road and also at Nabbs Farm to the northwest of Gin Hall. The land within the proposal site was agricultural at this time with field names such as 'Barn Field', 'Great Meadow' and 'Brook Field.' The group of properties to the north of the proposal site now called Bassfield farm, House and Cottage are not named on the 1838 Tithe map but on the 1850 OS map they are named as Rose Cottage. There are no other obvious changes to the proposal site until the OS map of 1894 where the Walmersley Brook has been dammed to create a reservoir depicted as 'Reservoir (Bury Water Works)' to the southern half of the west side of the proposal site alongside Gin Hall. The group of buildings to the north of the proposal site is now depicted as 'Bassfield'. By 1930-31 residential development is starting alongside of Walmersley Road and to the south of the proposal site at Bevis Green. This development continues throughout the 1950s and 1960s until the entirety of the west side of Walmersley Road alongside the proposal site and the land to the south has been developed. The OS map of 1982 shows that the reservoir is now disused and the M66 motorway to the east of the proposal site has been constructed. Census research shows that the buildings at Gin Hall were used to house workers on the reservoir and the buildings are now derelict.

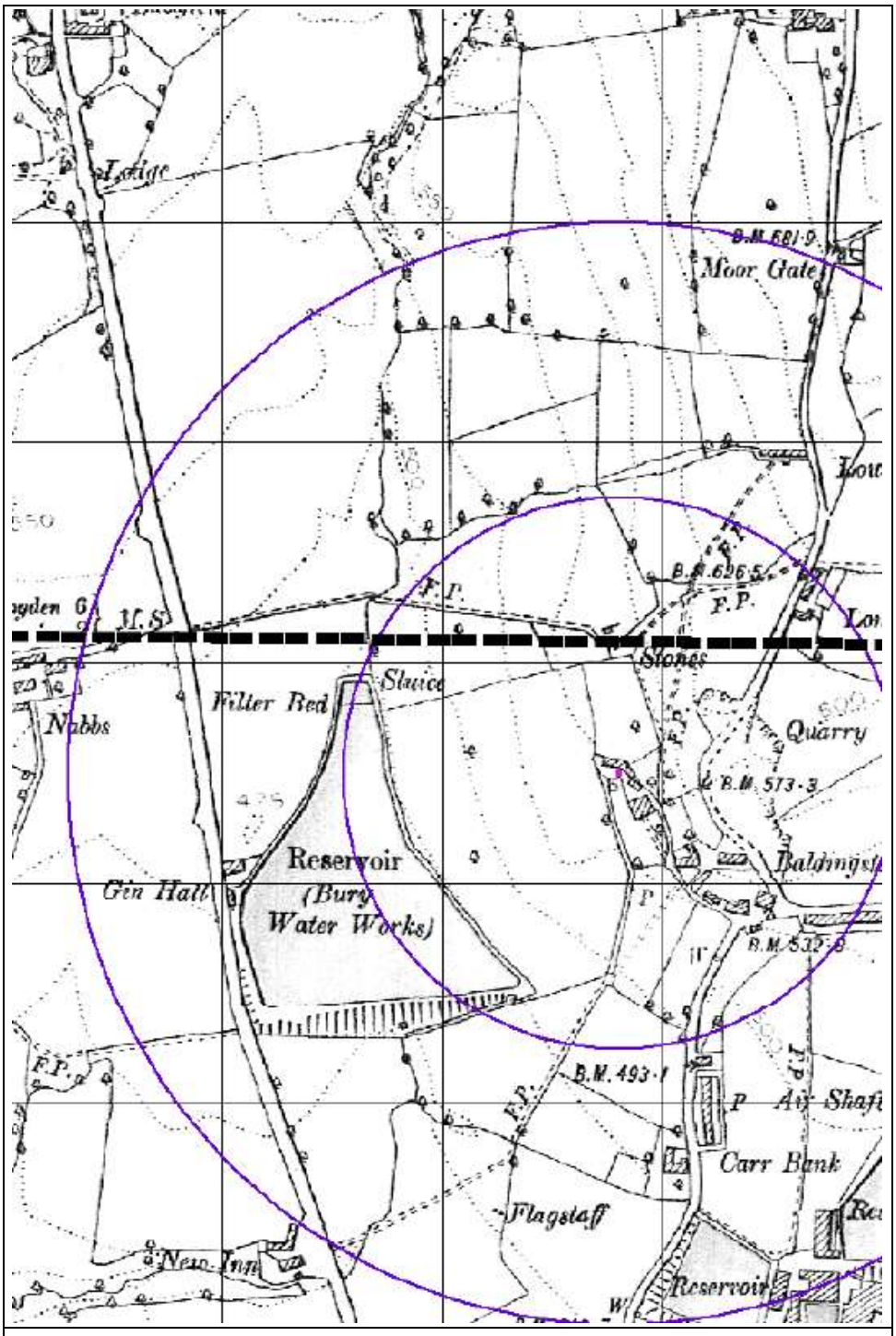
### 4.3.2 Sequential Development of the Proposal Site



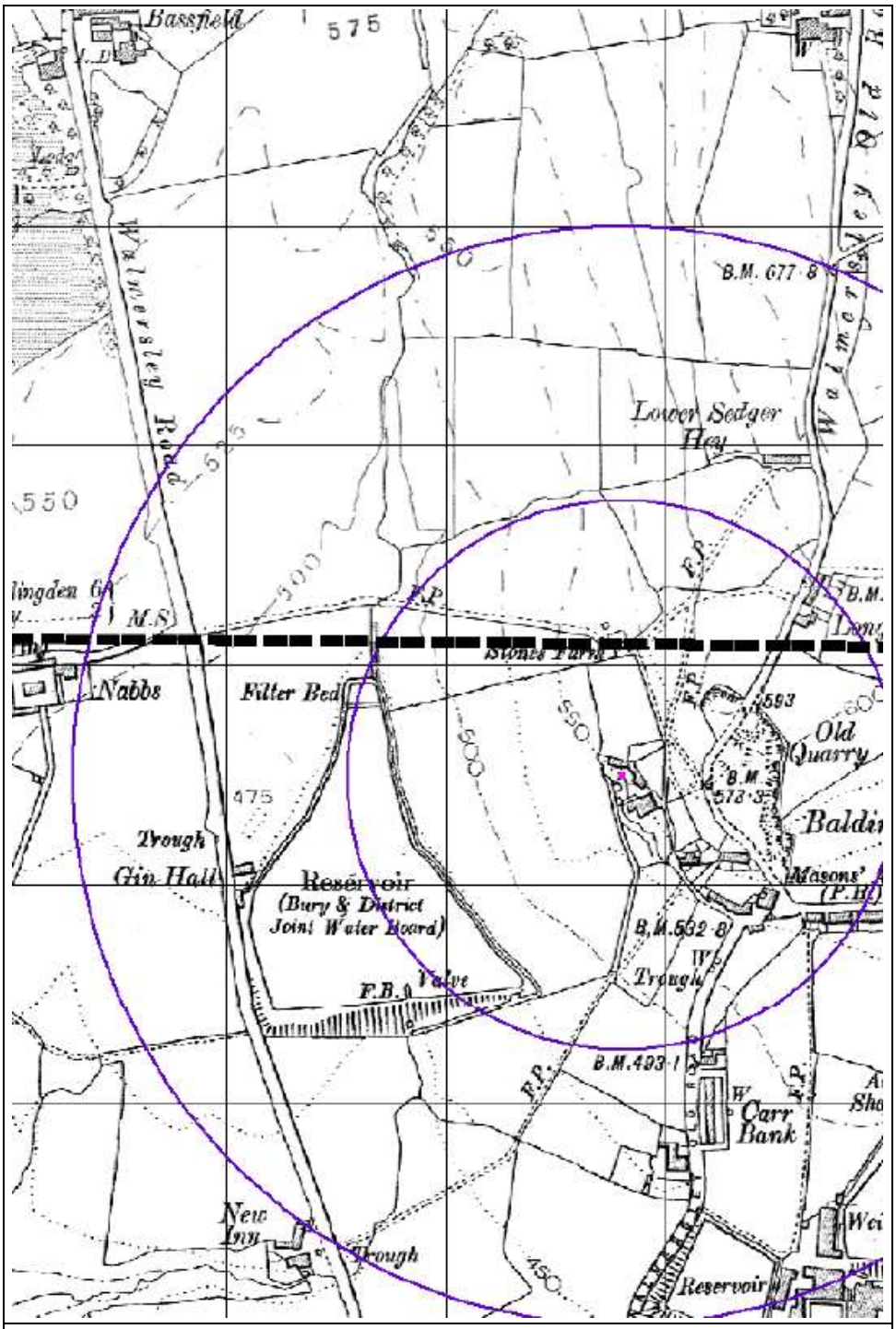
***1838 Tithe Map***



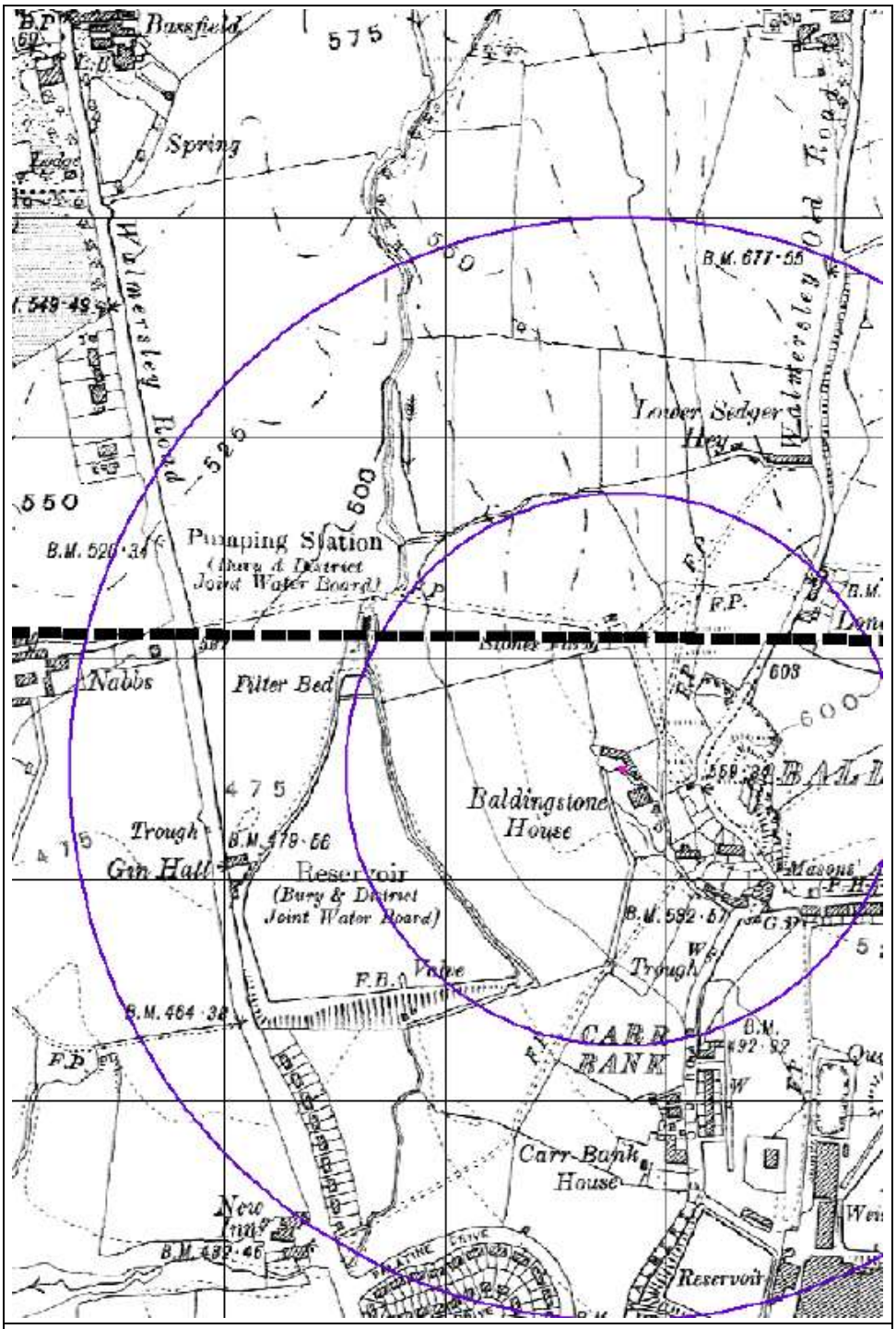

***1850-51 OS Map***


Moor Gate
F.P.
Stones
Sluice
Filter Bed
Nabbs
Quarry
B.M. 513·3
Reservoir
(Bury
Water Works)
Gin Hall
B.M. 493·1
Carr Bank
Flagstaff
Reservoir

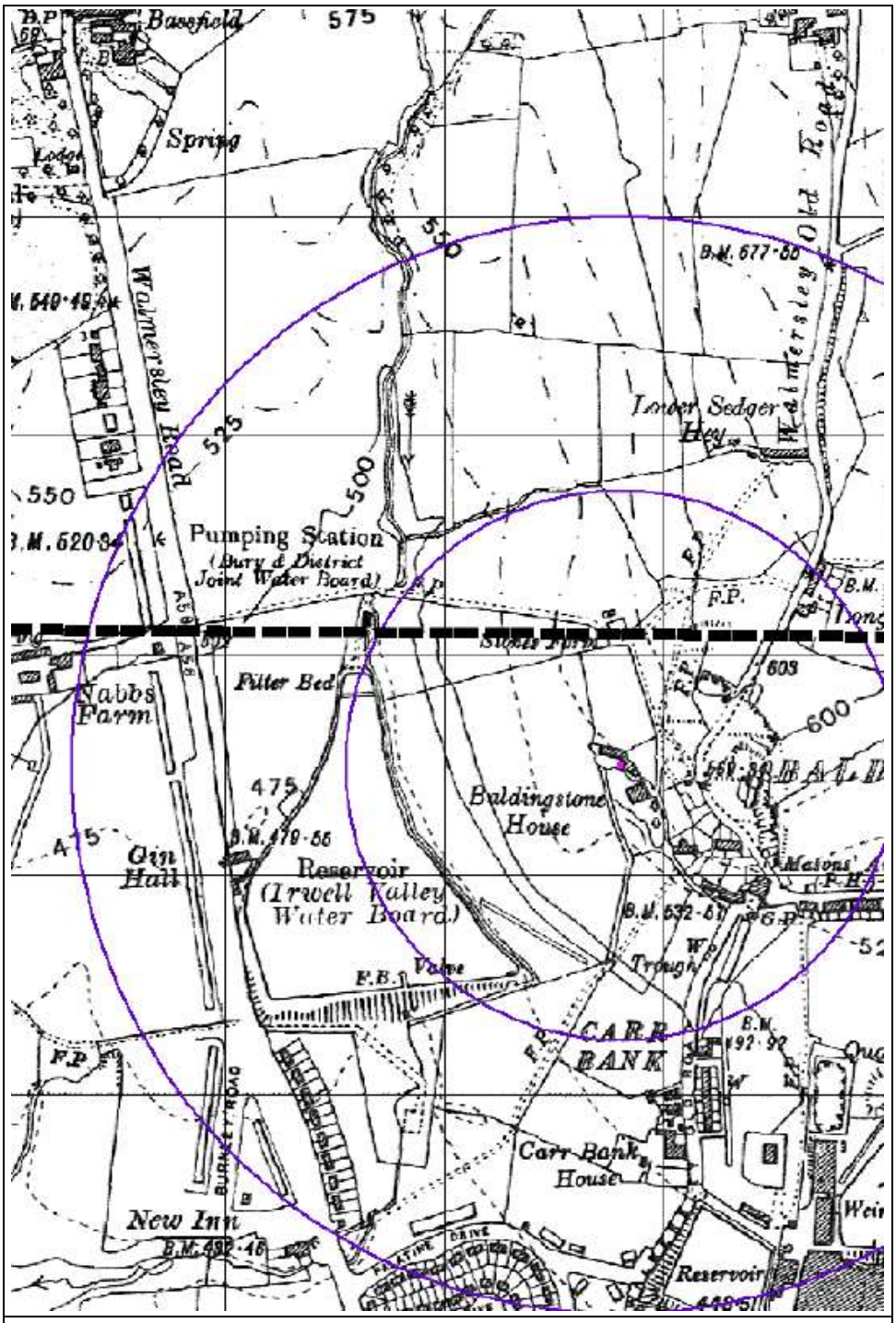
***1894 OS Map***



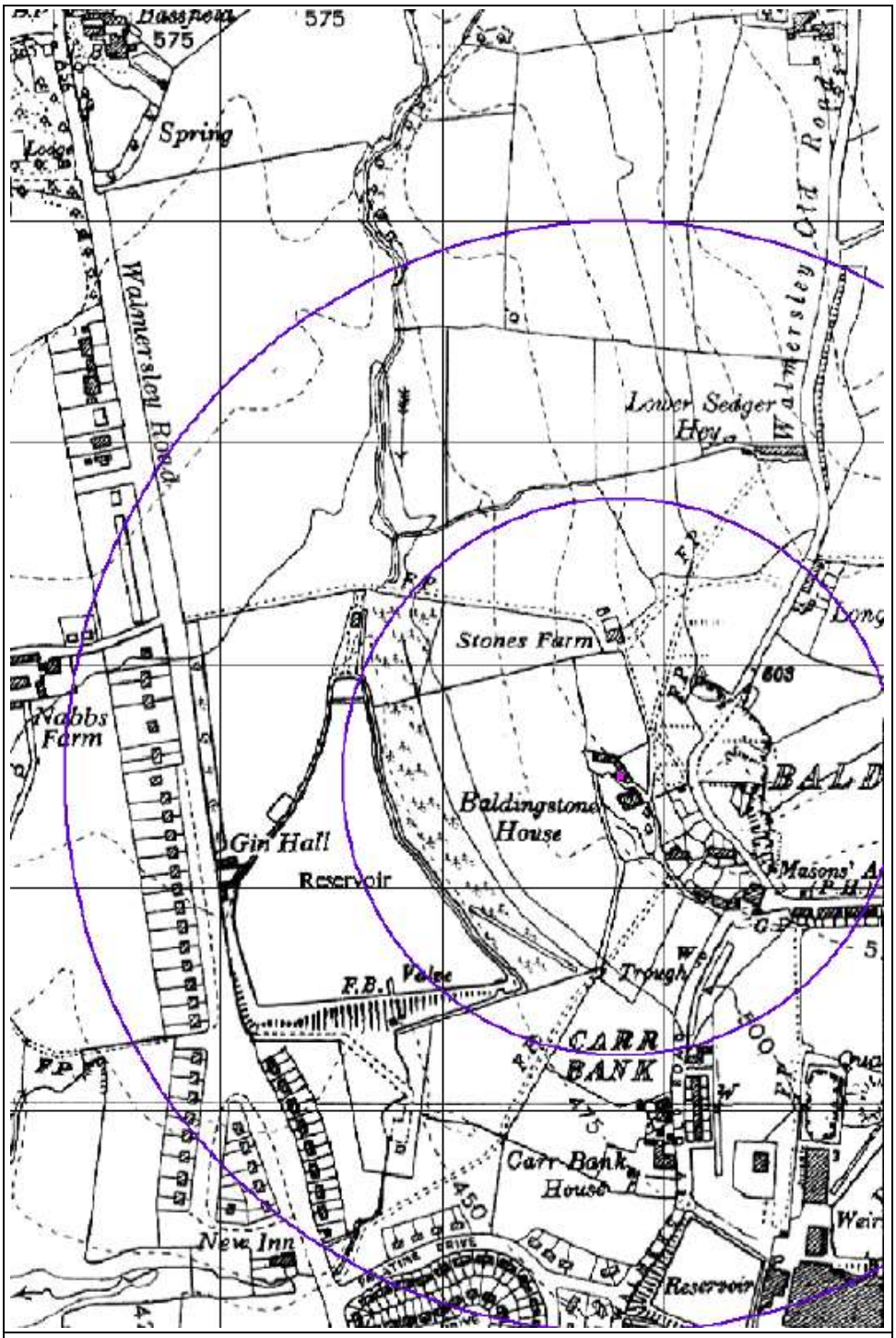

***1911-12 OS Map***



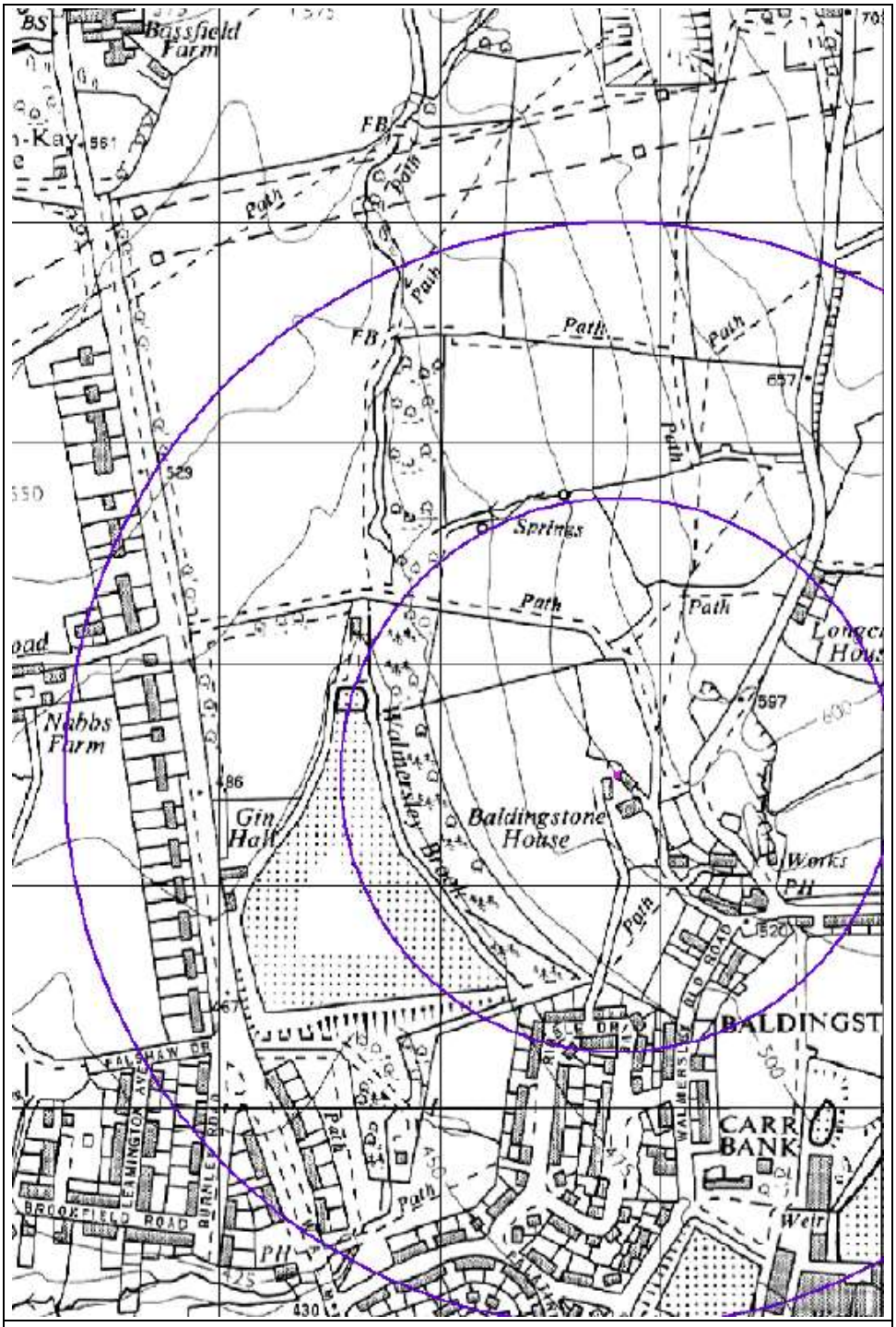

***1930-31 OS Map***



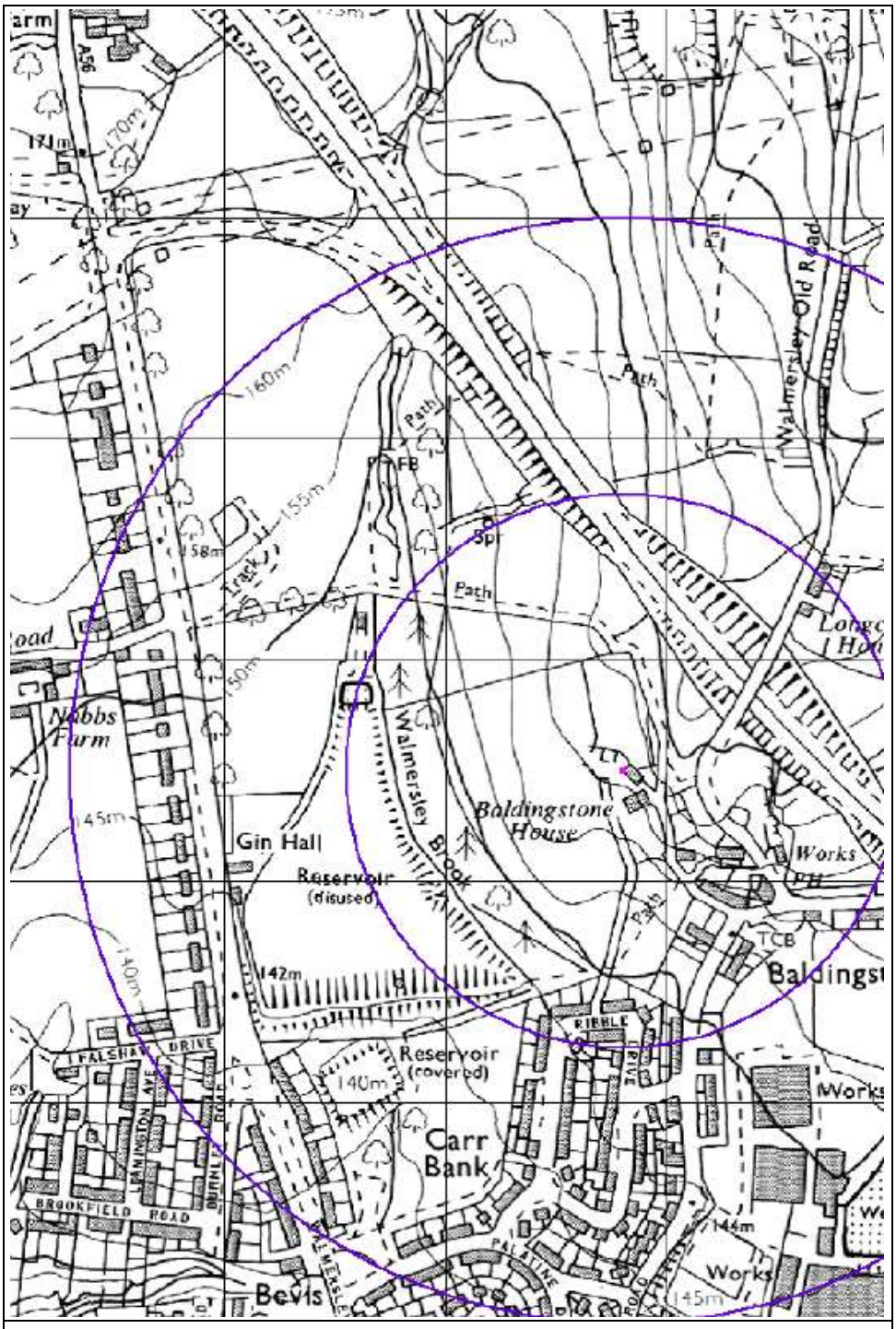

***1938-39 OS Map***



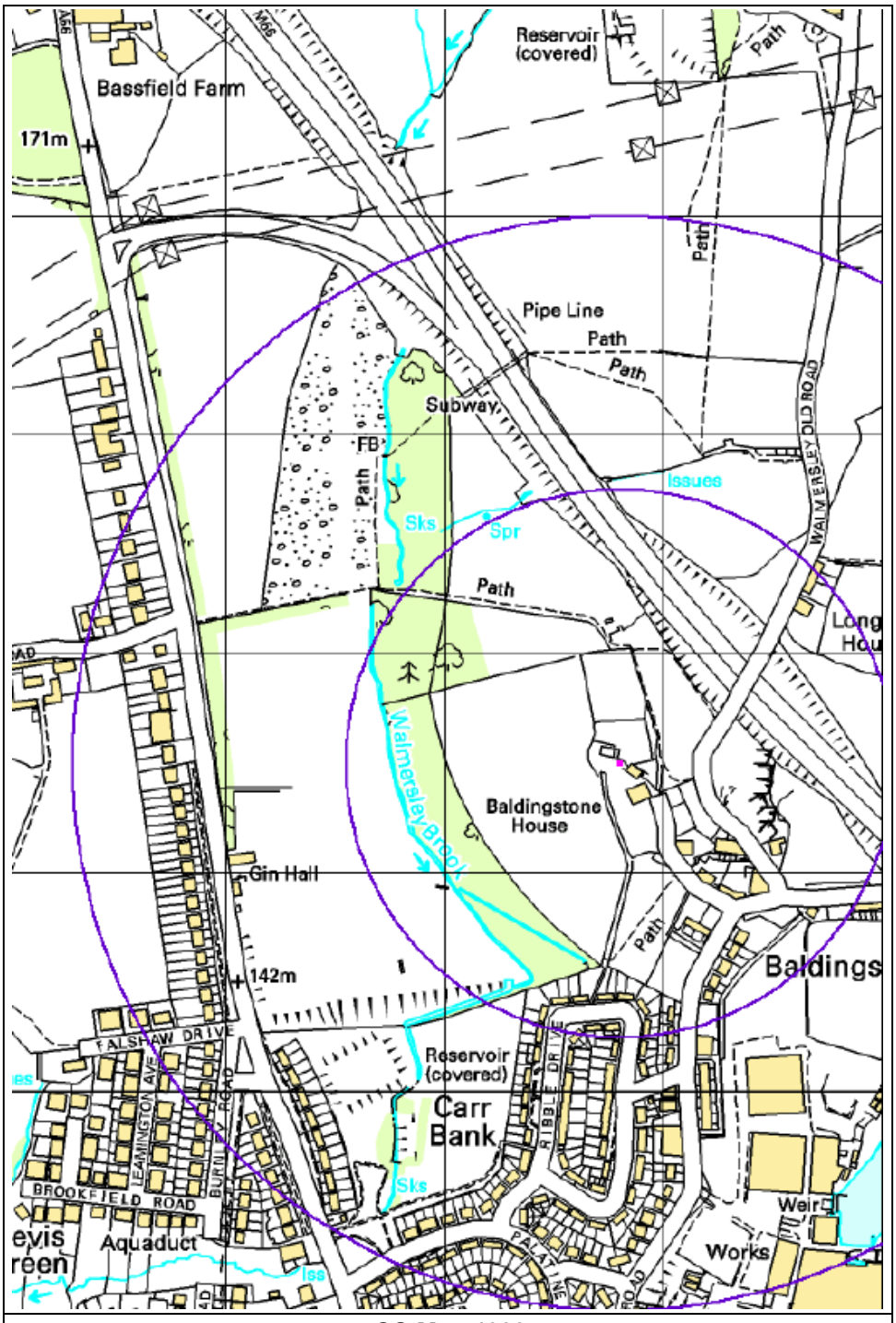

***1955-1956 OS Map***



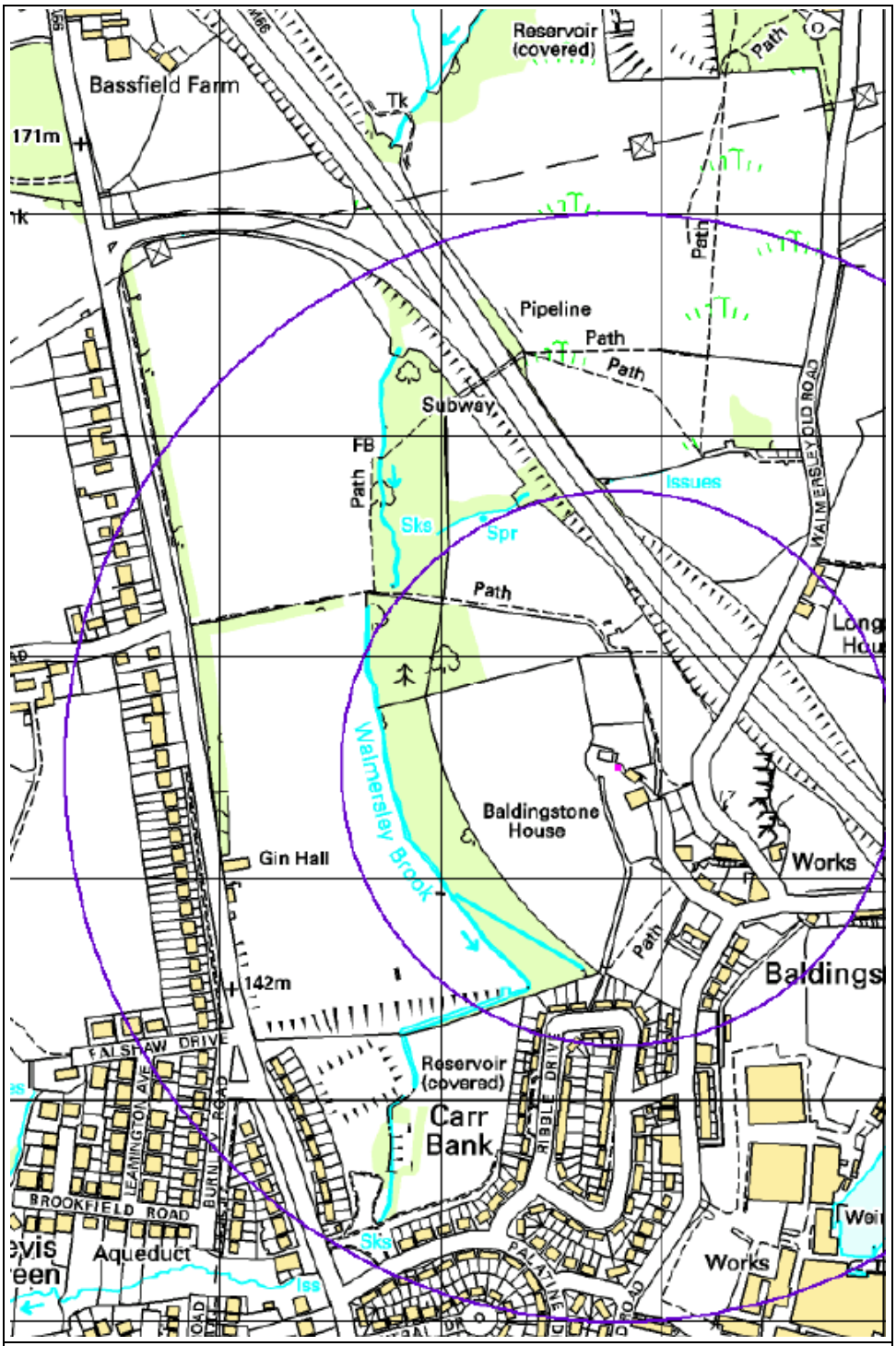

***OS Map 1967-69***



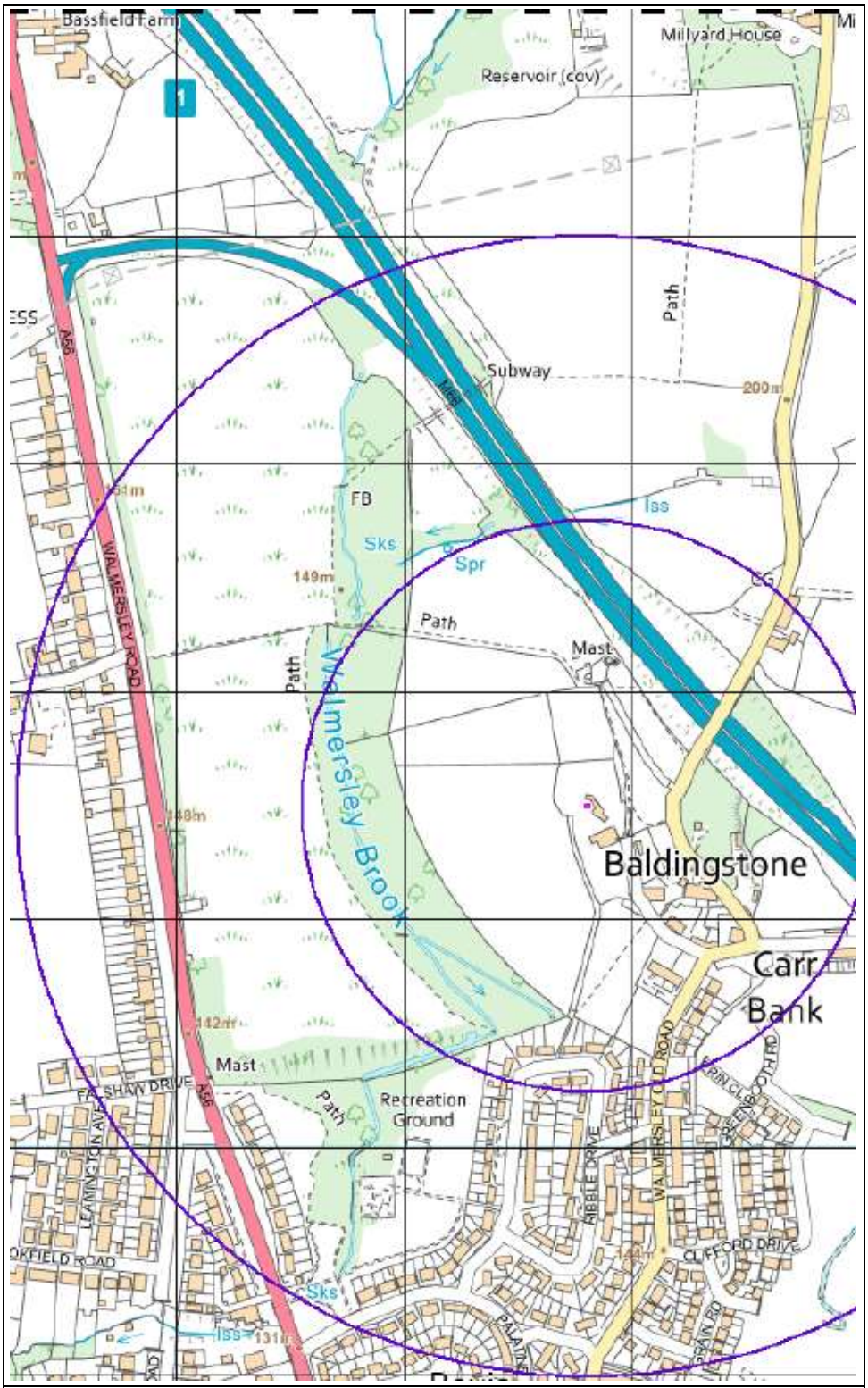

***OS Map 1982-87***


Bassfield Farm
171m
Reservoir (covered)
Path
Pipe Line
Path
Path
Subway
FB
Path
Sks
Spr
Issues
WALMERSLEY OLD ROAD
Path
Walmersley Brook
Baldingstone House
Gin Hall
142m
Path
Baldings
FALSHAW DRIVE
Reservoir (covered)
Carr Bank
RIBBLE DR
BROOKFIELD ROAD
LEAMINGTON AVE
BURY
Sks
Weir
Aquaduct
Works
PALATINE ROAD

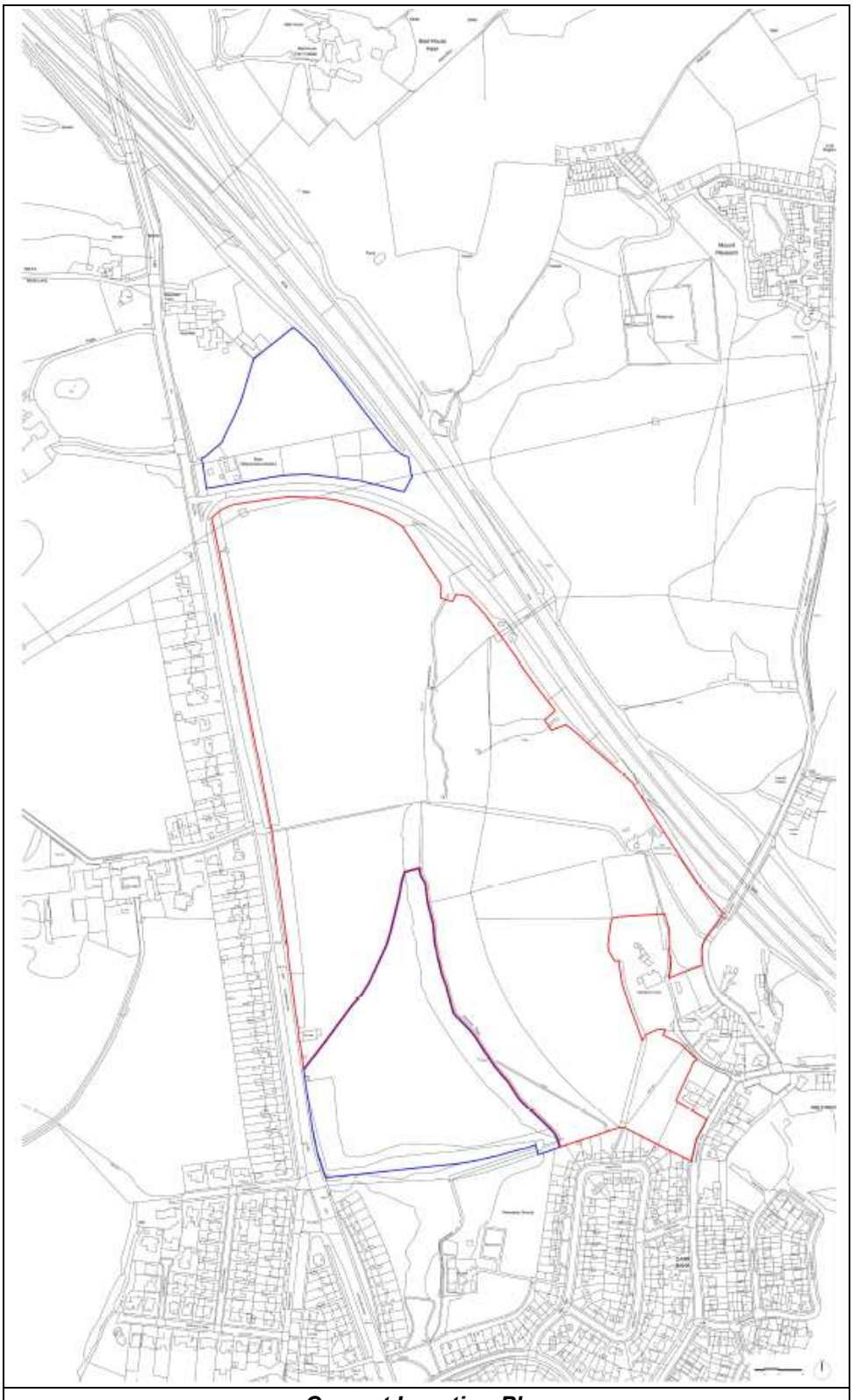
***OS Map 1999***


Reservoir (covered)
Bassfield Farm
Tk
171m
Path
Pipeline
Path
Path
Subway
FB
Path
Sks
Spr
Issues
WALMERSLEY OLD ROAD
Path
Walmersley Brook
Baldingstone House
Works
Gin Hall
142m
Path
Baldings
FALSHAW DRIVE
Reservoir (covered)
Carr Bank
RIBBLE DRIVE
BROOKFIELD ROAD
LEAMINGTON AVE
BURN ROAD
Sks
Aqueduct
Iss
PALATINE ROAD
Works

***OS Map 2006***


Bassfield Farm
Millyard House
Reservoir (cov)
Subway
Path
200m
FB
Sks
Spr
Iss
149m
Path
Mast
Walmersley Brook
Baldingstone
Carr
Bank
142m
Mast
Path
Recreation
Ground
WALMERSLEY ROAD
A56
Sks
Iss
131m

***OS Map 2025***



***Current Location Plan***

# Section 5 Assessment of the Significance of the Heritage Assets

## 5.1 Methodology

This section contains a Statement of Significance which addresses the significance of the historic buildings potentially affected by the proposals. There is one listed structure and one potential non-designated heritage asset within the vicinity of the proposal site which could be impacted by the proposed works, the Grade II listed Baldingstone House is located at the southeast of the proposal site and Bassfield Farm to the north of the proposal site.

The significance of the buildings has been assessed with reference to the values outlined in Historic England's *Statements of Heritage Significance: Analysing Significance in Heritage Assets* (2019). These values are archaeological interest, historic interest, artistic and architectural interest. The July 2021 'Principles of Cultural Heritage Impact Assessment in the UK' document, published jointly by CIfA, IHBC and IEMA, sets as a prerequisite the need to identify the significance of the asset, through an analysis of what is valued about the asset, leading to a statement of cultural significance and to place this in a framework which communicates its relative importance, relating this to the level of protection that the asset merits in planning policy and cultural heritage legislation. In the summary, this is related to a framework for importance based on the English listing categories. The framework for assessing the level of significance of the assets is very high for Grade I, high for Grade II*, medium for Grade II/Conservation Areas and low for non-designated heritage assets.

## 5.2 Significance of Baldingstone House

**Historic Interest**

- The building is associated with the Kay family, who were well known in the local area during an extended period. They were also related to the Kay family which invented the Flying Shuttle.
- Built in c 1680 by Richard Kay, a local Blacksmith and part of a local landowning family.
- Birthplace of diarist Richard Kay (grandson of Richard Kay, Blacksmith) who ran a doctors practice from the house.

**Architectural Interest**

- The building provides evidence of late 17$^{th}$ century construction techniques as well as how it adapted to meet the needs of different social and economic groups over time.
- Richard Kay's diary in the mid-1700s describes 3 rooms on the ground floor and 3 rooms above with three cottages to the rear.
- OS maps document several extensions to the rear by 1851 and further rear and front extensions by 1894.
- Additional cottages and outbuildings to the rear were also built between 1851- 1894.

**Summary**

As a Grade II listed structure, Baldingstone House is of national significance. Although the exterior has undergone significant alteration, original features including stone mullion windows with leaded lights and drip moulds remain to the front elevation of the earlier part of the house. Baldingstone House is also of historical significance due to its association with the Kay family a notable influential family in the area over an extended period of time. With reference to heritage impact assessment guidance, this listed structure would be assessed a significance level of medium.

## 5.3 Significance of Bassfield Farm, House and Cottage

**Historic Interest**

- There are buildings present on the site on the Tithe map of 1838 and occupied at this time by James Robinson Kay, possibly related to the Kays of Baldingstone House.
- It is considered that the buildings at the farm have over the years been altered, possibly demolished or extended.

**Architectural Interest**

- The detached former farmhouse is constructed of brick with half-timbered sections with a slate roof. There are later brick extensions and modern conservatory.
- The associated farm buildings and cottages are of stone and half-timbered sections with slate roof.

**Summary**

Bassfield Farm, House and Cottage has been nominated to be included on the Bury Council local list of buildings of special architectural or historic interest. As buildings of local interest they could be considered non-designated heritage assets, and with reference to heritage impact assessment guidance the buildings would be afforded a low level of significance.

# Section 6 Contribution of the Proposal Site to the Significance and Setting of the Heritage Assets

## 6.1 Methodology

Due to proximity, the proposal site could affect the setting of the Grade II listed Baldingstone House and the potential non-designated heritage assets Bassfield Farm, House and Cottage. When assessing the contribution of the setting to the significance of a heritage asset, Historic England guidance recommends considering the physical surroundings of the listed structure and how the listed structure is experienced.

## 6.2 The Physical Surroundings of the Listed Structures

The attributes of the physical surroundings of the listed structures help determine the contribution the setting makes to the significance of the heritage assets. The former hamlet of Baldingstone is sited to the south of Baldingstone House, now greatly extended with housing to the south off Walmersley Old Road and Ribble Drive. The ground rises sharply to the east towards Walmersley Old Road, and then on to the M66 motorway. Beyond the garden of Baldingstone House, the land slopes down to Walmersley Brook. The land to the west and north is pasture land, with some scattered trees and trees along the brook. The house itself is surrounded by mature trees to the west, north and east, with limited views of the front elevation from the front gates. There are several public footpaths to the east and north of Baldingstone House. Bassfield Farm, House and Cottage are closely constrained on its west by the A56 Walmersley Road, and on its east by the M66 motorway; a short distance to the south is the slip road connecting the two.

## 6.3 How the Heritage Assets are Experienced

The way in which the setting of a heritage asset contributes to the experience of the heritage asset can help establish the contribution made by the setting. Baldingstone House is associated with the Kay family, local doctors in the C18th, who were also related to the Kay family which invented the Flying Shuttle. The house and outbuildings have been used as a family home by local landowners, doctors and wealthy manufacturers of cotton and felt hats. Due to its location, set back well beyond the front boundary and hidden by trees, the house is not readily visible from public viewpoints. In particular, Baldingstone House is not visible from the public footpaths to the east and north. However, the front elevation, approached by the front drive with the circular turning, is the most significant view of the house.

| | |
|---|---|
|  |  |
| ***View of Baldingstone House from Drive Entrance*** | ***Bassfield House from Walmersley Road*** |

Bassfield Farm, House and Cottage are mostly experienced from the north and west with dense trees and vegetation surrounding the site to the southwest and south. The former farmhouse and cottages can be seen from Walmersley Road to the west but Bassfield House is shielded by dense vegetation and so only glimpsed from the road. There is no intentional intervisibility between the potential non-designated heritage assets and Baldingstone House. There is also no intervisibility between the proposed development site and the Bassfield Farm, House and Cottage.



***Bassfield Farm and Associated Cottages from Walmersley Road***

## 6.4 Contribution of the Proposal Site to the Setting of the Heritage Asset

The main portion of the proposal site is separated from Bassfield Farm, House and Cottage by the slip road from the M66 and an area of dense trees and vegetation. There will be no development to the section of the site to the north of the slip road and so there is no contribution by the proposal site to the setting of the non-designated heritage assets.

The proposal site lies to the north, west and east of Baldingstone House which is mostly experienced from the access drive from the south and from within the grounds. It is separated from the proposal site by mature trees and so the proposal site does not contribute to the setting of the Grade II listed Baldingstone House. There is no historical functional relationship between the proposed development site and Baldingstone House.



***Looking South from Within Proposal Site Towards Baldingstone House***

***Looking East from Within Proposal Site Towards Baldingstone House***

# Section 7 Proposed Works

## 7.1 Overview

The proposals are for a planning application for outline permission with all matters reserved other than access for mixed use development for up to 350 dwellings (Use Class C3), up to 2,500 sqm employment/commercial uses (Use Classes E(c), E(d), E(e), E(f), E(g)(ii) and E(g)(iii)), a local centre comprising up to 249 sqm of retail floorspace (Use Class E(a)), mobility hub, public open space and associated infrastructure.



***Illustrative Masterplan***




***Illustrative Masterplan Key***

## 7.2 Access and Site Layout

The main site access to the site will be off Walmersley Road(A56) at the west boundary of the site and there will be two additional access points from Walmersley Old Road to the southeast corner and access to the neighbourhood centre and employment area off Walmersley Road to the north of the main access point. The neighbourhood centre (including a mobility hub) and employment area will be at the north end of the site with residential areas to the west and east of the central brook area. To the southwest of the site will be a proposed public open use space (subject to a change of use application). A proposed shared pedestrian, cycle and bridleway crosses from east to west at the midpoint of the site and there is a proposed network of recreational routes throughout. The extant public rights of way will remain as existing.

## 7.3 Landscaping

Existing trees and vegetation to the perimeter of the site and lining the banks of the brook will be retained. There will be additional planting throughout the site. The illustrative masterplan includes 3 potential attenuation ponds and a formal play space location as well as the proposed public open space.

# Section 8 Impact of the Proposed Works on the Heritage Assets

## 8.1 Method of Assessment

As the proposed development is in the vicinity of a designated and potential non-designated heritage assets, the development could potentially impact upon to the setting of these heritage assets. The below assessment identifies the potential impact of the proposals on the setting of those heritage assets following Historic England guidance on the Setting of Heritage Assets. This assessment for outline planning permission will consider the proposed development in relation to the setting of the heritage assets and consider the potential impact upon how the heritage assets are experienced and understood.

The impact of the proposed works has also been assessed using a cultural heritage impact assessment methodology based upon the CIfA/ IHBC/ IEMA guidance, *Principles of Cultural Heritage Impact Assessment in the UK* of July 2021, a methodology commonly used to assess heritage impact which is endorsed by several professional heritage organisations. This methodology sets out three stages of evaluating the consequences of change:

- Understanding change (a factual statement of how a proposal would change a cultural heritage asset or its setting, including how it is experienced).
- Assessing impact (an assessment of the degree to which any change would impact cultural significance).
- Weighting the effect (a conclusion regarding whether an impact matters, reflecting the importance of the affected cultural heritage asset).

A brief explanation of the HIA methodology is set out in Appendix 4.

## 8.2 Location and Siting of the Development

The proposal site is located to the west of the M66 with Junction 1 slip road to the north. To the south is a residential development and a public open space with Walmersley Road and housing developments to the west. It is within the vicinity of the Grade II listed Baldingstone House to the southeast and the potential non-designated heritage asset Bassfield Farm, House and Cottage to the north. The proposal development has been planned so as not to impact on any potentially important views of the heritage assets, through the preservation of an area of open space to the north of the slip road and through the retention of the hedges and mature trees along the important boundaries, in particular around Baldingstone House and grounds. The dwellings will be set back from Walmersley Brook which runs through the centre of the site and the mature vegetation around the brook will be retained. In particular, the public footpaths to the east, north and southwest of Baldingstone House do not afford views of the listed building, due to the dense vegetation surrounding the house to the west, north and east. The proposed development will not physically or visually isolate the heritage assets.

## 8.3 The Form and Appearance of the Development

The proposed new dwellings will be designed so as not to be prominent, dominant, or conspicuous in the setting of the heritage assets. The proposed materials will be carefully chosen to match those of the residential houses in the area so that the new dwellings will not compete with or distract from the heritage assets. The development, as set out in the illustrative masterplan, will have no impact on the settings of the heritage assets in the vicinity. The significant views of the heritage assets will not be affected by the proposed development, as there are no significant views which include the proposal site.

## 8.4 The Wider Effects of the Development

The proposed development will change the general character and land use of the proposal site. The site will become mixed employment and residential in use, a change from the agricultural use. The construction period may temporarily increase noise, odour, vibration and dust near the heritage assets, but planning conditions would be able to keep these to an acceptable level. The setting of the heritage assets will not be affected from any wider effects of the proposed development.

## 8.5 The Permanence of the Development

The proposed development will become a permanent feature of the site.

## 8.6 Summary of Impact

As defined by heritage impact guidance, the Grade II listed Baldingstone House is assessed as having a medium level of significance. The potential non-designated heritage assets Bassfield Farm, House and Cottage is assessed as having a low level of significance. There is no historic association between the proposal site and the heritage assets. The proposed development does not form a part of the views of the assets. The proposed development constitutes a negligible magnitude of change to the heritage assets. Following the heritage impact assessment methodology, the significance of a change of a negligible magnitude to a heritage asset of medium value would constitute a neutral/slight impact, which could be either adverse or beneficial. Overall, this Heritage Statement concludes that the proposed development would have a neutral impact on the setting of the heritage assets.

This assessment is in accordance with the definition of ‘preserving’ as summarised by Lord Justice Lewison in Palmer v Herefordshire Council & Anr [2016] EWCA Cov 1061: ’In this context the concept of ”preserving” the building or its setting means “doing no harm”’. It has been assessed that the proposed development would have a neutral impact on the settings of the heritage assets.

## 8.7 Heritage Impact Assessment Table

The following table sets out the proposed works in detail, identifying the significance, magnitude of the change, the weighted impact of the proposed works and proposed mitigation if required.

| PROPOSED WORK | SIGNIFICANCE OF THE AFFECTED HERITAGE ASSETS | MAGNITUDE OF IMPACT/ CHANGE | WEIGHT OF EFFECT/ IMPACT OF WORK & PROPOSED MITIGATION |
|---|---|---|---|
| Construction of a residential development of up to 350 dwellings, with employment uses and a local centre (all matters reserved other than access). | Baldingstone House: Medium<br><br>Bassfield Farm, House and Cottage: Low | Negligible:<br>The proposed new dwellings and landscaping are a slight change to the settings of the heritage assets that makes a negligible magnitude of change to their cultural significance. | Neutral Impact:<br>The construction of the new dwellings at the site will have no impact on the settings of Baldingstone House or Bassfield Farm, House and Cottage |

# Section 9 Conclusions

## 9.1 History, Development and Usage of the Proposal Site

The proposal site is made up of several fields with a brook running through the middle, to the north of Walmersley in Bury. It is currently used for pasture, which has also been its historic use; it has never been developed except for a reservoir in the southwest corner which has now been drained. It lies to the south of the former Bassfield Farm, House and Cottage and the Grade II listed Baldingstone House is to the southeast. The now derelict Gin Hall part way along the west boundary of the proposal site was originally associated with Nabbs Farm and later used to house workers on the reservoir.

## 9.2 Contribution of the Proposal Site to the Significance of the Heritage Assets

The main portion of the proposal site is separated from Bassfield Farm, House and Cottage by the slip road from the M66 and an area of dense trees and vegetation. There will be no development to the section of the site to the north of the slip road and so there is no contribution by the proposal site to the setting of the non-designated heritage assets.

The proposal site lies to the north, west and east of Baldingstone House which is mostly experienced from the access drive from the south and from within the grounds. It is separated from the proposal site by mature trees and so the proposal site does not contribute to the setting of the Grade II listed Baldingstone House. There is no historical functional relationship between the proposed development site and Baldingstone House.

## 9.3 The Proposed Works

The proposals are for a planning application for outline permission with all matters reserved other than access for mixed use development for up to 350 dwellings (Use Class C3), up to 2,500 sqm employment/commercial uses (Use Classes E(c), E(d), E(e), E(f), E(g)(ii) and E(g)(iii)), a local centre comprising up to 249 sqm of retail floorspace (Use Class E(a)), mobility hub, public open space and associated infrastructure.

## 9.4 Impact of the Proposed Works on the Heritage Assets

As defined by heritage impact guidance, the Grade II listed Baldingstone House is assessed as having a medium level of significance. The potential non-designated heritage assets Bassfield Farm, House and Cottage is assessed as having a low level of significance. There is no historic association between the proposal site and the heritage assets. The proposed development does not form a part of the views of the assets. The proposed development constitutes a negligible magnitude of change to the heritage assets. Following the heritage impact assessment methodology, the significance of a change of a negligible magnitude to a heritage asset of medium value would constitute a neutral/slight impact, which could be either adverse or beneficial. Overall, this Heritage Statement concludes that the proposed development would have a neutral impact on the setting of the heritage assets.

This assessment is in accordance with the definition of ‘preserving’ as summarised by Lord Justice Lewison in Palmer v Herefordshire Council & Anr [2016] EWCA Cov 1061: ’In this context the concept of ”preserving” the building or its setting means “doing no harm”’. It has been assessed that the proposed development would have a neutral impact on the settings of the heritage assets.

# Section 10 Sources

**Published Works**

Bury Council. *Bury Unitary Development Plan.* Bury: Bury Council, Aug 1997.

Greater Manchester Combined Authority. *Places for Everyone – Joint Development Plan, Document 2022-2039.* March 2024.

Historic England. *Managing Significance in Decision-Taking in the Historic Environment Historic Environment Good Practice Advice in Planning: 2.* London: Historic England, 2015.

Historic England. *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning: 3.* London: Historic England, 2017.

Historic England. *Statements of Heritage Significance: Analysing Significance in Heritage Assets.* Historic England, 2019.

IEMA, IHBC & CIfA. *Principles of Cultural Heritage Impact Assessment in the UK.* Lincoln: July 2021.

*Kelly's Directory of Lancashire, 1895*. London: Kelly's Directories Ltd, 1895.

*Kelly's Directory of Lancashire, 1905*. London: Kelly's Directories Ltd, 1905.

*Kelly's Directory of Lancashire, 1924*. London: Kelly's Directories Ltd, 1924.

Ministry of Housing, Communities and Local Government. *National Planning Policy Framework.* London: Ministry of Housing, Communities and Local Government, Dec 2024.

**Maps and Plans**

1838 Tithe Map of Walmersley cum Shuttleworth

OS Map 1:1,250 1992

OS Maps 1:2,500 1893, 1910, 1929-30, 1937, 1963-4, 1987

OS Maps 1:10,000 1955-6, 1967-69, 1882-87, 1999, 2006, 2025

OS Maps 1:10,560 1850-51, 1894, 1911-12, 1930-31, 1938-39

**Archives, Libraries and Databases Consulted**

Archaeology Data Service

Greater Manchester Historic Environment Record

National Heritage List for England

National Monument Record Excavation Index

# Appendix 1: Listing Description

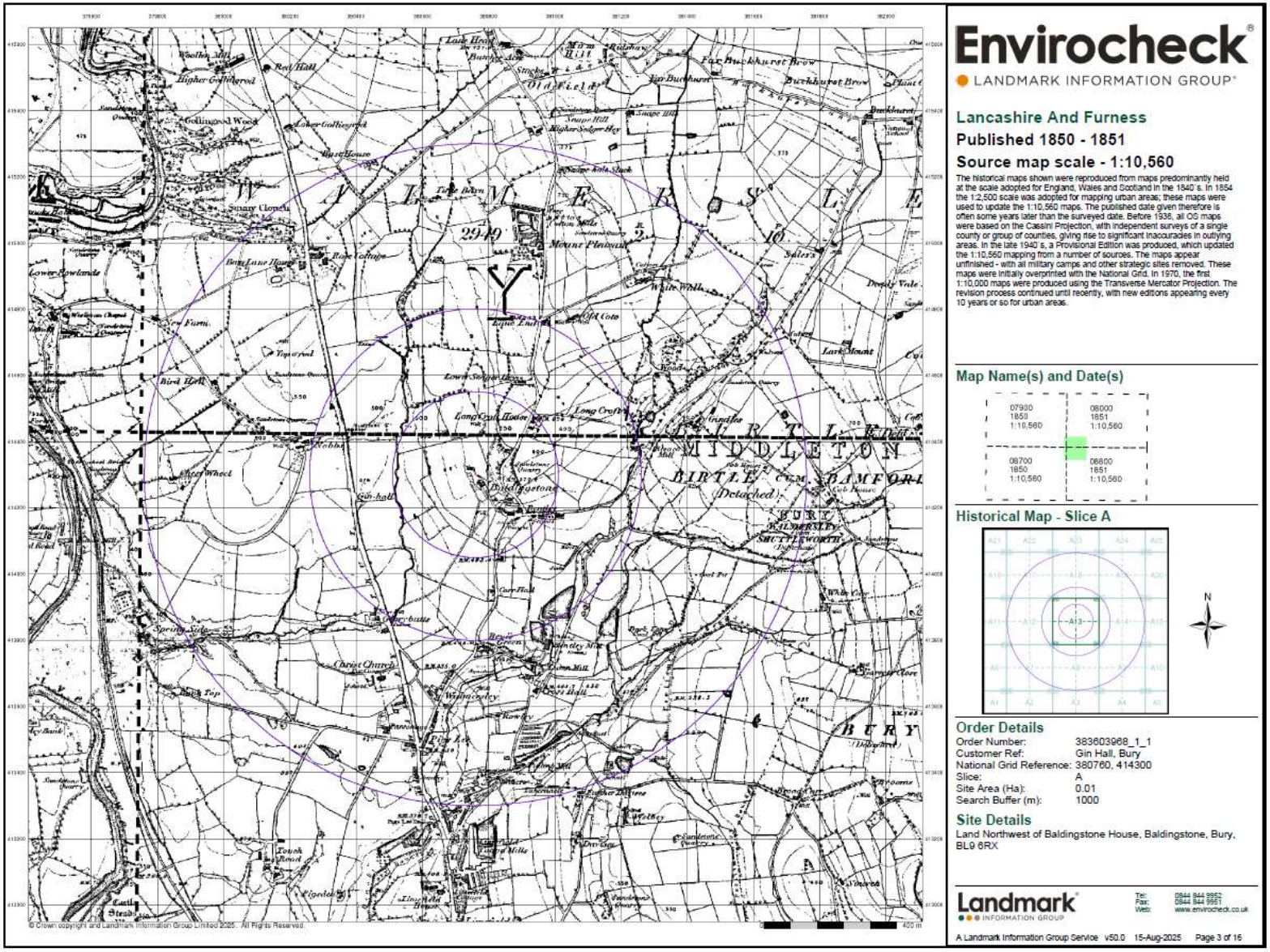
**Name**: BALDINGSTONE HOUSE
**List Entry Number**: 1356839
**Location:** BALDINGSTONE HOUSE, WALMERSLEY OLD ROAD
**District**: Bury (Metropolitan Authority)
**Parish:** Non Civil Parish
**Grade**: II
**Date first listed**: 27-Jan-1975
**Details**:
SD 81 SW 6/81 27.1.75
WALMERSLEY OLD ROAD Baldingstone House
II
Said to date from c.1615. Stone. 2 storey. Probably original 5 stone mullioned windows (4 on first floor) with leaded lights and drip moulds; 2 of them are grouped with the doorway and have round-headed lights; the right-hand window is a bay with renewed mullions and other parts. Stone gutter cornice. Stone slab roof. Restored and new extensions added, probably in late C19.

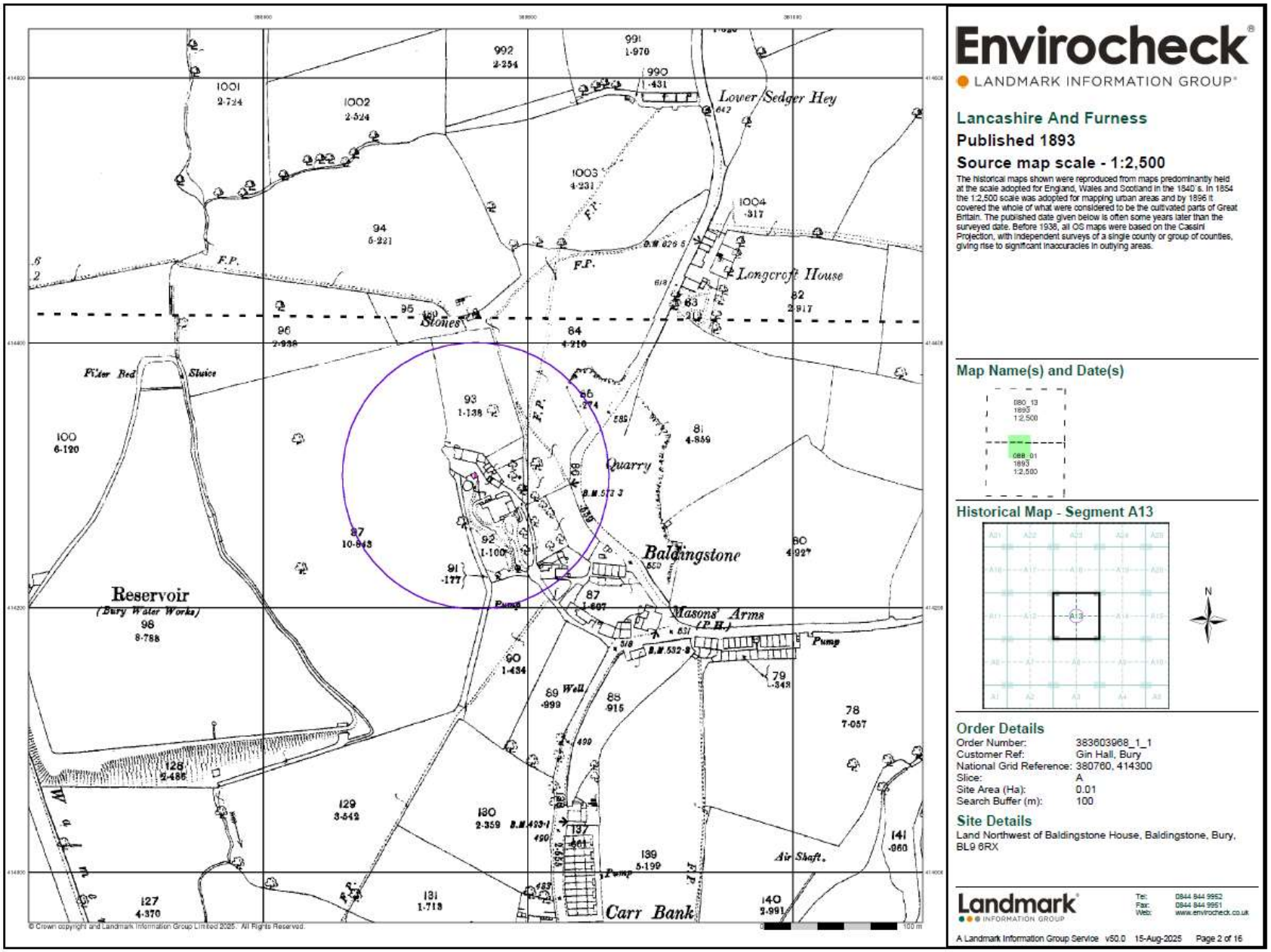
**Listing NGR:** SD8077914269

# Appendix 2: Census & Directory Entries for Baldingstone House

| Source | Name | Entry Details |
|---|---|---|
| 1838 Tithe Map and Apportionment for Walmersley cum Shuttleworth | Plot 1037, Homestead Gardens Waste (Baldingstone House) | Landowner: The Earl of Derby<br>Occupier: John Spencer |
| 1851 Census Baldingstone | John Heall (45)<br>Mary Heall (39)<br>Ellen Heall (7)<br>Ann Jardine Heall (6)<br>Mary Pilkington Heall (4)<br>John William Heall (3)<br>Jane Heall (8mths)<br>Martha Holland (36)<br>Agnes Dill (31)<br>Alice Livesy (26) | Cotton Manufacturer<br>Wife<br>Daughter<br>Daughter<br>Daughter<br>Son<br>Daughter<br>Cook<br>Housemaid<br>Nurse |
| 1891 Census Baldingstone | James S Hoyle (28)<br>Mabel Hoyle (23)<br>Ann L Smith (50)<br>Olive M Smith (19) | Cotton Spinner and Manufacturer<br>Wife<br>Cook, Domestic Servant<br>Housemaid, Domestic Servant |
| Kelly's 1895 Directory of Lancashire | James Smallpage Hoyle, J.P. | Baldingstone |
| Kelly's 1905 Directory of Lancashire | John Ashworth | Baldingstone |
| 1911 Census Baldingstone | John Ashworth (73)<br>Elizabeth Ashworth (65)<br>Wilfred Adam Ashworth (38)<br>Fred Hargreaves Ashworth (30)<br>Elizabeth Ashworth (28)<br>John Ashworth (27)<br>Sarah Taylor Ashworth (22) | Retired Master Felt Hat Manufacturer<br>Wife<br>Son, Master Engineer<br>Son, Hat Manufacturers Manager<br>Daughter<br>Son, Machine Tool Foreman<br>Daughter |
| Kelly's 1924 Directory of Lancashire | John Ashworth, J.P. | Baldingstone |

## Appendix 3: Historic Mapping






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**Published 1893**

**Source map scale - 1:2,500**

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### Map Name(s) and Date(s)




### Historical Map - Segment A13




### Order Details

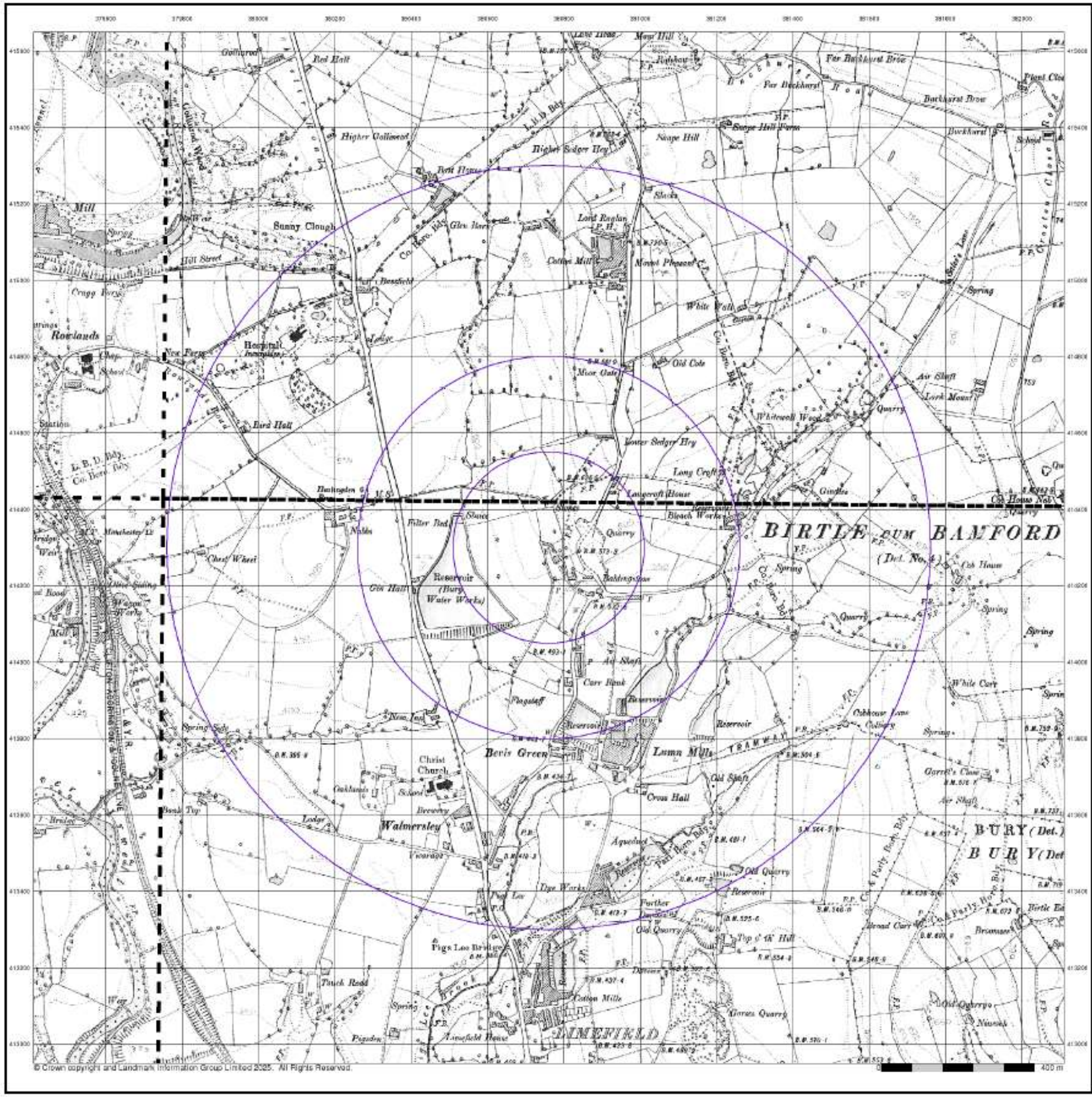
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| Site Area (Ha): | 0.01 |
| Search Buffer (m): | 100 |

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**Published 1894**

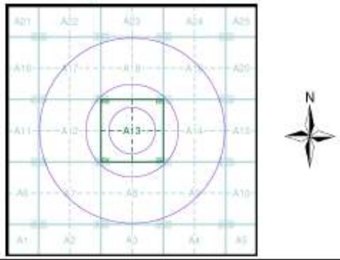
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## Map Name(s) and Date(s)

| | |
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| 087NE 1894 1:10,560 | 088NW 1894 1:10,560 |

## Historical Map - Slice A



## Order Details

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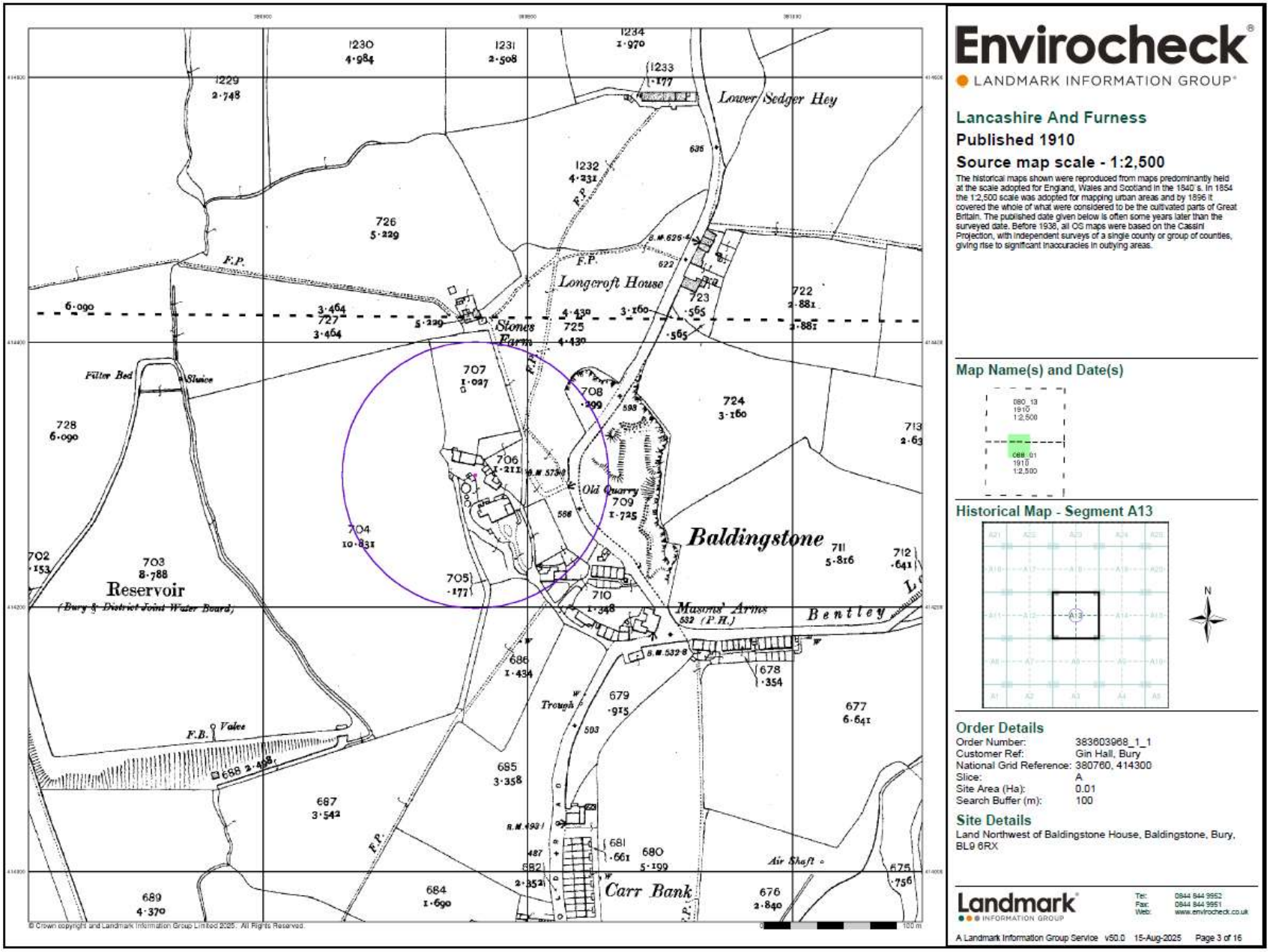
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**Map Name(s) and Date(s)**




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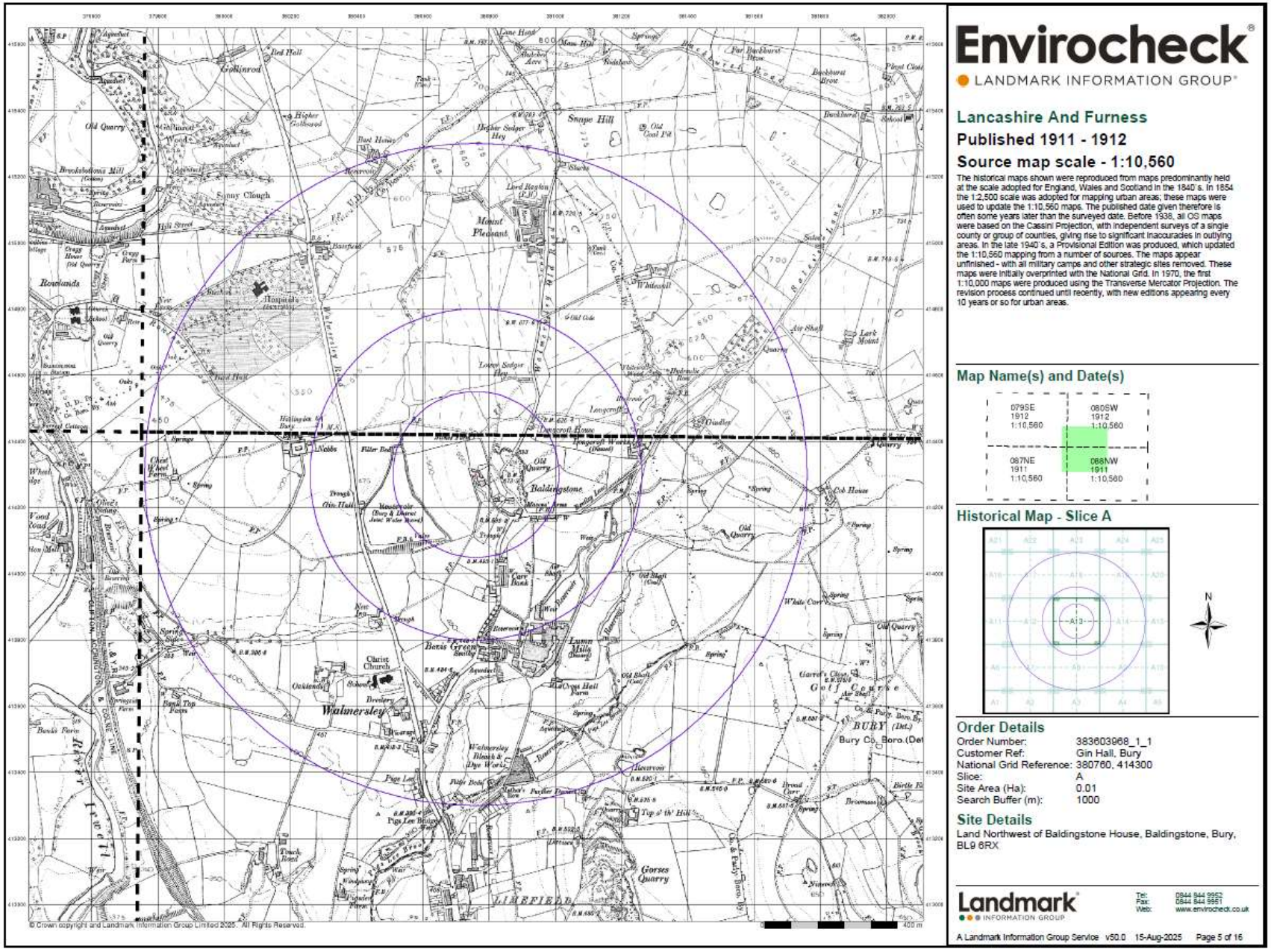
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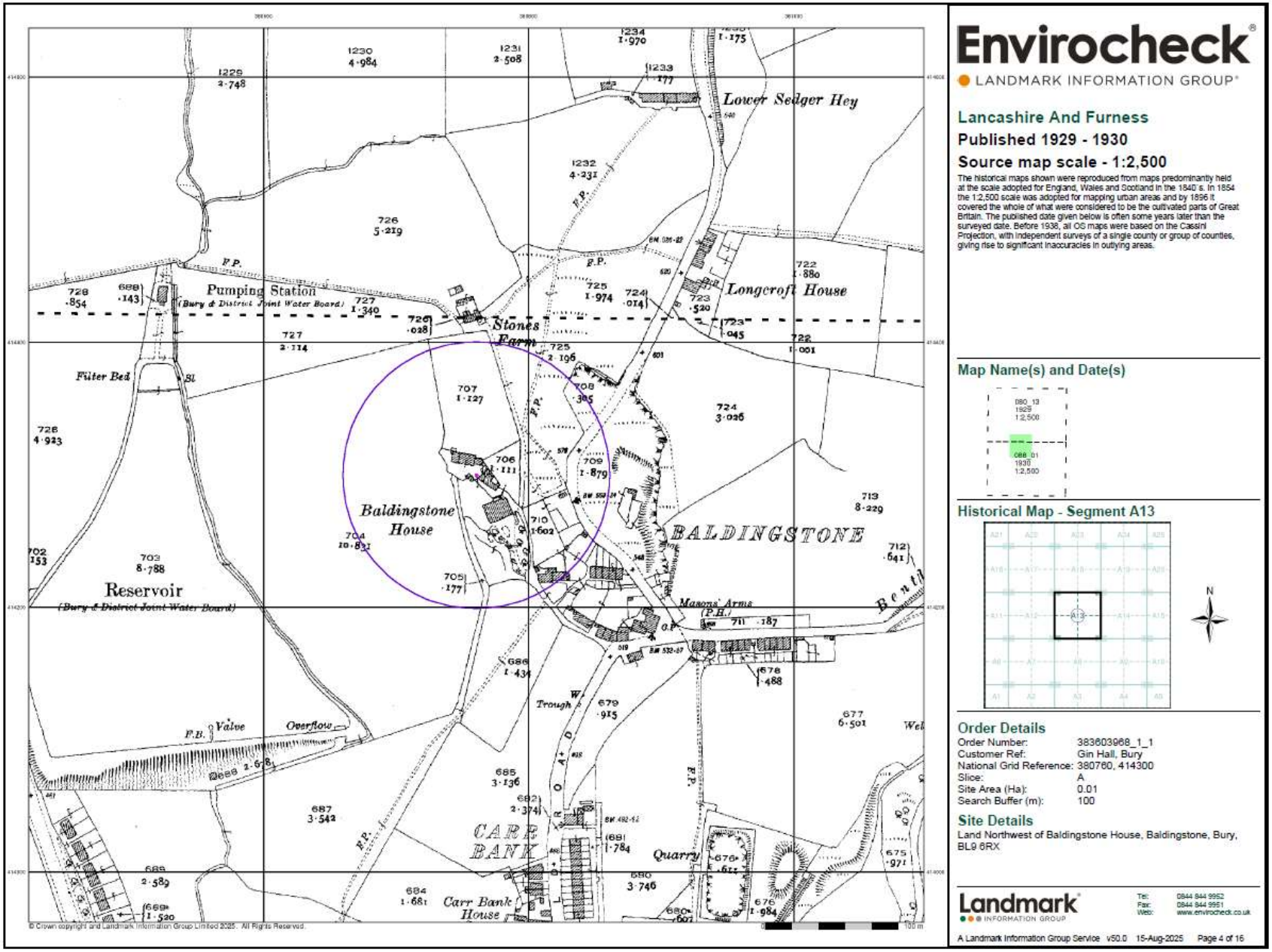
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087NE 1911 1:10,560
088NW 1911 1:10,560
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Baldingstone
Walmersley
Bexis Green
Lumm Mills
Gorses Quarry
Snape Hill
Moorcroft House
Old Quarry
Golf Course
BURY (Int.)
Bury Co. Boro.(Det)
LIBFIELD
400 m


Lower Sedger Hey
Pumping Station
(Bury & District Joint Water Board)
Stones Farm
Longcroft House
Filter Bed
Baldingstone House
BALDINGSTONE
Reservoir
(Bury & District Joint Water Board)
Masons' Arms (P.H.)
Trough
Valve
Overflow
CARR BANK
Quarry
Carr Bank House
F.P.
P.P.
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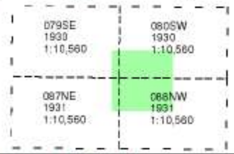
## Lancashire And Furness

**Published 1930 - 1931**

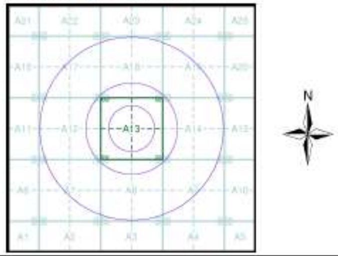
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## Map Name(s) and Date(s)




## Historical Map - Slice A




## Order Details

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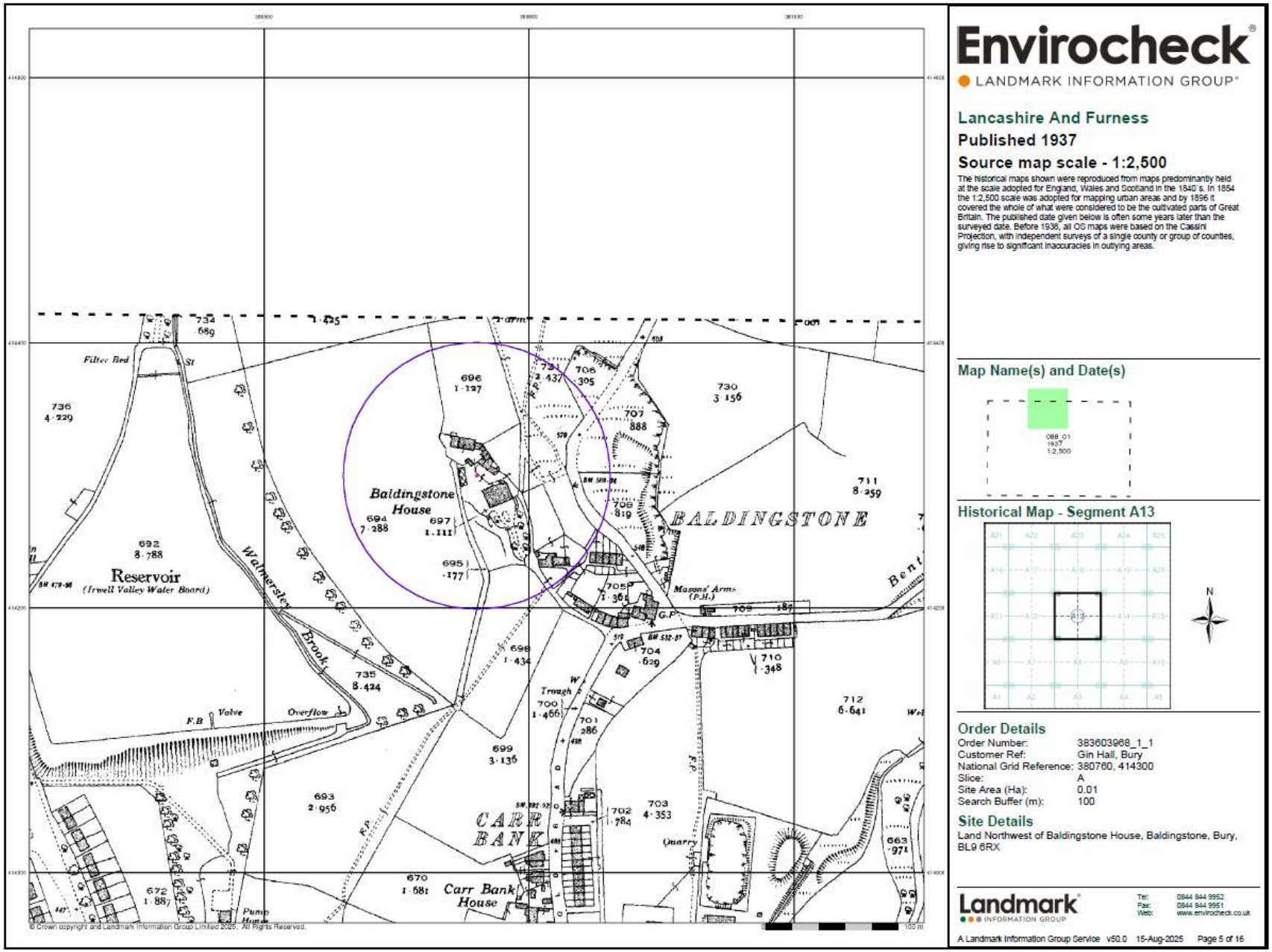
## Site Details

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1937
1:2,500

**Historical Map - Segment A13**

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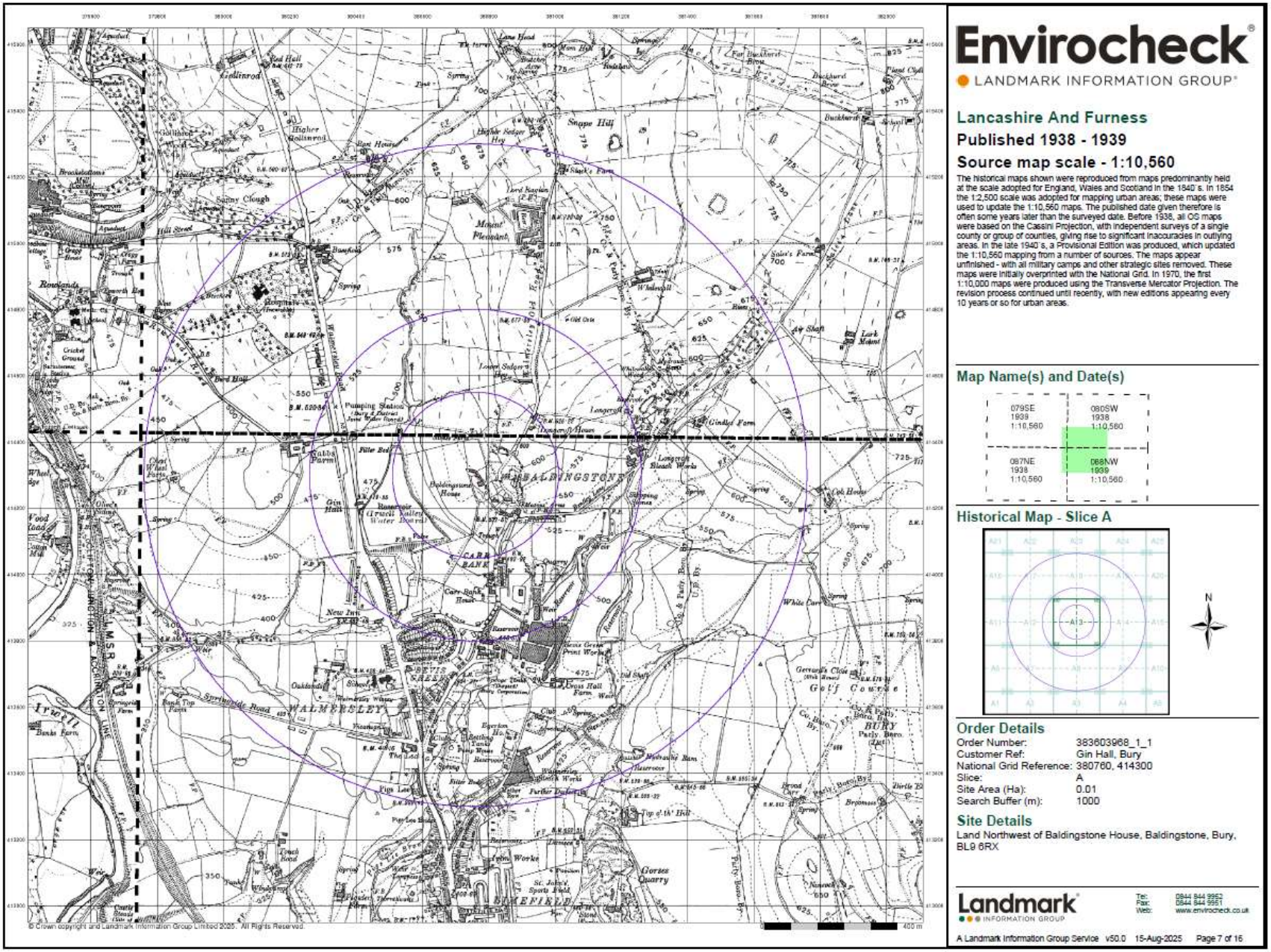
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| Site Area (Ha): | 0.01 |
| Search Buffer (m): | 100 |

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079SE 1939 1:10,560
080SW 1938 1:10,560
087NE 1938 1:10,560
088NW 1939 1:10,560
Historical Map - Slice A
A13
N
Order Details
Order Number: 383603968_1_1
Customer Ref: Gin Hall, Bury
National Grid Reference: 380760, 414300
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000
Site Details
Land Northwest of Baldingstone House, Baldingstone, Bury, BL9 6RX
Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
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A Landmark Information Group Service v50.0 15-Aug-2025 Page 7 of 16
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400 m




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## Ordnance Survey Plan

**Published 1955 - 1956**

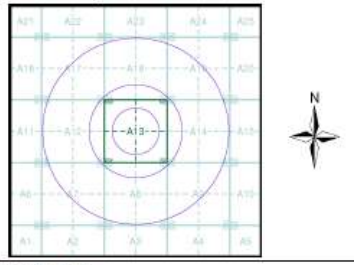
**Source map scale - 1:10,000**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1936, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)

| | |
|---|---|
| SD71NE 1956 1:10,560 | SD61NW 1956 1:10,560 |
| SD71SE 1956 1:10,560 | SD61SW 1956 1:10,560 |

### Historical Map - Slice A




### Order Details

| | |
|---|---|
| Order Number: | 383603968_1_1 |
| Customer Ref: | Gin Hall, Bury |
| National Grid Reference: | 380760, 414300 |
| Slice: | A |
| Site Area (Ha): | 0.01 |
| Search Buffer (m): | 1000 |

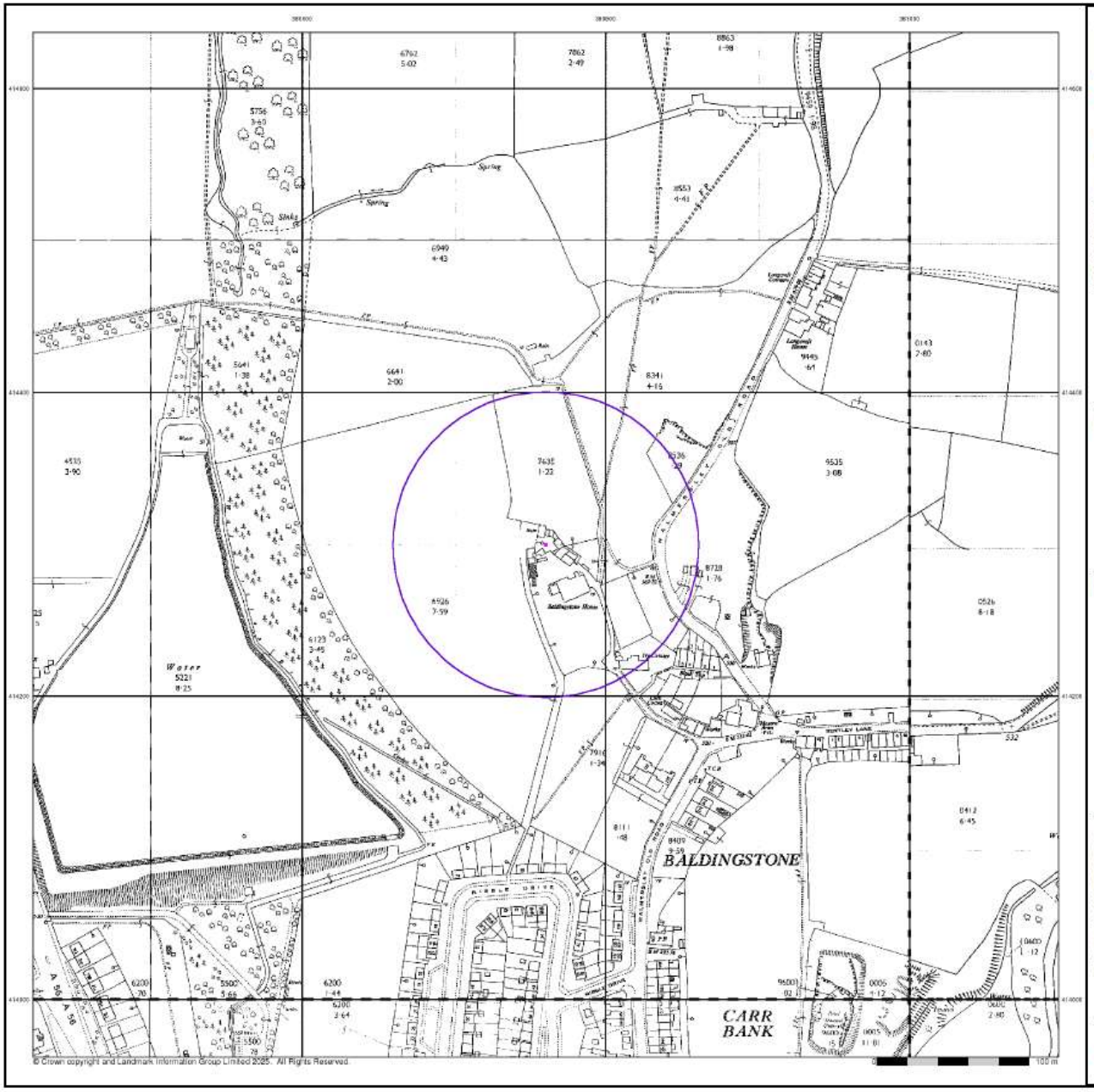
### Site Details

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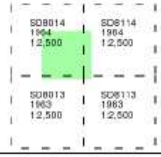



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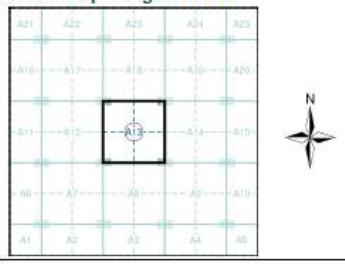
## Ordnance Survey Plan
**Published 1963 - 1964**
**Source map scale - 1:2,500**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)




### Historical Map - Segment A13




### Order Details

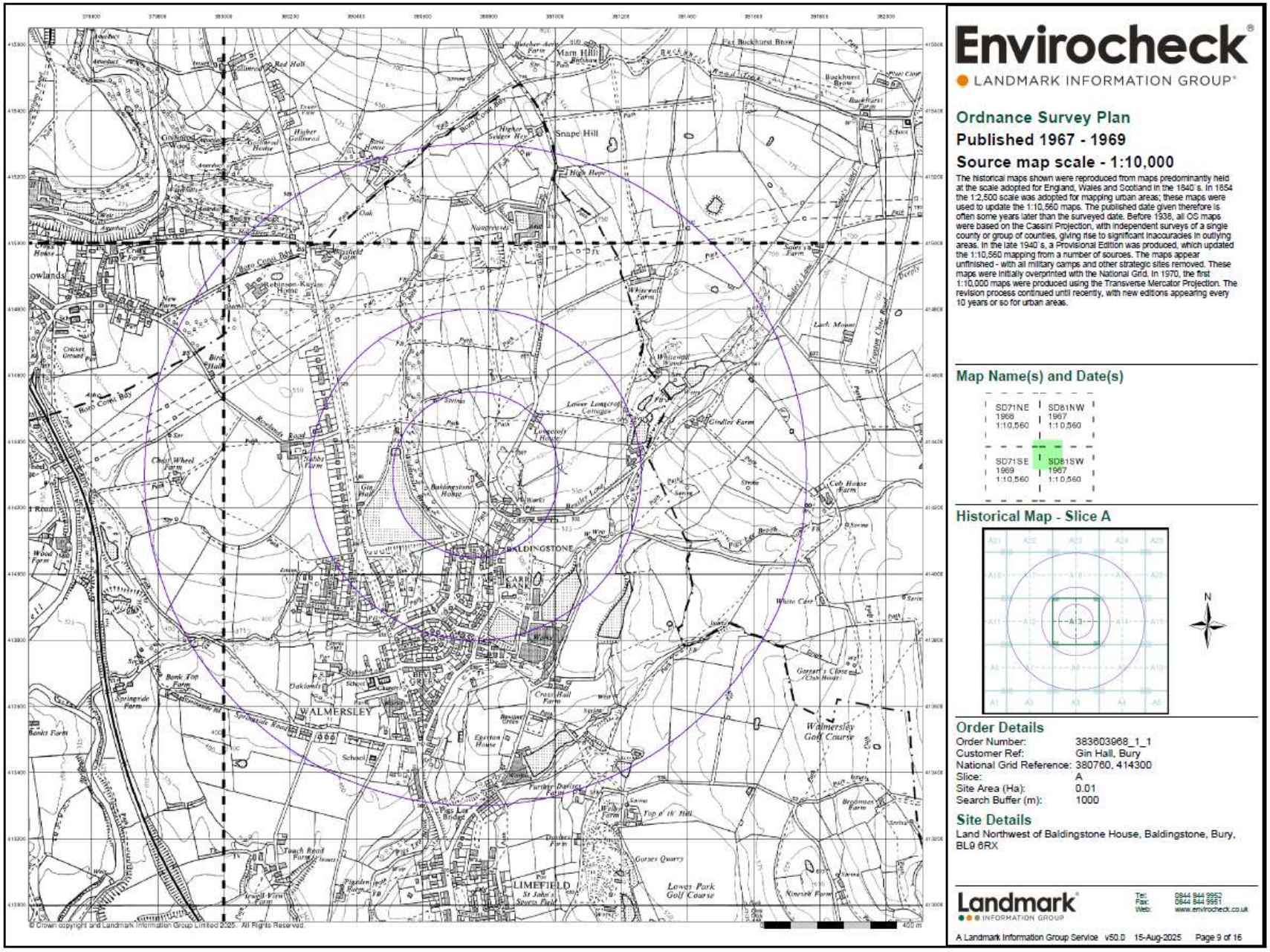
| | |
|---|---|
| Order Number: | 383603968_1_1 |
| Customer Ref: | Gin Hall, Bury |
| National Grid Reference: | 380760, 414300 |
| Slice: | A |
| Site Area (Ha): | 0.01 |
| Search Buffer (m): | 100 |

### Site Details

Land Northwest of Baldingstone House, Baldingstone, Bury, BL9 6RX

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Ordnance Survey Plan
Published 1967 - 1969
Source map scale - 1:10,000
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.
Map Name(s) and Date(s)
SD71NE 1968 1:10,560
SD81NW 1967 1:10,560
SD71SE 1968 1:10,560
SD81SW 1967 1:10,560
Historical Map - Slice A
N
Order Details
Order Number: 383603968_1_1
Customer Ref: Gin Hall, Bury
National Grid Reference: 380760, 414300
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000
Site Details
Land Northwest of Baldingstone House, Baldingstone, Bury, BL9 6RX
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BALDINGSTONE
WALMERSLEY
LIMEFIELD
Snape Hill
Walmersley Golf Course
Lowes Park Golf Course
400 m




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## Ordnance Survey Plan

**Published 1982 - 1987**

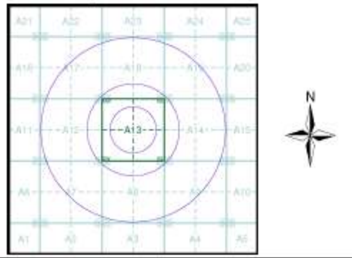
**Source map scale - 1:10,000**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

## Map Name(s) and Date(s)

| | |
|---|---|
| SD71NE 1982 1:10,000 | SD81NW 1987 1:10,000 |
| SD71SE 1982 1:10,000 | SD81SW 1984 1:10,000 |

## Historical Map - Slice A



## Order Details

Order Number: 383603968_1_1
Customer Ref: Gin Hall, Bury
National Grid Reference: 380760, 414300
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

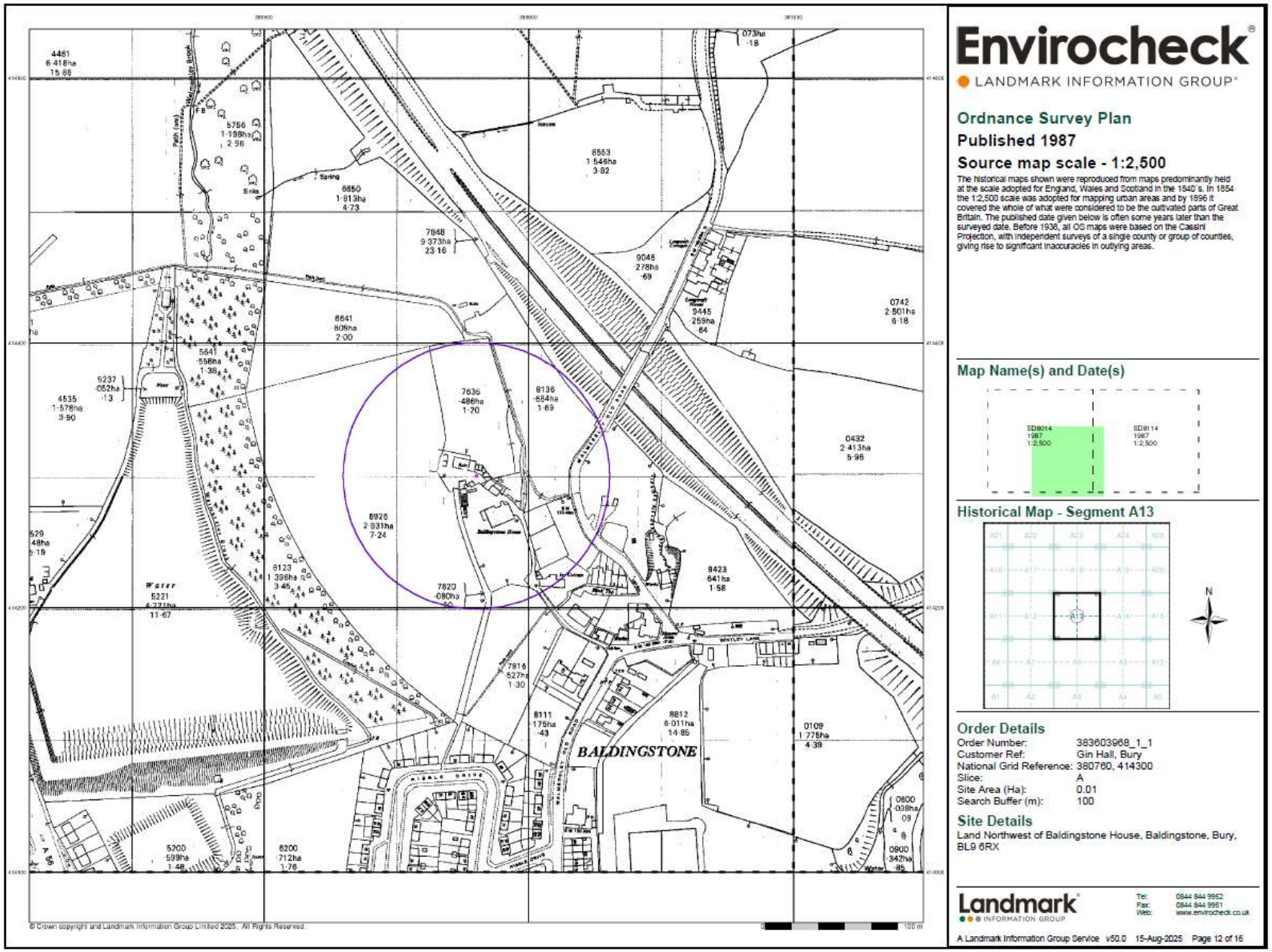
## Site Details

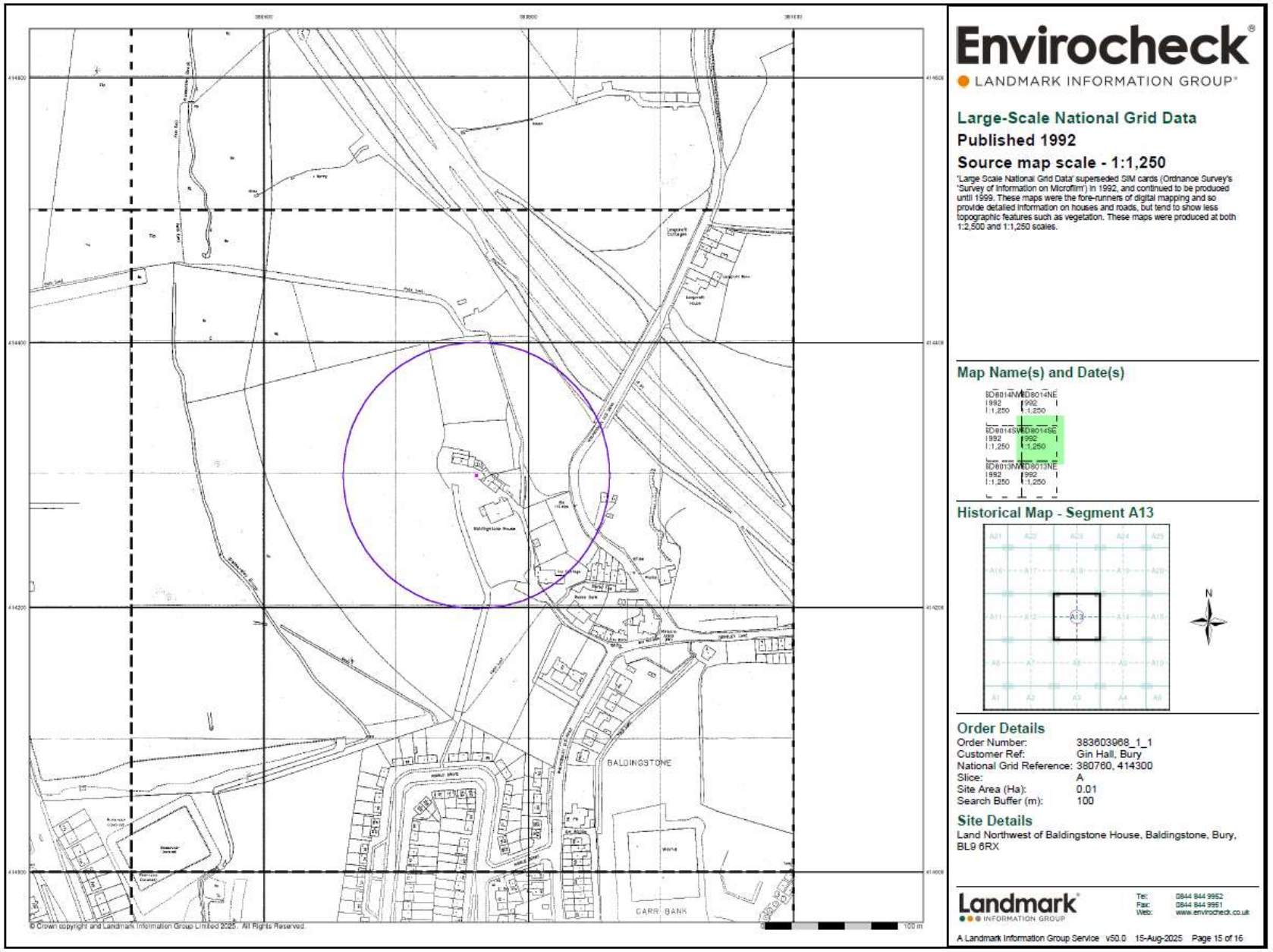
Land Northwest of Baldingstone House, Baldingstone, Bury, BL9 6RX

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BALDINGSTONE
Water
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Ordnance Survey Plan
Published 1987
Source map scale - 1:2,500
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Map Name(s) and Date(s)
SD8014 1987 1:2,500
SD8114 1987 1:2,500
Historical Map - Segment A13
Order Details
Order Number: 383603968_1_1
Customer Ref: Gin Hall, Bury
National Grid Reference: 380760, 414300
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 100
Site Details
Land Northwest of Baldingstone House, Baldingstone, Bury, BL9 6RX
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## Large-Scale National Grid Data

**Published 1992**

**Source map scale - 1:1,250**

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)




### Historical Map - Segment A13




### Order Details

| | |
|---|---|
| Order Number: | 383603968_1_1 |
| Customer Ref: | Gin Hall, Bury |
| National Grid Reference: | 380760, 414300 |
| Slice: | A |
| Site Area (Ha): | 0.01 |
| Search Buffer (m): | 100 |

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## 10k Raster Mapping

**Published 1999**

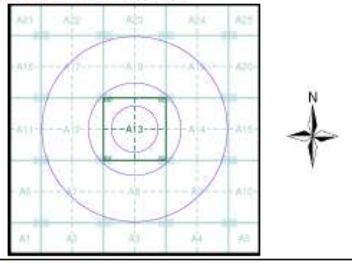
**Source map scale - 1:10,000**

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depicton includes county, unitary authority, district, civil parish and constituency.

### Map Name(s) and Date(s)

| | |
|---|---|
| SD71NE 1999 1:10,000 | SD61NW 1999 1:10,000 |
| SD71SE 1999 1:10,000 | SD61SW 1999 1:10,000 |

### Historical Map - Slice A




### Order Details

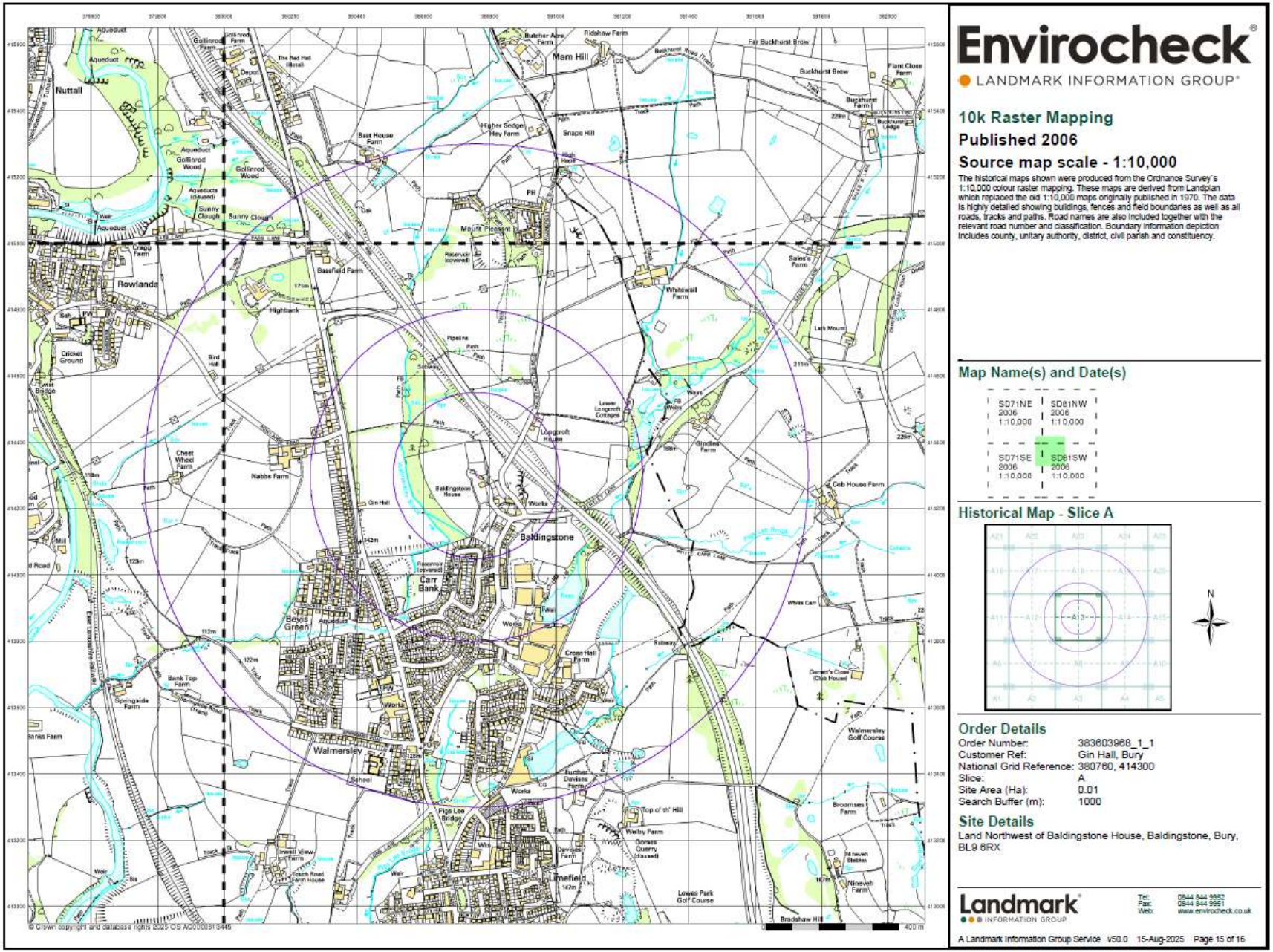
| | |
|---|---|
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| National Grid Reference: | 380760, 414300 |
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| Search Buffer (m): | 1000 |

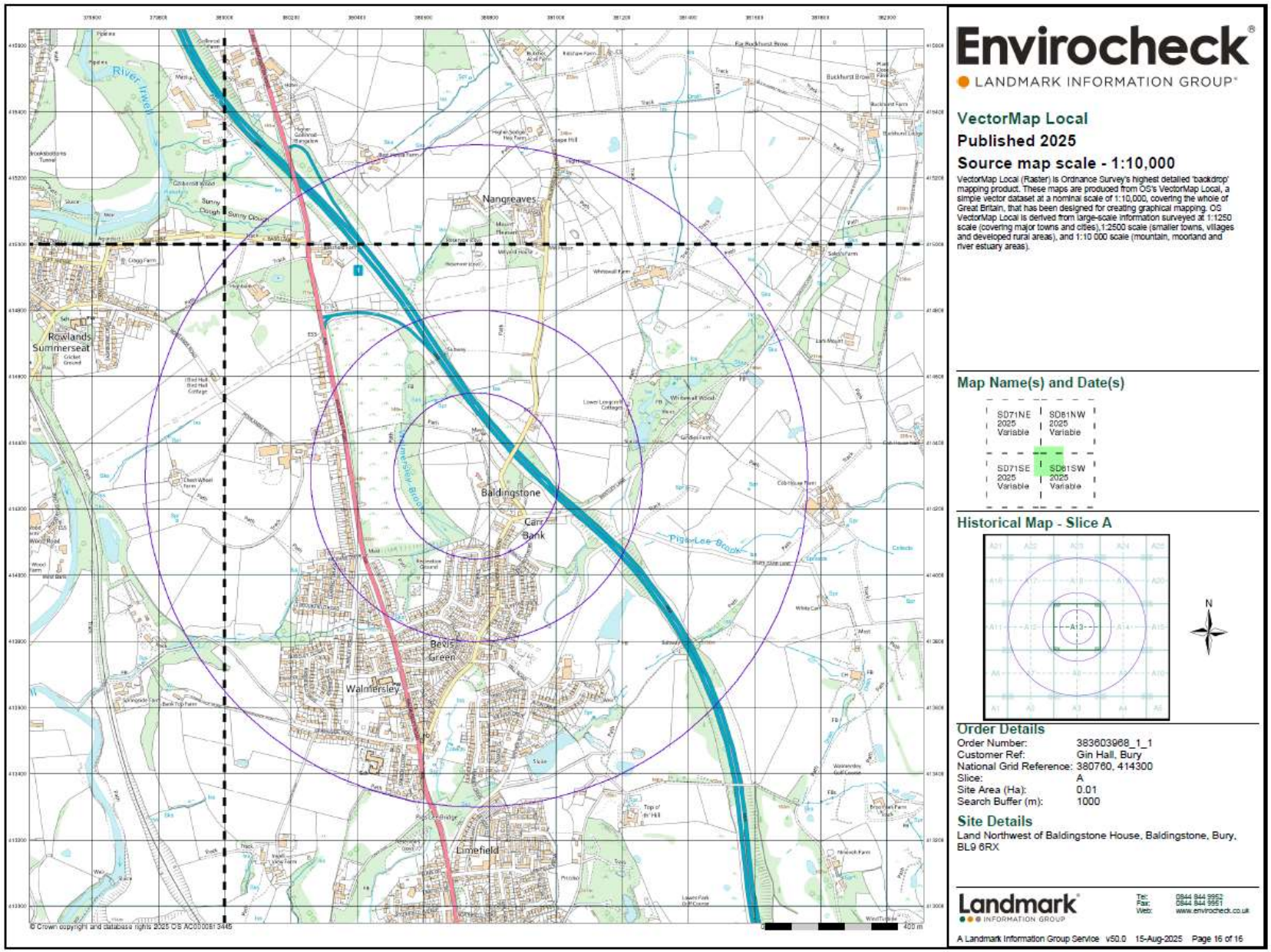
### Site Details

Land Northwest of Baldingstone House, Baldingstone, Bury, BL9 6RX

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10k Raster Mapping
Published 2006
Source map scale - 1:10,000
The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.
Map Name(s) and Date(s)
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SD81NW 2006 1:10,000
SD71SE 2006 1:10,000
SD81SW 2006 1:10,000
Historical Map - Slice A
N
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Customer Ref: Gin Hall, Bury
National Grid Reference: 380760, 414300
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000
Site Details
Land Northwest of Baldingstone House, Baldingstone, Bury, BL9 6RX
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**VectorMap Local**
**Published 2025**
**Source map scale - 1:10,000**

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

**Map Name(s) and Date(s)**

| | |
|---|---|
| SD71NE 2025 Variable | SD81NW 2025 Variable |
| SD71SE 2025 Variable | SD81SW 2025 Variable |

**Historical Map - Slice A**




**Order Details**

| | |
|---|---|
| Order Number: | 383603968_1_1 |
| Customer Ref: | Gin Hall, Bury |
| National Grid Reference: | 380760, 414300 |
| Slice: | A |
| Site Area (Ha): | 0.01 |
| Search Buffer (m): | 1000 |

**Site Details**

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# Appendix 4: Heritage Impact Assessment Methodology

The impact of the proposed works has been assessed using a cultural heritage impact assessment methodology based upon the CIfA/ IHBC/ IEMA guidance, *Principles of Cultural Heritage Impact Assessment in the UK* of July 2021, a methodology commonly used to assess heritage impact which is endorsed by several professional heritage organisations. Relevant paragraphs are extracted below.

**Cultural Heritage Impact Assessment**

1.4 Cultural Heritage Impact Assessment ('CHIA') is concerned with understanding the consequences of change to cultural significance. At a fundamental level, CHIA is used to make informed decisions about the sustainable management of cultural heritage assets.

1.7 This document provides guidance for cultural heritage practitioners in regard to the principles of CHIA. These are:
A. understanding cultural heritage assets; and
B. evaluating the consequences of change.

**A. UNDERSTANDING CULTURAL HERITAGE ASSETS**

A.2 The process of gaining this understanding is split into three stages:
• Description: Research and investigations leading to a factual statement that establishes the nature of the asset.
• Cultural significance: Analysis of what is valued about the asset, leading to a statement of cultural significance.
• Importance: A conclusion regarding the level of protection that the asset merits in planning policy and cultural heritage legislation.

**Attributing importance**

A.17 Importance is scaled (unlike cultural significance) and requires the competent practitioner to make a judgement regarding the merits of different cultural heritage assets. It is therefore appropriate to refer to 'high', 'medium' or 'low' importance or any other simple scale that offers a form of gradation.

**B. EVALUATING THE CONSEQUENCES OF CHANGE**

B.3 The process of evaluating the consequences of change falls into three stages:
• Understanding change: A factual statement of how a proposal would change a cultural heritage asset or its setting (including how it is experienced).
• Assessing impact: An assessment of the degree to which any change would impact cultural significance.
• Weighting the effect: A conclusion regarding whether an impact matters, reflecting the importance of the affected cultural heritage asset.

**Assessing impact**

B.7 An impact is a change in a cultural heritage asset or the experience of an asset in its setting that affects its cultural significance. This impact could be a positive or negative outcome. It is not a measure of the reach or extent of the proposal. Therefore, it is essential that the CHIA presents an understanding of how the proposed change relates to cultural significance and not the cultural heritage asset in its entirety.

B.9 The magnitude of the impact on cultural significance needs to be assessed. A distinction needs to be drawn as to whether the change will result in only a 'small' impact on, say, just one component of cultural significance or whether the change would have a greater impact on the totality of cultural

significance. The terms ‘large’, ‘medium’ or ‘small’ are acceptable or any other simple scale that offers a form of gradation easily articulated in a written report.

**Weighting the effect**

B.10 The effect is the measure that brings together the magnitude of the impact and the cultural heritage asset’s importance. This is a critical stage of the assessment process as this determines the weight that should be given to the matter in either influencing the design of the proposal or, ultimately, in the test as to whether the proposal will be acceptable and permitted.

B.12 In relative terms, impacts on the cultural significance of assets of higher importance will be given greater weight than those of lower importance. For instance, a proposal that results in the total loss (i.e. the largest magnitude of adverse impact) of a cultural heritage asset of low importance would be an effect that should be given considerably less weight by the decisionmaker than the total loss of an asset of high importance.

B.13 A simple graded scale of effects should be defined and applied (as recommended for impact magnitude, above). However, decisions regarding the acceptability of a proposal will often require the effect to also be articulated within the parameter of the relevant legislative or policy tests that use their own specific language and terminology. For instance, in Environmental Impact Assessment (‘EIA’) an impact can result in significant or nonsignificant effects.

# APPENDIX 13 – ENVIRONMENTAL PROTECTION EMAIL

**From:** Shaw, Sally (Environmental Protection Officer)
**Sent:** Thursday, June 04, 2026 14:03
**To:** Aaron Stokoe
**Subject:** Fw: Planning Ref. No: 73108 Land to the East of Walmersley Road, Bury

Hi Aaron,

Regarding the above site:

**Sites determined as statutory contaminated land within 250 metres**

No areas of land at or near the site have been determined as Contaminated Land under Part 2A of the Environmental Protection Act (EPA) 1990.

Regards,

Sally

Sally Shaw

Environmental Protection

Bury Council

s.shaw@bury.gov.uk

0161 253 5519

07356 103044

Further information on assessing land contamination in planning can be found in Bury Council's Developers Guide and on the Planning Portal.

Why not visit our website www.bury.gov.uk
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Incoming and outgoing email messages are routinely monitored for compliance with our information security policy. The information contained in this email and any files transmitted with it is for the intended recipient(s) alone. It may contain confidential information that is exempt from the disclosure under English law and may also be covered by legal, professional or other privilege. If you are not the intended recipient, you must not copy, distribute or take any action in reliance on it. If you have received this email in error, please notify us immediately by using the reply facility on your email system. If this message is being transmitted over the Internet, be aware that it may be intercepted by third parties. As a public body, the Council may be required to disclose this email or any response to it under the Freedom of Information Act 2000 unless the information in it is covered by one of the exemptions in the Act. Electronic or fax service of documents is not accepted. New legislation governing the way we protect your personal data is now in force from the 25th May 2018. For information on how we protect and look after your personal data and to find out more about your individual rights about personal data we hold on you please go to our website: https://www.bury.gov.uk/privacy

# APPENDIX 14 – EXAMPLE PLANNING CONDITIONS (GROUND CONDITIONS)

## Example Ground Conditions to accompany Outline Planning Permission

1. **Site Characterisation** - An investigation and risk assessment, in addition to any assessment provided with the planning application, must be completed in accordance with a scheme to assess the nature and extent of any contamination on the site, whether or not it originates on the site. The contents of the scheme are subject to the approval in writing of the Local Planning Authority. The investigation and risk assessment must be undertaken by competent persons and a written report of the findings must be produced. The written report is subject to the approval in writing of the Local Planning Authority. The report of the findings must include:

i) a survey of the extent, scale and nature of contamination;

ii) an assessment of the potential risks to: human health property (existing or proposed) including buildings, crops, livestock, pets, woodland and service lines and pipes, adjoining land, groundwaters and surface waters, ecological systems, archaeological sites and ancient monuments;

iii) an appraisal of remedial options, and proposals of the preferred option(s). This must be conducted in accordance with DEFRA and Environment Agency's 'Model Procedures for the Management of Land Contamination, CLR 11'.

2. **Submission of Remediation Scheme** – A detailed remediation scheme to bring the site to a condition suitable for the intended use by removing unacceptable risks to human health, buildings and other property and the natural and historic environment must be prepared, and is subject to the approval in writing of the Local Planning Authority. The scheme must include al works to be undertaken, proposed remediation objectives and remediation criteria, timetable of works and site management procedures. The scheme must ensure that the site will not qualify as contaminated land under Part 2A of the Environmental Protection Act 1990 in relation to the intended use of the land after remediation.

3. **Implementation of approved remediation** - The approved remediation scheme must be carried out in accordance with its terms prior to the commencement of development other than that required to carry out remediation, unless otherwise agreed in writing by the Local Planning Authority. The Local Planning Authority must be given two weeks written notification of commencement of the remediation scheme works. Fo lowing completion of measures identified in the approved remediation scheme, a verification report (referred to in PPS23 as a validation report) that demonstrates the effectiveness of the remediation carried out must be produced, and is subject to the approval in writing of the Local Planning Authority.

4. **Reporting of Unexpected Contamination** In the event that contamination is found at any time when carrying out the approved development that was not previously identified it must be reported in writing immediately to the Local Planning Authority. An investigation and risk assessment must be undertaken in accordance with the requirements of condition [CG03], and where

remediation is necessary a remediation scheme must be prepared in accordance with the requirements of condition [CG04], which is subject to the approval of the Local Planning Authority. Fo lowing completion of measures identified in the approved remediation scheme a verification report must be prepared, which is subject to the approval in writing of the Local Planning Authority in accordance with condition [CG05]

5. **Long Term Monitoring & Maintenance** – A monitoring and maintenance scheme to include monitoring the long-term effectiveness of the proposed remediation over a period of [X] years, and the provision of reports on the same must be prepared, both of which are subject to the approval in writing of the Local Planning Authority. Following completion of the measures identified in that scheme and when the remediation objectives have been achieved, reports that demonstrate the effectiveness of the monitoring and maintenance carried out must be produced, and submitted to the Local Planning Authority. This must be conducted in accordance with DEFRA and the Environment Agency's 'Model Procedures for the management of Land Contamination, CLR11'.