2900.1.2 - Cropmark Enclosure

5076.1.0 - Siddal Moor

2897.2.1 - Meadow Croft Fold

2897.1.0 - Meadow Croft Fold

5773.1.0 - Whittle Brook

5121.1.0 - Birch Mill

2897.4.0 - Meadow Croft Fold

2894.2.0 - Castle Brook Cropmarks and Earthworks

5057.1.0 - Whittle Fold Settlement

2958.1.0 - Buildings or Silage Pits

3922.1.0 - Square Cropmark

17121.1.0 - Rectilinear Geophysics Anomalies

3878.1.0 - Unsworth Moss

Legend

- Site Boundary

HER Record (Point)

- Monument
- Place
- Landscape
- Historic Building

Spatial Referencing

- Orange
- Yellow
- Brown
- Purple
- Peach
- Grey
- Pink
- Navy Blue
- Azure
- Turquoise
- Blue

Title:
Figure 1: HER data within the site referred to in Archaeology ES Scoping

Address:
Northern Gateway (JPA 1.1)

Scale at A3: 1:15,000

0 500m

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Project for Assessment Boundary

Study Area

Designated Heritage Assets

Conservation Area

Registered Park and Garden

Listed Buildings

I

II*

II

Non-designated Heritage Assets

Locally Listed Buildings (Bury)

Locally Listed Buildings (Rochdale)

0 500 1,000 1,500 2,000 m

1:25,000

CLIENT:
Northern Gateway Development Vehicle

PROJECT:
Northern Gateway JPA 1.1

DRAWING:
Figure 15.1a - Heritage Asset Plan

PROJECT NUMBER:
RUSH3008

DRAWING NUMBER: 15.1a

CHECKED BY: KM

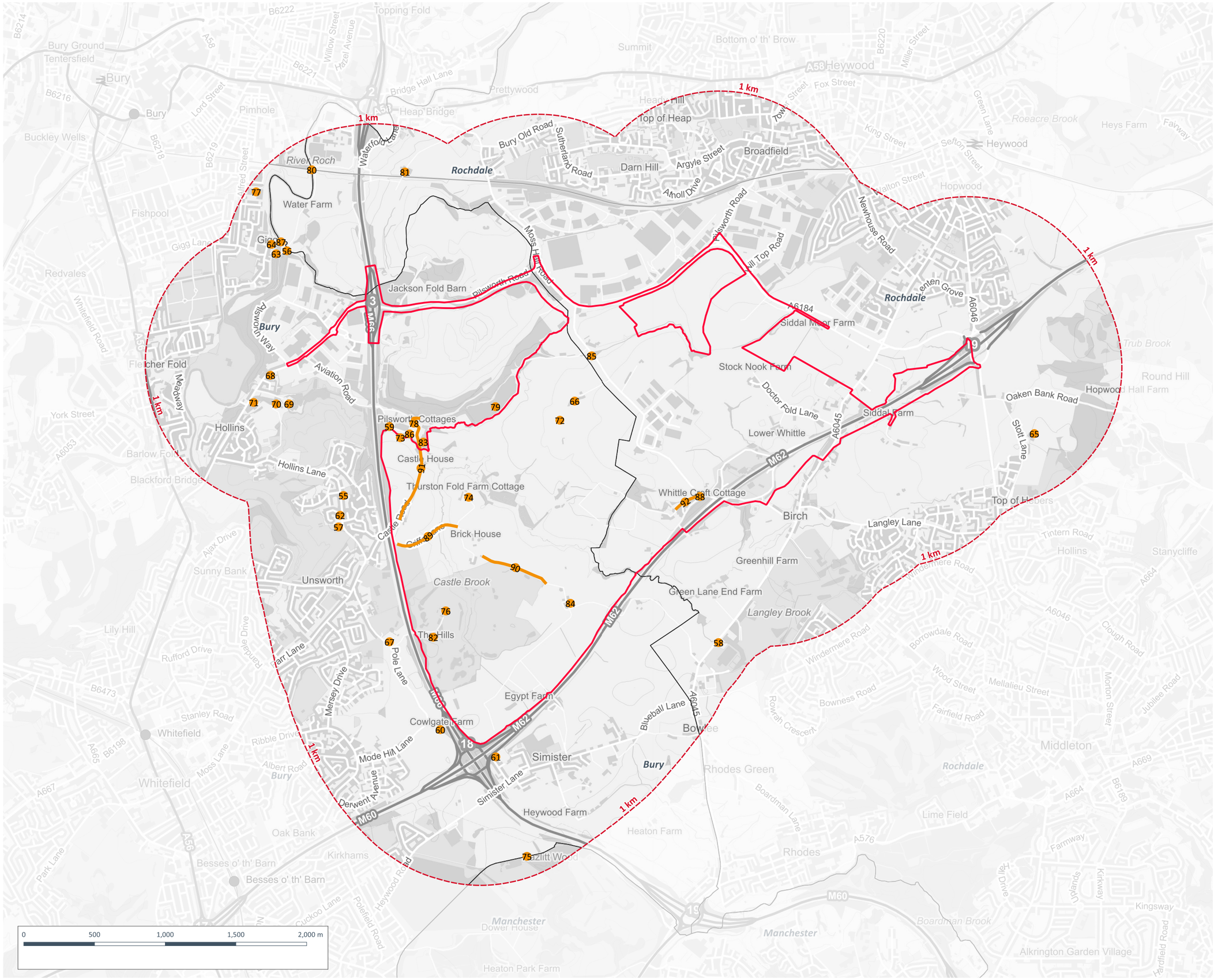
REVISION: 1.0

STATUS: Final

DATE: October 2024

SCALE: 1:25,000 @ A3

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Project for Assessment Boundary

Study Area

Greater Manchester HER Entry

CLIENT:
Northern Gateway Development Vehicle

PROJECT:
Northern Gateway JPA 1.1

DRAWING:
Figure 15.1b - Greater Manchester Historic Environment Record (HER) Entries

PROJECT NUMBER:
RUSH3008

DRAWING NUMBER:	CHECKED BY:
15.1b	KM

REVISION:	STATUS:
1.0	Final

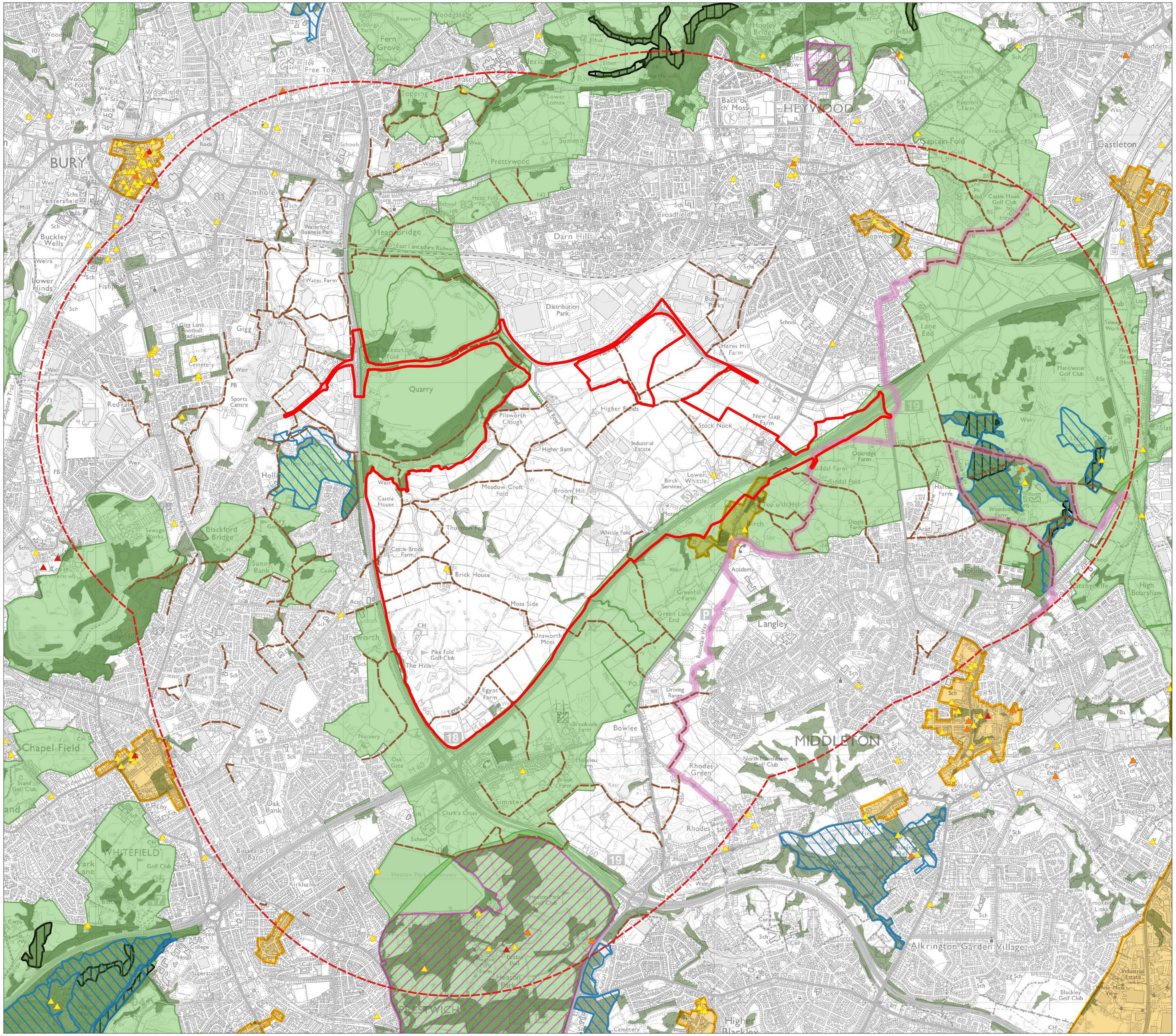
DATE:	SCALE:
October 2024	1:25,000 @ A3

Turley

Ref	Listed Building	Grade
1	Temple To North East Of Heaton Hall	II*
2	Alkrington Hall	II*
3	Brick Farmhouse	II
4	Lower Whittle Farmhouse	II
5	Edgecroft	II
6	Fountain Horse Trough To North Of White Hart Inn	II
7	Church Of St George	II
8	Unsworth War Memorial	II
9	Birch-in-hopwood War Memorial	II
10	Cemetery Gatepiers And Gates	II
11	The Manor House (including The Crest And The Nook)	II
12	Cemetery Chapel	II
13	Bury Cemetery War Memorial	II
Ref	**Locally Listed Building (Bury)**	
14	St George's Church, Hollins Lane/Castle Road, Unsworth, Bury, BL9 8QT	
15	Moss Side Barn/Farm, Griffe Lane, Whitefield	
16	Bridge at Whittle Brook, Castle Road, Whitefield, BL9 8JL	
17	Lady Wilton School, Nut Lane, Simister, Prestwich	
18	Jackson Fold Farm and barn, Pilsworth Road, Bury, BL9 8QZ	
19	Meadow Croft Fold Farmhouse Barns, Moss Hall Road, Whitefield	
20	Egypt Farm, Egypt Lane, Simister, Whitefield, M25 2RU	
21	Sand Field Farm, Simon Lane, Whitefield, M24 4SF	
22	Thurston Fold, Castle Road, Whitefield, BL9 8QS	
23	Coopers Farm, Simister, Prestwich, M25 2SP	
Ref	**Locally Listed Building (Rochdale)**	
24	Grange Farm	
25	White Hart Hotel	
26	600-606 Heywood Old Road	
27	612 Heywood Old Road	
28	618-620 Heywood Old Road	
29	622-626 Heywood Old Road	
30	640-652 Heywood Old Road	
31	724 Heywood Old Road	
32	743-747 Heywood Old Road	
33	757-763 Heywood Old Road	
34	Birch Mill	
35	500 Langley Lane	
36	531, 533 and 535 Langley Lane	
37	Stock Nook	
38	Siddal Farm	
39	Sandpits (Hartleys Farm)	
40	247-251 Manchester Road	
41	Birch Hotel	
42	Barn at Collop Gate Farm	
43	Saxon's Farm	
44	The Gardener's Arms Public House	
45	New Gap Farm	
46	Higher Fields Farm	
47	Coal Pits Farm	
48	Water Farm and Water Farm Cottages	
49	The Vicarage	
50	Langley Lane Farm	
51	Broom Hill Farm	
52	Whittle Farm Farmhouse	
53	The Barn, Langley Lane, Birch	
54	Silver Birch Stables, Langley Lane, Middleton	

Ref	HER Entry
55	122 Hollins Lane
56	Archway and associated leat, river Roch
57	Beehive Dyeworks (formerly Kilncroft Cotton Mill; Kilnercroft Finishing Works; Beehive Spindle Works)
58	Bowlee Mill
59	Bridge, Hollins Brook
60	Cold Gate House
61	Droughts Farm
62	Former General Store at Hollins Lane
63	Gigg Mills Footbridge, river Roch
64	Goit/ leat, main goit and sluice, river Roch
65	Hatter's Farm
66	Higher Barn Farmhouse
67	Hills Nook
68	Hollins Vale (former barn)
69	Hollins Vale Bleach Works
70	Hollins Vale Dye Works
71	Hollins Vale Works (Croft Industrial Estate)
72	Meadowcroft Fold Brick Barns
73	Mill race
74	Old Field Boundary at Thurston Fold
75	Park Boundary Wall, Heaton Park
76	Pike Fold Golf Club (formerly Back o'th'Moss Farm)
77	Pilot Mill complex
78	Pilsworth Cottages, Castle Road
79	Pilsworth Reservoir
80	Roch Viaduct
81	Spout Bank Farm
82	The Hills
83	Tramway and associated features
84	Unsworth Moss Farm
85	Wall of reused stone
86	Weir and Sluice
87	Weir, river Roch
88	Whittle Cottage
89	Griffe Lane â Hollow Way
90	Old Green Lane
91	Roadway paved with setts (Castle Road)
92	Old Lane off Whittle Lane

Turley



LEGEND

- Site Boundary
- 2km Study Area
- Green Belt
- National Forest Inventory
- Ancient Woodland

Access

- Rochdale Way Promoted Footpath
- Public Rights of Way (PRoW)

Ecology Designations

- Local Nature Reserves

Heritage Designations

- Conservation Area
- Heaton Park Registered Parks and Gardens

ListedBuildings

- Grade I Listed Building
- Grade II* Listed Building
- Grade II Listed Building

Revision	Description
a	Update to Site Boundary, Study Area & Green Belt

0 0.2 0.4 km

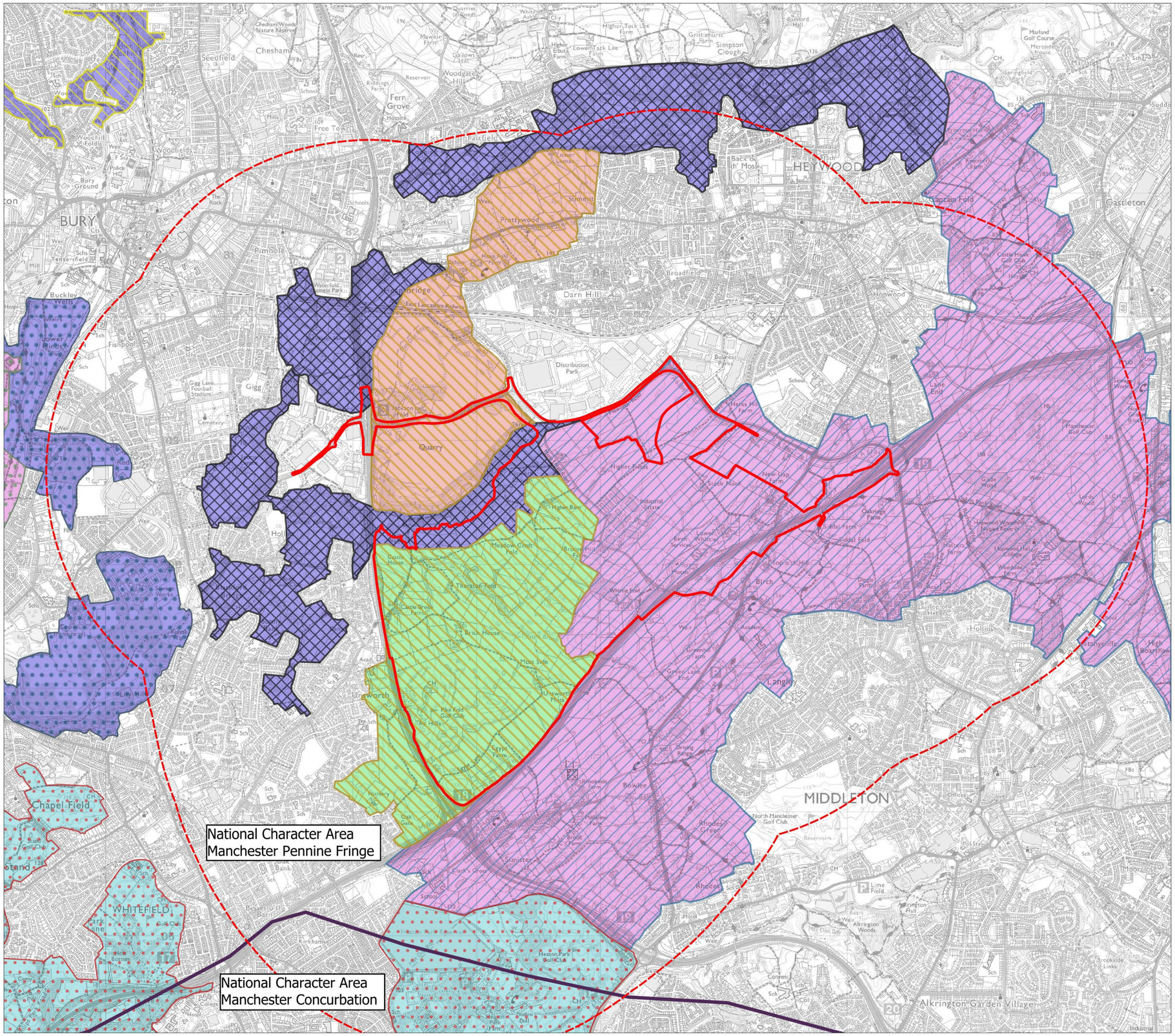
Project	Northern Gateway JPA 1.1
Title	Figure 16.1: Planning Policy and Designations
Scale	1:32,000 @ A3
Drawing No.	16551_P02a
Date	October 2024
Checked	EB/WL

Tyler Grange

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LEGEND

- Site Boundary
- 2km Study Area
- National Character Areas

Landscape Character Areas

- 16 - River Irwell (south Bury) & River Croal
- 19 - Heaton, Prestwich, Whitefield & Stand Parkland
- 21 - Little Lever & Elton Reservoir
- 23 - River Irwell (north Bury) & Kirklees
- 25 - River Roch
- 26 - Prettywood, Pilsworth & Unsworth
- 27 - Simister, Slattocks & Healds Green

Greater Manchester Landscape Character Types

- Historic Parks and Wooded Estate Farmland
- Incised Urban Fringe Valleys
- Mosslands and Lowland Farmland
- Reclaimed Land / Wetlands
- Urban Fringe Farmland

Revision	Description
-	First Issue
A	Update to site location, study area, green belt & additional Character areas

0 0.2 0.4 km

Project	Northern Gateway JPA 1.1
Title	Figure 16.2: Published Landscape Character
Scale	1:40,000 @ A3
Drawing No.	16551_P03a
Date	OCT 2024
Checked	EL / EB

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LEGEND

- Site Boundary
- 2km Study Area
- Viewpoint Locations
- Zone of Theoretical Visibility (ZTV) - 65m
- Zone of Theoretical Visibility (ZTV) - 16m Proposed Motorway Services Area

Notes:
This ZTV illustrates the extent to which the development is potentially visible assuming a receptor with an eye height of 1.6m within a 2km radius. Building heights are considered at 65m. The ZTV has been modelled using GIS computer software (QGIS) and LIDAR 1m DSM (First Return, 2022), and as such does take into account built form and vegetation present within the landscape. Field verification is required to refine the accuracy of the ZTV.

Revision	Description
B	Updated RL, Study Area & additional ZTV
A	Addition of Viewpoint Locations

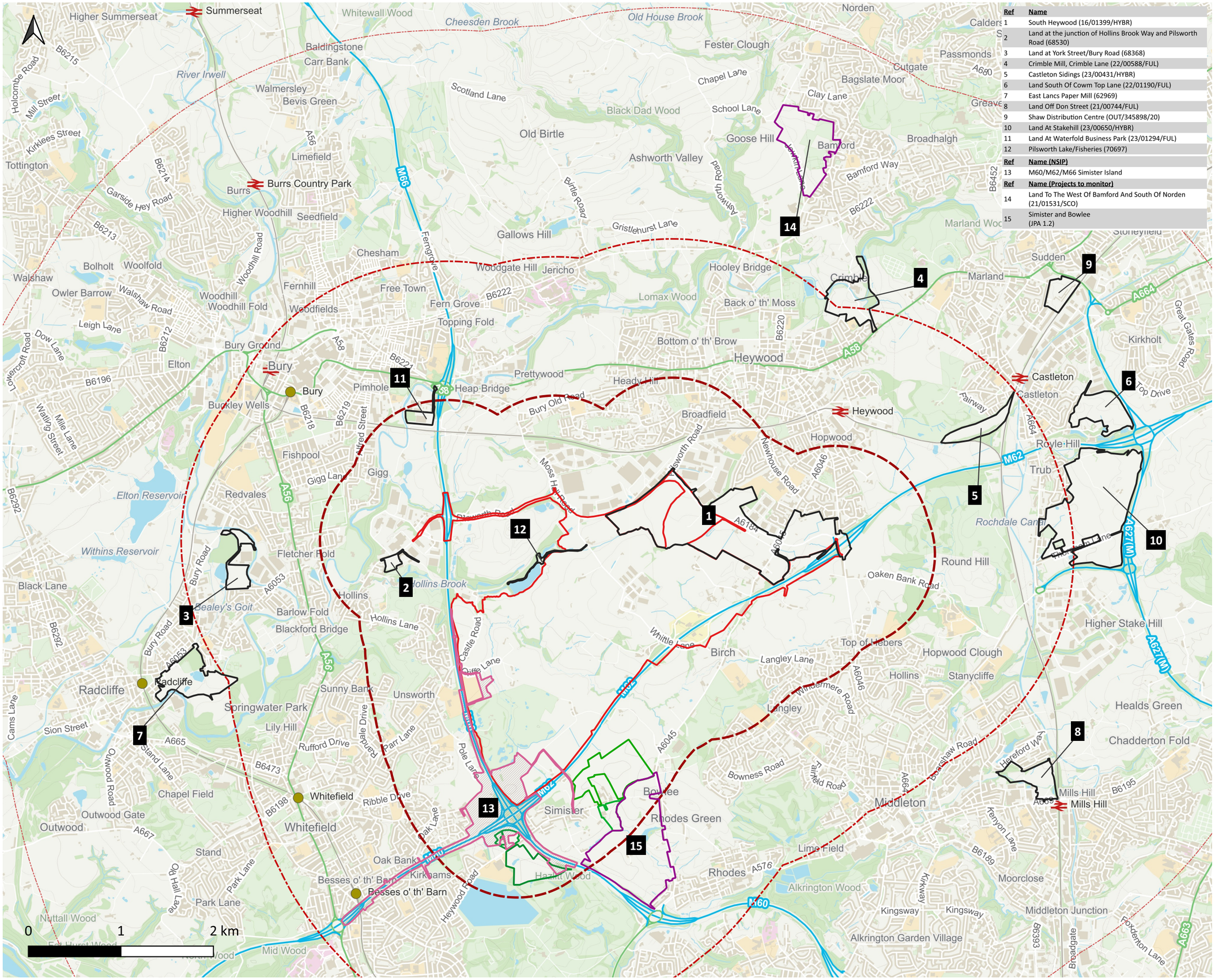
0 0.2 0.4 km

Project	Northern Gateway JPA 1.1
Title	Figure 16.3: Zone of Theoretical Visibility (ZTV) and Viewpoint Locations
Scale	1:40,000 @ A3
Drawing No.	16551_P01b
Date	October 2024
Checked	EB/WL

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Ref	Name
1	South Heywood (16/01399/HYBR)
2	Land at the junction of Hollins Brook Way and Pilsworth Road (68530)
3	Land at York Street/Bury Road (68368)
4	Crimble Mill, Crimble Lane (22/00588/FUL)
5	Castleton Sidings (23/00431/HYBR)
6	Land South Of Cowm Top Lane (22/01190/FUL)
7	East Lancs Paper Mill (62969)
8	Land Off Don Street (21/00744/FUL)
9	Shaw Distribution Centre (OUT/345898/20)
10	Land At Stakehill (23/00650/HYBR)
11	Land At Waterfold Business Park (23/01294/FUL)
12	Pilsworth Lake/Fisheries (70697)

Ref	Name (NSIP)
13	M60/M62/M66 Simister Island

Ref	Name (Projects to monitor)
14	Land To The West Of Bamford And South Of Norden (21/01531/SCO)
15	Simister and Bowlee (JPA 1.2)

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- Assessment Boundary
- POSEMA (Potential Off-Site Ecological Mitigation Area)
- Cumulative Project
- Projects to Monitor
- NSIP
- 1km radius
- 2.5km radius
- 5km radius

CLIENT:
Northern Gateway Development Vehicle LLP

PROJECT:
Northern Gateway, Bury

DRAWING:
Cumulative Project Plan

PROJECT NUMBER:
NORM3018

DRAWING NUMBER:
Figure 18.1

CHECKED BY:
SM

REVISION:
2.0

STATUS:
Final

DATE:
October 2024

SCALE:
1:1 @ A3

Turley EIA

Appendix 1.1: Record of Consultation

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
Minerals		
Greater Manchester Combined Authority, Minerals and Waste Officer	16/07/2024, Video call & PowerPoint presentation	Discussions on: works completed and findings to date; scope of Minerals Safeguarding Assessment; and need for inclusion within the EIA. Request for consideration of clay extraction and sand and gravel around Pilsworth Quarry.
Transport and Access		
Transport Steering Group	2022 to 2024 / Regular meeting (average of 1 every 2 months)	Discussion and Agreement on Model Specification Report and Model Statement of Agreement for the Northern Gateway Traffic Model (NGTM) The Model Specification Report for NGTM outlined an overview of the model's design and performance. Meanwhile, the Model Statement of Agreement outlines the terms for its use and compliance.
BC, RBC, Transport for Greater Manchester and National Highways	July 2024, Email	Conducting a Scoping Exercise to establish the methodology for the upcoming Transport Assessment and related to the development scheme. This includes the submission and review of a Transport Assessment Scoping Report.
BC, RBC,, Transport for Greater Manchester and National Highways	August 2024, Email	This includes the submission, review, and incorporation of feedback, followed by the submission of a revised Transport Assessment Scoping Report.
Noise and Vibration		
BC, Environmental Health Department	9th May 2024, Virtual Meeting (Unit Manager, Commercial Team, Public Protection)	Scope of work verbally agreed with respect to: Qualitative noise and vibration assessment for all construction and operational effects with the exception of the assessment of highways infrastructure (to be agreed as detailed proposals emerge).

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
		Off-site road traffic noise assessment based on basic noise level calculations relating to the change in noise levels on the local road network.
RBC, Environmental Health Department	13th May 2024, Virtual Meeting (Environmental Health Specialist Lead (Environmental Protection)	As above
BC, Environmental Health Department	13th May 2024, Email	Agreement of scope of noise survey including provisional long term and short term monitoring locations (**Figure 8.1**) and duration of the survey.
RBC, Environmental Health Department	14th May 2024, Email	As above
Air Quality		
BC	January 2022 - Formal Consultation Response	Recommendation that air quality monitoring is carried out prior to the completion of the assessment.
RBC	14th May 2024 - Email	The proposed methodology for a 3-month programme of air quality monitoring was provided to RBC. This was subsequently agreed, subject to a request to change the location of one monitoring position to consider traffic around the junction of A576 Manchester Road and A6045 Heywood Old Road. A request was made for the monitoring programme to avoid school term times where possible. This was subsequently agreed on 15th May 2024, 11th June and 3rd July.
BC	14th May 2024 - Email	The proposed methodology for a 3-month programme of Air Quality Monitoring was provided to BC. This alongside the BC changes were subsequently agreed on 8th July.
Biodiversity		
Greater Manchester Ecology Unit	19th March 2024 / Teams Call	Provided briefing on the approach to surveying across the Project for Assessment area and the requirement

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
		for 'high level assessments' (assessment of local ecological records, review of aerial imagery and views from Public Rights of Way (PRoW)) of the Site which access cannot be obtained for and which will not form part of the future planning application. Further detail on this is provided under 'Limitations and Assumptions', and illustrated on Figure 10.1 16551 Ecology Survey Scope. Update on initial 'worse case' BNG results; identifying potential for offsite land within the landowners ownership and possible land within council ownership.
Greater Manchester Ecology Unit	13th June 2024/ Email	Confirmation (and further detail) of the above survey scope (and limitations). Update on BNG, including the identification of an offsite BNG area within the landowners ownership.
Greater Manchester Ecology Unit	27th June 2024 / Email 18th July 2004 / Email	Further request to close out approach to surveying across the Project for Assessment. Update on BNG progress.
RBC	21st May 2024 / Email	Liaising with RBC to establish Tree Preservation Orders (TPO).
Natural England	9th September 2024 / Email	Discretionary Advice Service application issued on this date; pertaining to approach and scope for designated sites and Habitat Regulations Assessment (HRA).
Hydrology, Flood Risk and Water Quality		
Lead Local Flood Authority (LLFA) RBC	Email chain with RBC LLFA beginning 20th May 2024.	A response is pending the appointment of a drainage engineer within RBC.
Lead Local Flood Authority (LLFA), BC	Email chain with BBC LLFA beginning 20th May 2024.	Initial contact made with Development Management team, awaiting further response to discuss outline concepts for the drainage strategy.
Environment Agency (EA)	The EA have been provided with a copy	The EA's assessment on the suitability of the modelling methodology is pending.

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
	of the modelling methodology via email on 6th June 2024.	
United Utilities (UU)	8th May 2024 Teams Call and email chain beginning 8th May 2024.	Principles of the surface water strategy were agreed to be acceptable. UU confirmed their preference would be to adopt all surface water infrastructure but that it would be acceptable for plots to be provided with private attenuation and discharge controls as part of an integrated site wide surface water strategy. Principles for offsite foul pump station are to be agreed in further consultation with UU drainage engineers. UU confirmed a separate system of land drainage would be needed for the site with outfalls to watercourses and would be required to be adopted by a management company.
Ground Conditions and Contamination		
Coal Authority	19/07/2024 teams Call	A meeting was held with the Coal Authority regarding the mine workings and mine shafts on the site. The Coal Authority's position is that mine shafts should not be built over unless a justifiable reason as to why they should be built over, can be provided. They suggested an increased area for geophysical surveys, to potentially locate unrecorded mine shafts / presence of bell pits. This has been incorporated into the preliminary ground investigation specification. Given the identified presence of mine workings onsite, the Coal Authority will expect mine gas to be assessed. Obtaining initial data for ground gas assessment is part of the preliminary ground investigation specification.
BC	-	Pre-app consultation with the contaminated land officer at Bury

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
		Council has been requested. It is expected that a pre-app Teams call will be held in September 2024.
RBC	06/08/2024, Teams call	A meeting was held with the Environmental Health Senior Officer, for Rochdale Council. Michael's view was that the site was that the risk of significant contamination is low given the historic and current agricultural land use. The application will likely receive typical conditions regarding contamination, such as submission of more detailed targeted ground investigation reports as well as a remediation strategy (if required following ground investigation and assessment), remediation verification (if required) and unexpected contamination clauses.
Archaeology		
Greater Manchester Archaeology Advisory Service (GMAAS)	2020-Present Emails Phone calls 24.03.2022 Site monitoring visit Email acceptance of evaluation report	Ongoing email and phone consultations to agree timing and scope of work for the Site, including Meadowcroft Fold. Archaeological works to date (i.e. trial trench evaluation for Meadowcroft Fold) have been completed to the satisfaction of GMAAS, the current agreement is that pending receipt of the final evaluation post excavation report for Meadowcroft Fold (anticipated to be October 2024), no further archaeological fieldwork will be required to inform the EIA. It was agreed that the results of the trial trench evaluation did not merit consideration of Meadowcroft Fold as a Scheduled Monument. Further archaeological works will be required as a condition of planning consent.
Historic England	2020-2022 Emails	Consulted in relation to proposed methodology for archaeological trial trenching works at Meadowcroft Fold. The methodology was agreed, and monitoring of the fieldwork was

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
		deferred to GMAAS with an offer of specialist advice if required. Historic England welcome further consultation however defer to GMAAS unless specialist input is required.
Built Heritage		
BC & RBC Conservation Officers	2022, pre-application meetings, submission of a pre-application submission document and receipt of an informal scoping opinion.	Discussion of methodology with the scoping opinion requesting the heritage assessment work be carried out in accordance with Historic England's Conservation Principles, Polices and Guidance for the Sustainable Management of the Historic Environment and Design Manual for Roads and Bridges (DMRB). Further information was requested in relation to key views within the setting of Lower Whittle Farm (grade II listed building) and recommended mitigation measures were noted.
BC Conservation Officer	25 March 2024, email	Confirmation that the BC draft local list has not been updated since 2022 and that it remains in draft with no timetable for the adoption.
RBC Conservation Officer	23 April 2024, email	Confirmation that RBC local list data has not been mapped.
RBC Conservation Officer	26 Apr, 14 Jun, emails	Request for information to support Heritage Assets Plan issued by Turley Heritage.
RBC Conservation Officer	25 June, email	Response from RBC to confirm addresses for Silver Birch Stables; recommended meeting to discuss other Heritage Assets data.
RBC Conservation Officer	19 July, meeting	Meeting to confirm location/existence of mapped heritage assets. RBC to review all buildings within the Site against local listing criteria.
BC & RBC Conservation Officers, Historic England	6 August, Meeting	Discussion of methodology including rationale for not assessing against Principles of Conservation (Historic England 2008) but referring to the relevant principles as relevant when

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
		assessing each asset. Explanation of potential impacts on heritage receptors.
Landscape and Visual		
RBC	27 February 2024, email	Discussion and agreement of viewpoints for assessment in the ES (see **Table 16.1**). Additional views requested: • To the northern entrance of Alkrington Hall, Hall Drive. • Tandle Hill viewing point.
BC	12 February 2024, email	Discussion and agreement of viewpoints for assessment in the ES (see **Table 16.1**). Three additional views requested for consideration from PRoW 7WHI and 84BUR along the Site's western boundary.

Appendix 2.1: Preliminary Environmental Management Plan

Preliminary EMP

Project specific measures to avoid and / or prevent significant adverse environmental effects (i.e. mitigation measures) have been considered through the EIA Scoping process when appraising likely environmental effects.

At this stage, this has focussed on 'primary mitigation' (i.e. inherent mitigation, comprising fundamental aspects of the project design) and 'tertiary mitigation' (i.e. standard environmental commitments / practices).

To support BC and RBC and other stakeholders, the mitigation measures that have been identified at this stage have been collated into a single, Preliminary Environmental Management Plan (PEMP) set out below. This will be developed further as part of the ES and a full Environmental Management Plan (EMP) will be submitted in support of the planning application.

It is envisaged that mitigation within the PEMP and EMP will be secured through suitably worded planning conditions or another mechanism, where appropriate, and the EMP will be utilised by the Applicant and appointed contractor(s) to control mitigation commitments and provide assurance over their implementation. The PEMP has focused on mitigation identified for the Project for Assessment but the EMP will provide further clarity as to which mitigation is relevant to the Proposed Scheme and the planning application and other mitigation which is only relevant to the wider footprint of the Project for Assessment and which will be presented for information only.

Schedule of Mitigation

Mitigation Measure	Description / Details of Measure
Primary Mitigation	
Layout / general arrangement	The layout of the Project for Assessment will allow for retention of the Birch Business Park which will remain in situ and operational.
Public Realm	New public realm will be implemented with consideration of principles related to inclusive design, taking account of Planning Practice Guidance (PPG)[177].
Landscape and Biodiversity Strategy	Although the design of the Project for Assessment has not yet been finalised in detail, it will retain the following biodiversity and green-space elements: • Two trees subject to a Tree Preservation Order within the Site (W1 - TPO 124 and G1 - TPO 157) will be retained on Site; • Hollins Brook, Whittle Brook, Castle Brook and Brightly Brook / Pilsworth Clough will be retained in their existing alignments within the Site (sections may need to be culverted for access). No buildings are likely to be built within a minimum distance of 50m to Whittle Brook; • The Project for Assessment will enhance the biodiversity of the Site, mitigating the anticipated impacts of climate change in accordance with the England Biodiversity Strategy[178] and Natural England Climate Change Adaptation Manual[179]. This will include a wide diversity of species tolerant to a range of conditions.

[177] Department for Levelling Up, Housing and Communities (2019) Planning Practice Guidance: Housing for older and disabled people – Inclusive Design (para 017)

[178] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf

[179] http://publications.naturalengland.org.uk/publication/5679197848862720

Mitigation Measure	Description / Details of Measure
Daylight / Sunlight Strategy	A Daylight, Sunlight and Overshadowing Assessment will be undertaken to support the outline planning application for buildings above 4 storeys. This will ensure appropriate set back distances from retained properties as well as proposed residential properties, PROW and retained habitats with ecological value.
Building Heights	Maximum building height from existing ground levels are up to 65mAOD (including for roof top wind) Maximum building heights from existing ground levels south of the M62 will be up to 16mAOD.
Transport and Access Strategy	Three primary access points suitable for all vehicular traffic will be provided from Moss Hall Lane, Hareshill Road and from any M62 junction improvements. Three additional, secondary access points will be provided suitable for all road-based traffic with the exception of HGV's and employment traffic. Secondary access points will be provided from the south off the existing Whittle Lane, from the west and from the north utilising the existing Castle Road. Two pedestrian and cycle only access points from the west will use an existing Public Rights of Way (PROW) and Hills Lane. Pedestrian and cycle access from the south of the Site will also be provided from existing access lanes / PROW from the south of the M62. A network of footpaths/cycleways (including retained PRoWs, realigned PRoWs and new footpaths/cycleways) will connect the Site and wider area.
Heritage Strategy	Built heritage features within the Site which will be retained include (see Spatial Referencing Plan, **Figure 4.1** for relevant quarters): • Brick Farmhouse Grade II Listed Building (located in pink quarter); • Lower Whittle Farmhouse Grade II Listed Building (located in purple quarter); • Bridge at Whittle Brook (located on the boundary of the pink and yellow quarters); • Birch Hotel (located within area of existing properties adjacent to purple quarter); • Gardeners Arms (located within area of existing properties adjacent to purple quarter); • Whittle Farm (located within the brown quarter); and • Egypt Farm (located within the peach quarter).

Mitigation Measure	Description / Details of Measure
Utilities Strategy	Any diversion or reinforcement of foul water, telecoms, gas and electricity supply will happen as part of the enabling works and any off-Site works will be the responsibility of the utility provider. The two gas pipelines within the Site will be remain in-situ with a suitable easement.
Lighting strategy	Lighting design and installations will adhere to: All external lighting installations will meet Institute of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light 2021[180]. • Planning Practice Guidance on Light Pollution, Ministry of Housing, Communities & Local Government, 1st November 2019; • The Conservation of Habitats and Species Regulations, as amended, 2017; • Environmental Protection Act, 1990; • Rochdale Adopted Core Strategy (Adopted October 2016); • External lighting, where provided on dwellings, commercial/industrial will be undertaken in line with measures set out by ILP Guidance Note 9[181], ILP Guidance Note GN08[182], CIE 150, CIE 126[183], CIBSE LG6[184], CIBSE LG21, [185], BS EN 12464 Part 2[186], BS EN 13201-4[187] and NPPSA[188]; and

[180] Institute for Lighting Professionals (2021). Guidance Note 01/21 for the Reduction of Obtrusive Light.
[181] Institution of Lighting Professionals (2019), Guidance Note 9 Domestic exterior lighting: getting it right. Available at: https://theilp.org.uk/publication/guidance-note-9-domestic-exterior-lighting-getting-it-right
[182] ILP Guidance Note GN08 (2023): Bats and artificial lighting in the UK; Bats and the Built Environment series
[183] CIE 126: Guidelines for Minimising Sky Glow (1997)
[184] Chartered Institute of Building Services Engineers (CIBSE) LG6: The Exterior Environment (2016)
[185] Chartered Institute of Building Services Engineers (CIBSE) LG21: Protecting the night-time environment (2021)
[186] BS EN 12464 Part 2: Outdoor Lighting (2014)
[187] BS EN 13201-4: Road Lighting – Methods of Measuring Lighting Performance, 2003
[188] National Protective Security Authority (NPSA), Security Lighting

Mitigation Measure	Description / Details of Measure
	• Operational lighting for highways will be provided based upon an identified need and risk assessment. Where highways lighting is required, lighting installations will be provided in accordance with BS 5489[189].
Waste strategy	The Project for Assessment will include appropriate facilities for the storage, handling and collection of these waste types in line with the Waste Management Strategy which will set out the principles, strategy and targets for the management and storage of waste and maximise recycling, in accordance with BC and RBC established policy.
Energy strategy	The Project for Assessment will meet the requirements of the forthcoming Building Regulations 2025, including the Future Homes Standard (whereby at least a 75% carbon reduction beyond Part L 2013 will be achieved) and the Future Buildings Standard (with similar standards to be achieved for non-residential buildings). The Project for Assessment will be all-electric, (although there may be certain processes that require gas or oil). The source of electricity will likely be from a mix of sources, predominantly provided by on-Site solar energy with potential for roof mounted wind power as well as potential for micro-hydrogen. The implementation of photovoltaic panels will consider the following to ensure glint and glare is minimised including: • The type of solar photovoltaic panels; • The location and orientation of buildings with solar photovoltaic panels; and • The angle at which the solar photovoltaic panels are positioned on the roofs of proposed buildings.
Potable water strategy	The existing clean water network (operated by United Utilities [UU]) will be upgraded along Pilsworth Road to the new main that UU installed at the corner of Pilworth Rd / QEII Way. Homes will be designed to achieve a water consumption rate of 105l/p/d, exceeding the Building Regulations higher water efficiency rate. Buildings will achieve the equivalent of 2 Wat01 water efficiency BREEAM credits.

[189] BS 5489-1 (2020), Design of road lighting Part 1: Lighting of roads and public amenity areas

Mitigation Measure	Description / Details of Measure
Foul Water Strategy	The design of the foul water drainage system will be undertaken to suit the site phasing strategy, as such, as the design develops there may be a requirement to utilise temporary drainage features / outfalls to facilitate the required phasing arrangements. Foul water is proposed to drain to either the Bury Wastewater treatment works or to existing public sewers in Hareshill Road. Primary pumping stations will be required to achieve the connection points that are agreed in principle with United Utilities. Further pumping stations will be required throughout the development to accommodate the phasing strategy and to limit the maximum depth of the foul sewer system to an acceptable design standard for United Utilities. The foul water system will be designed to adoptable standards to allow maintenance responsibilities to transfer to United Utilities or other approved authority at an appropriate point in the development build out.
Flood risk and surface drainage strategy	Development will be steered to areas of low or very low flood risk within Flood Zone 1, with flood alleviation measures to reduce flood risk associated with Whittle/Hollins/Brightly Brooks to be incorporated where appropriate. The flood alleviation measures will ensure there no increased risk from flooding downstream. A strategy to control flood risk to and from the development will be agreed with the relevant stakeholders including the Environment Agency and the Bury and Rochdale Lead Local Flood Authorities.
Surface water drainage strategy	The design of the surface water drainage system will be undertaken to suit the site phasing strategy. Surface water is proposed to discharge at a rate equivalent to the existing greenfield runoff, with an ultimate outfall into the designated main rivers or tributaries within the Site: Whittle Brook, Castle Brook and Brightly Brook. There will be multiple points of outfall for the surface water system throughout the Site due to scale of the Project for Assessment and the complexity of the catchment analysis. The surface water drainage strategy will provide a corridor of green / blue infrastructure within the Site with the principle SuDS[190] attenuation features being located close to the river corridor but outside the extent of the current and future flood zones. Development plots will provide a suitable level of water quantity and

[190] The Surface Water Drainage Strategy will incorporate Sustainable Drainage Systems (SuDS) and be developed in accordance with the CIRIA 753 – The SuDS Manual where practical.

Mitigation Measure	Description / Details of Measure
	quality management, the principles of which will be agreed with the contributing statutory undertakers. The surface water system will be designed to adoptable standards to allow maintenance responsibilities to transfer to United Utilities or other approved authority at an appropriate point in the development build out.
Tertiary Mitigation	
Construction Environmental Management Plan (CEMP)	A CEMP will be prepared by the appointed contractor in advance of commencing construction works. The document will provide detailed measures / controls to avoid and manage potential adverse effects upon the environment during the construction stage. Measures will include: <u>General Measures</u> • The proposed construction works will be carried out by a competent contractor that will comply with current legislation[191]; • The site security arrangements for the Project for Assessment during the construction stage will be in line with the requirements set out in the Construction (Design and Management) Regulations 2015[192] and appropriate levels of security (personnel / CCTV) will be provided. • Temporary fencing / hoarding will be erected around relevant perimeters at the outset of construction and temporary secure access gates will be provided to manage the movement of vehicles, plant, equipment and personnel; • All construction activities will be in accordance with the Considerate Constructors Scheme; • Good practice guidance for water efficiency on the Site will be stipulated and monitored; • Climate change adaptation and measures will reduce risks to human health from overheating such as provision of shaded refuges and potable water supplies during construction; and • Construction working hours would be 07:30 to 18:00 Mondays to Friday; 07:30 to 13:00 on Saturday. There will be no construction on Sundays, Public and Bank Holidays. This is with the exception of the

[191] This includes the Health and Safety at Work etc. Act 1974; the Control of Pollution Act 1974; and Construction (Design and Management) Regulations 2015.

[192] Secretary of State (2015). Construction (Design and Management) Regulations 2015.

Mitigation Measure	Description / Details of Measure
	infrastructure works associated with the M66 and M62, the construction of which is likely to require some works outside of these periods including during the nighttime periods. Utilities • Appropriate utilities disconnection works will be undertaken prior to the commencement of activities in liaison with the relevant operators. Specific method statements will be prepared making workers aware of the location of utilities and their easements. • Any required diversions of utilities during construction will be undertaken by the relevant Distribution Network Operator (DNO) (or a third party contractor appointed by the DNO), who will operate in line with standard good practice working measures, including accordance with the Construction (Design and Management) Regulations and other health and safety regulations. Any such works would include appropriate isolation of utilities as required. Air Quality • The CEMP will be informed by the Institute of Air Quality Management (IAQM) guidance and would include prevention measures, such as screening stockpiles of materials, deployment of windbreak netting and dampening exposed soils as appropriate and set out requirements for ongoing monitoring. It also sets out requirements for ongoing monitoring and liaison with the local community, BC and RBC. Biodiversity • Where water features are to be retained they will be afforded protection throughout the construction stage with adherence to best practice measures set out by Pollution Prevention Guidance (PPG)[193;194]. Lighting

[193] Environment Agency (2014) Pollution Prevention Guidelines: Works in, near or over watercourses, PPG5. Available at: https://assets.publishing.service.gov.uk/media/5a758f5aed915d6faf2b3eed/pmho1107bnkg-e-e.pdf [Accessed 26/03/2024].

[194] It is acknowledged that PPG5 was withdrawn by the Environment Agency in 2015, however its recommended pollution prevention measures are still considered to deliver best practice construction methods.

Mitigation Measure	Description / Details of Measure
	• Lighting will be controlled through a series of best practice measures, in line with lighting industry standards and guidance including BS EN 12464-2:2014[195] and ILP Guidance Note GN01[196]. • The type of equipment employed, including lamp type and optics, will be carefully selected to provide a controlled distribution of light, within the relevant boundary, whilst limiting the luminous intensity to below 7,000 cd, as required for a medium brightness district (Zone E2). • For Environmental Zone E3, maximum allowable illuminance in the vertical plane is 10 lux for pre-curfew (07:00 – 23:00 hours) and 2 lux for post-curfew (23:00 – 07:00 hours) scenarios. • In general, site floodlights will be mounted around the perimeter of the Site or parts of the Site, directed inwards to avoid direct light being projected outside of the boundary. The type of floodlights employed will have Type C asymmetric reflectors (GN01:2021), with a flat glass lens, and be mounted with the glass parallel to the ground (zero-degree tilt). Wide angle, symmetric floodlights mounted at low level, with a high tilt angle will not be used as the majority of the light is at or above the horizontal creating excessive glare and obtrusive light within the environment. <u>Waste</u> • All construction waste arisings will be separated into allocated skips to maximise material re-use/recycling and removed from Site. A mini 'recycling centre' will be established in working areas where appropriate. Areas of hard standing will be fenced and used for storage of all vehicles, containers, waste equipment and collected waste. Two manual sort lines will be established to screen and sub-sort recycling in accordance with relevant guidance, such as Waste Classification: Guidance on the classification and assessment of waste[197]. • Waste will be held on-site for the shortest amount of time that is practical. Control measures will be available including spill kits and bunds for liquid run-off, fencing and tarpaulins for wind-blown debris.

[195] British Standards (2014) BS EN 12464-2 – Lighting of Work Places – Part 2: Outdoor Work Places.
[196] Institute of Lighting Professionals (ILP) (2021) Guidance Notes for the Reduction of Obtrusive Light (GN01).
[197] Waste Classification: Guidance on the classification and assessment of waste (1st edition v.1.1 GB).

Mitigation Measure	Description / Details of Measure
	• Where sand and gravel deposits are encountered and are required to be 'cut' the material will be recovered for reuse as appropriate. This should be implemented through a Materials Management Plan. • Sustainable sourcing of materials, specifically sustainable materials with a high recycled content will be considered. • Specification of sustainable timber (FCS certified, or similar) will be implemented. <u>Ground and Earthworks</u> • All earthworks and foundation design will be in accordance with relevant industry guidance, including but not limited to: CIRIA Report C572: Treated ground engineering properties and performance; British Research Establishment document FB75: Building on Fill – Geotechnical Aspects, BS 6031:2009: Code of Practice for Earthworks and SHW Series 600 Earthworks, 2017 • The mitigation measures identified to reduce exposure to contamination/ground gas, where identified through site investigations (see Ground Investigation Works and Remediation Strategy), during construction activities will be controlled through the implementation of the CEMP. • Measures to prevent the release of any contamination to controlled waters during construction activities will be controlled in line with CIRIA C532: Control of Water Pollution from Construction Sites - Guidance for Consultants and Contractors (2001) and may be informed by a Piling Risk Assessment if significant contamination is encountered. <u>Flood Risk and Drainage</u> • Temporary surface water drainage will be installed as necessary to mitigate flood risk and sediment loading and, where possible will align with the permanent drainage solution. Temporary drainage will be subject to good site working practices and adherence to best practice guidance such as CIRIA's Control of water pollution from construction sites[198].

[198] CIRIA (2001) Report C532: Control of water pollution from construction sites.

Mitigation Measure	Description / Details of Measure
Ground Investigation Works and Remediation Strategy	Mineshafts will be treated and capped prior to construction. Structures over mineshafts will be avoided where possible; where this is not possible build over agreements will be sought from the Coal Authority[199]. A Ground Investigation Report will be written and will include a Conceptual Site Model and Generic Quantitative Risk Assessment to appraise risks to the identified receptors. Ground investigations will be undertaken to determine the absence/presence, type and distribution of any forms of ground contamination and ground gas and establish the groundwater conditions within the Site. A remediation strategy will be submitted and agreed with BC and RBC in advance of works taking place. This will also identify the requirement for any construction specific method statements (e.g. if the need for dewatering is identified).
Foundation design	The Building Regulations[200] require new developments to consider the impact of ground movement in foundation design. The Project for Assessment will be designed in accordance with current guidance and best practice, and this will include the consideration of changing climate on stability of the ground conditions, influencing foundation design as necessary.
Archaeology Strategy	Consultation with GMAAS, as part of the assessment process, has confirmed that should further archaeological site investigations be required, these works are to be undertaken post determination and secured through a condition of planning consent.
Building safety strategy and site security	The final end-users/building management company will have in place the required emergency producers/practices (i.e. Fire Emergency Evacuation Plan (FEEP)) or apparatus/instruments (i.e. smoke detectors/sprinklers) required by law for commercial occupation. In addition, buildings will be designed with appropriate fire preventative measures (i.e. fire doors, extinguishers etc.) and all external façades and materials will meet the necessary fire resistance standards set out within Building Regulations and by law.

[199] Build over agreements are subject to detailed design and consultation with the Coal Authority. Build over agreements may not be given by the Coal Authority.

[200] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/540328/BR_PDF_AD_L2A_2013_with_2016_amendments.pdf

Mitigation Measure	Description / Details of Measure
	The design of the Project for Assessment will be informed by 'Secure by Design' principles and appropriate design and site management measures (including appropriate lighting and passive surveillance of public spaces) will be implemented to ensure that the potential for crime and anti-social behaviour is minimised.
Overheating Assessment	Proposed buildings will undergo an overheating assessment, in line with the requirements of Part O of the Buildings Regulations[201] utilising CIBSE TM52[202] (or similar) to assess and reduce the risk of summer overheating, taking into account future climate scenarios. Where measures are provided to reduce the risk of overheating this will be done in accordance with the cooling hierarchy.

[201] https://www.gov.uk/government/publications/overheating-approved-document-o

[202] Chartered Institution of Building Services Engineers (2013) TM52: Comfort Analysis

Appendix 2.2: Schedule of EIA Competence

Technical Competence in EIA, and Major Accidents and Disasters		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Emma Eldred	Andy Ricketts
Company	Turley	Turley
Qualifications/Accreditations relevant to technical area	BSc (Hons), MA	BSc (Hons), MA
Qualifications/Accreditations relevant to EIA (individual and company-wide)	Affiliate Member IEMA IEMA QMark	IEMA Principal Environmental Impact Assessment Practitioner IEMA QMark
Years technical experience (in technical area)	15	22
Number of EIA's delivered to date	> 10	100+

Technical Competence in EIA and Transport and Accessibility		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Matt Thompson	Antonio Pinto
Company	Tetra Tech	Tetra Tech
Qualifications/Accreditations relevant to technical area	Geography BA (Hons), Transport and Planning MSc, Member of the Chartered Institution of Highways & Transportation	Geography BA (Hons), Transport Planning MSc, Chartered Member of the Institute of Logistics and Transport, Member of the Chartered Institution of Highways & Transportation
Qualifications/Accreditations relevant to EIA (individual and company-wide)	Member of the Chartered Institution of Highways & Transportation	Chartered Member of the Institute of Logistics and Transport, Member of the Chartered Institution of Highways & Transportation

Technical Competence in EIA and Transport and Accessibility		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Years technical experience (in technical area)	7	17
Number of EIA's delivered to date	5	20

Technical Competence in EIA and Air Quality		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Olly Hanlon	Jethro Redmore
Company	Redmore Environmental Ltd	Redmore Environmental Ltd
Qualifications/Accreditations relevant to technical area	BSc AMIEnvSc	BEng MSc CEnv PIEMA MIAQM MIEnvSc
Qualifications/Accreditations relevant to EIA (individual and company-wide)	As above	As above
Years technical experience (in technical area)	5	18
Number of EIA's delivered to date	>10	>50

Technical Competence in EIA and Noise and Vibration		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Sam Moran	Gary King
Company	Sharps Redmore	Sharps Redmore
Qualifications/Accreditations relevant to technical area	Member of the Institute of Acoustics (MIOA), Post Graduate Diploma in Acoustics	Member of the Institute of Acoustics (MIOA)

Technical Competence in EIA and Noise and Vibration		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
		Member of Chartered Institute of Environmental Health (MCIEH), Post Graduate Diploma in Acoustics
Qualifications/Accreditations relevant to EIA (individual and company-wide)	As above Corporate membership of Institute of Environmental Management and Assessment (IEMA)	As above Corporate membership of Institute of Environmental Management and Assessment (IEMA)
Years technical experience (in technical area)	20	35
Number of EIA's delivered to date	>25	>10

Technical Competence in EIA and Biodiversity		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Nick Bell	Joseph Dance
Company	Tyler Grange	Tyler Grange
Qualifications/Accreditations relevant to technical area	BA (Hons) Chartered Ecologist, Natural England Species Licence Holder.	BSc (Hons) Chartered Ecologist, Natural England Species Licence Holder.
Qualifications/Accreditations relevant to EIA (individual and company-wide)	As above	As above
Years technical experience (in technical area)	Six years in Ecological Consultancy	Eleven years Ecological Consultancy
Number of EIA's delivered to date	1 delivered, 1 in progress:	6 delivered EIA's.

Technical Competence in EIA and Landscape and Visual		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Emma Baker	Wendy Lancaster
Company	Tyler Grange	Tyler Grange
Qualifications/Accreditations relevant to technical area	BA (Hons) Landscape Architecture, PG Dip Landscape Architecture, CMLI	BA(Hons) PGDip Landscape Architecture, PGDip Urban Design, Chartered Landscape Architect, Fellow of the RSA
Qualifications/Accreditations relevant to EIA (individual and company-wide)	BA (Hons) Landscape Architecture, PG Dip Landscape Architecture, CMLI	As above
Years technical experience (in technical area)	10 years	20 years
Number of EIA's delivered to date	4	> 75

Technical Competence in EIA and Lighting		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Faith Doran	Nigel Mann
Company	Tetra Tech	Tetra Tech
Qualifications/Accreditations relevant to technical area	Associate Member of the Institution of Lighting Professionals (ILP)	Associate member of the Institute of Environmental Management and Assessment (AIEMA)
Qualifications/Accreditations relevant to EIA (individual and company-wide)	BSc. Physical Geography	M.Sc. Environmental Science
Years technical experience (in technical area)	5	25
Number of EIA's delivered to date	3	>50

Technical Competence in EIA and Built Heritage		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Kerrie Melrose	Katy Lightbody
Company	Turley (Heritage)	Turley (Heritage)
Qualifications/Accreditations relevant to technical area	BSc (Hons) City and Regional Planning (2009) MSc Urban Regeneration (2012) Royal Town Planning Institute Full Member (MRTPI) (2016) IHBC Full Member (2015)	MA (Hons) Town Planning (2002) PGDip Conservation of the Historic Environment (2006) Royal Town Planning Institute Full Member (MRTPI) (2003) IHBC Affiliate Member (2009)
Qualifications/Accreditations relevant to EIA (individual and company-wide)	IEMA QMark (company)	IEMA QMark (company)
Years technical experience (in technical area)	16	23
Number of EIA's delivered to date	15+	30+

Technical Competence in EIA and Archaeology		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Dr Charlotte Willis	Dr Rob Smith
Company	Orion Heritage Limited	Orion Heritage Limited
Qualifications/Accreditations relevant to technical area	BA (Hons) Archaeology MSc Archaeology PhD Archaeology Member of the Chartered Institute for Archaeologists (MCIfA)	BA (Hons) Geography MSc Wetland Archaeological Science and Management PhD Archaeology Member of the Chartered Institute for Archaeologists (MCIfA) Chartered Environmentalist (CEnv) Chartered Geographer (CGeog)

Technical Competence in EIA and Archaeology		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
		Chartered Scientist (CSci) Chartered Institution of Water and Environmental Management (CIWEM) Fellow of the Royal Geographic Society (FRGS)
Qualifications/Accreditations relevant to EIA (individual and company-wide)	N/A	N/A
Years technical experience (in technical area)	10	25
Number of EIA's delivered to date	20+	100+

Technical Competence in EIA and Hydrology, Flood Risk and Water Quality		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Elizabeth Langdon	Matthew Bell
Company	Tetra Tech Ltd	Tetra Tech Ltd
Qualifications/Accreditations relevant to technical area	BSc, MEnv Environmental Science	BSc (Hons) Environmental Science
Qualifications/Accreditations relevant to EIA (individual and company-wide)	MCIWEM	CIWEM Chartership in Review
Years technical experience (in technical area)	2 in water, 2.5 additional in consulting	18
Number of EIA's delivered to date	5	> 15

Technical Competence in EIA and Ground Conditions and Contamination		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Julian Carr	Patricia Gill
Company	Tetra Tech	Tetra Tech
Qualifications/Accreditations relevant to technical area	BSc (Hons), FGS	MSc, C. Geol
Qualifications/Accreditations relevant to EIA (individual and company-wide)	BSc (Hons), FGS	MSc, C. Geol
Years technical experience (in technical area)	26	28
Number of EIA's delivered to date	>25	-

Technical Competence in EIA and Socio-economics and Human Health		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Tom Ellis	Gavin Amos
Company	Turley	Turley
Qualifications/Accreditations relevant to technical area	BA, MSc, MRTPI	BA (Hons); MBA; AssocRTPI
Qualifications/Accreditations relevant to EIA (individual and company-wide)	QMark (Turley)	QMark (Turley)
Years technical experience (in technical area)	6	14
Number of EIA's delivered to date	30	30

Technical Competence in EIA and Climate Change		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Svetlana Cronin	Paul White
Company	Turley & ESG	Turley & ESG
Qualifications/Accreditations relevant to technical area	MSc Environmental Impact Assessment and Management	MEng Environmental Engineering
Qualifications/Accreditations relevant to EIA (individual and company-wide)	Practitioner IEMA Member (PIEMA)	Practitioner IEMA Member (PIEMA)
Years technical experience (in technical area)	4 years	10 years
Number of EIA's delivered to date	20	50

Technical Competence in EIA and Agricultural Land		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Sophie Webb	Alastair Field
Company	Reading Agricultural Consultants Ltd	Reading Agricultural Consultants Ltd
Qualifications/Accreditations relevant to technical area	BSc (Hons), MSc	BA (Hons), MSc
Qualifications/Accreditations relevant to EIA (individual and company-wide)	MI Soil Sci	FBIAB, PIEMA, MiSoil Sci
Years technical experience (in technical area)	12	35
Number of EIA's delivered to date	> 25	>200

Technical Competence in EIA and Waste		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Lizzie Bolton	Paul White
Company	Turley	Turley
Qualifications/Accreditations relevant to technical area	Environmental Science (BSc) Sustainable Cities (MSc)	MEng Environmental Engineering
Qualifications/Accreditations relevant to EIA (individual and company-wide)	No	Practitioner IEMA Member (PIEMA)
Years technical experience (in technical area)	2	10 years
Number of EIA's delivered to date	0	c.100

Land at Heywood and Pilsworth

Northern Gateway

Mineral Safeguarding Assessment

Northern Gateway Development Vehicle LLP

October 2024

Prepared on Behalf of Tetra Tech Environment Planning Transport Limited.
Registered in England number: 03050297

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784-B048805/3 - Environmental Constraint Plan

784-B048805/4 - Built Development Plan

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B048805-TTE-00-XX-DR-U-1003-02 – Contamination Constraints Plan

B048805-TTE-00-XX-DR-U-1002-02 - Geology Plan

B048805-TTE-00-XX-DR-U-1004-02 - Historical Borehole Location Plan

1.0 INTRODUCTION

1.0.1 Tetra Tech has been instructed by Northern Gateway Development Vehicle LLP to prepare a Minerals Safeguarding Assessment for a site that forms part of a strategic allocated site (JPA 1.1.) in the Greater Manchester Places for Everyone Joint Development Plan (PfE) which was adopted in March 2024.

1.0.2 The area of assessment (the site) for this report, primarily within the allocated JPA 1.1 site, is shown in Figure 1 below. The site will be for a maximum of 717,178m^2 of Storage Distribution (B8) space; 307,362m^2 of General Industrial (B2) space, up to 200 homes; and 10,000m^2 of other supporting uses. The site falls within the Local Authority boundaries of Rochdale Borough Council (RBC) and Bury Council (BC).

Figure 1 – Area of Assessment



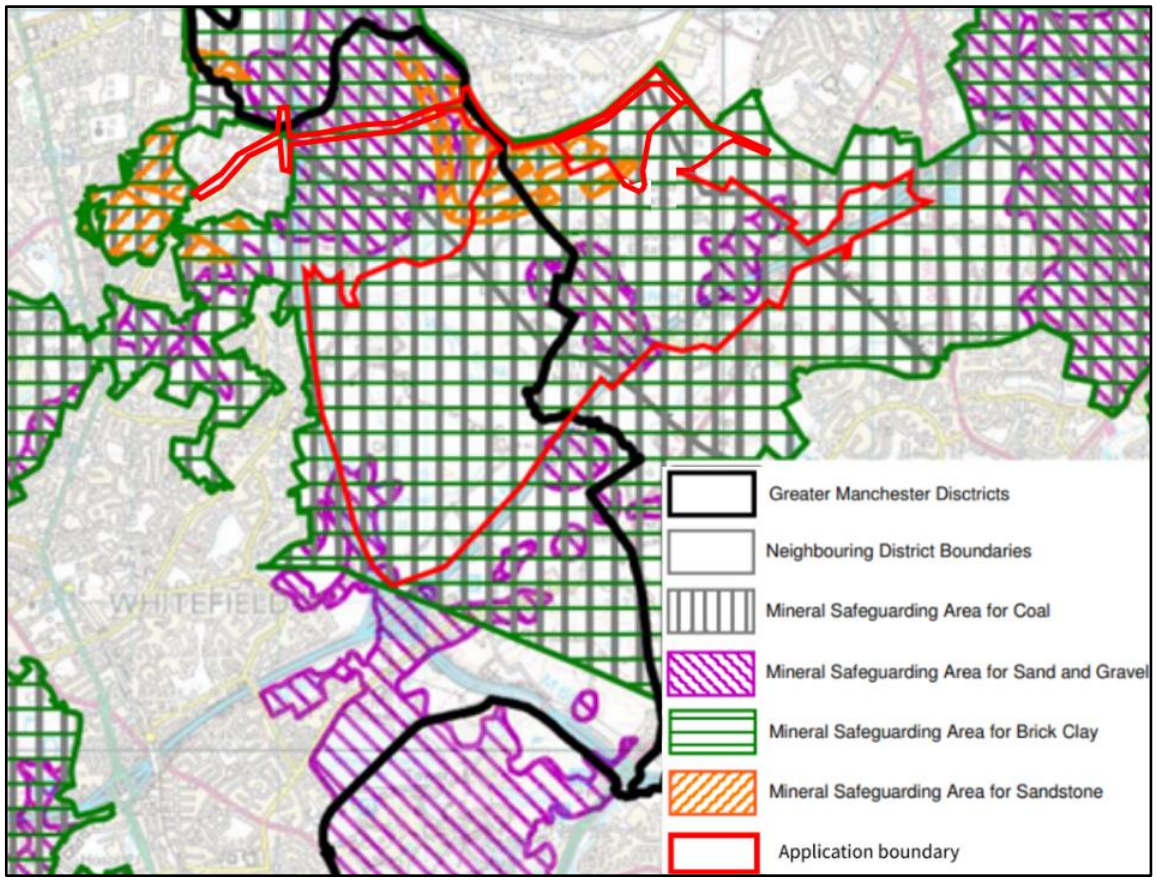
1.0.3 Areas of the site would be retained, and this includes Birch Industrial Park, two pockets of existing residential use in the far southeast of the site, Grade Listed II buildings, and five non-designated heritage assets. Land would also be retained around the existing surface water features and utility infrastructure in the site.

1.0.4 This version of the Minerals Safeguarding Assessment (October 2024) has been produced to inform a request for an Environmental Impact Assessment (EIA) Scoping Opinion and has been based on a worst-case scenario that features within the site, such as all other existing houses will not be retained. It is however likely that some other features will be retained, as would the roads that are used to access the Grade II Listed Buildings, for example.

1.0.5 'Map 21 Bury' of the adopted Greater Manchester Joint Minerals Plan (2013) shows that the majority assessment area (except a small area in the northwest) coincides with Mineral Safeguarding Areas (MSAs) for Brick Clay and for Coal. Smaller areas of the site also coincide with MSAs for Sand and Gravel and for Sandstone.

1.0.6 An extract of Map 21 Bury, which also indicatively shows the site boundary overlain, is provided in Figure 2 below.

Figure 2- Extract from 'Map 21 Bury' of Greater Manchester's Joint Minerals Plan with indicative annotated Site Boundary



1.0.7 This version of the report is intended to provide a desktop review of the underlying geology, based on available information and the MSA. This report includes a review of relevant minerals planning policies as well as considering the viability of any potential mineral extraction prior to development.

1.0.8 It is recommended that this document should inform discussions with the Greater Manchester Combined Authority's Minerals Team, on developing an agreed strategy to assessing minerals safeguarding through any formal planning application stage.

1.1 PRE-APPLICATION CONSULTATION

1.1.1 Tetra Tech arranged a video call with the Greater Manchester Combined Authority to discuss the site and minerals safeguarding matters on 16th July 2024. Tetra Tech provided a summary of the scope and initial findings of the Minerals Safeguarding Assessment, and the authority suggested additional content for inclusion within the assessment.

2.0 GEOLOGICAL SITE SETTING

2.1 DESK BASED GEOLOGICAL SUMMARY

2.1.1 Details of the geology underlying the site has been obtained from the following sources.

- British Geological Society (BGS) Sheet No. (85) for Manchester, 1:50,000 scale map, solid and drift editions;
- BGS website (Geology of Britain Map Viewer and borehole records) & GeoIndex;
- BRE211 Indicative Radon Map Number 13, Northern Welsh Marshes and Liverpool, Health Protection Agency and the British Geological Survey;
- Coal Mining Report;
- BGS borehole records;
- MAGIC MAP online interactive mapper;
- Historical mapping;
- Agricultural Land Classification map North West Region (ALC002) dated 2010;
- Minerals Resource Mapping BGS Map for Greater Manchester; and
- Environmental database.

2.1.2 Further information on the geology of the allocated site can be found in the Geo-environmental and Geotechnical Desk Study and Coal Mining Risk Assessment Report (Tetra Tech, April 2024, TTE-B048805-SD-DS-001).

2.1.3 The reported geology of the site is summarised below.

Superficial Deposits

2.1.4 Superficial strata are found across site and primarily comprise Glacial Till. The following superficial deposits are also identified in some areas:-

- Pockets of peat deposits in the southwest;
- Ice contact deposits (mainly sand with some gravel) in the centre and northeast;

- Glaciofluvial Deposits (sand and gravel with lenses of clay and stony clay) adjacent to the north western boundary and adjacent to the M66;
- A linear section of Head deposits (rock fragments and pebbles within a clay and sand matrix) follows the Brooks; Whittle Brook; Brightley Brook and Castle Brook; and
- Morainic deposits (poorly sorted sand, gravel and silty clay with a hummocky topography) to the northwest.

2.1.5 A Geology Plan, illustrating the above, is appended to this report.

Bedrock

2.1.6 The bedrock geology comprises primarily Pennine Lower Coal Measures – mudstone, siltstone, and sandstone to the centre and east. To the west, the geology primarily comprises Pennine Middle Coal Measures – mudstone, siltstone, and sandstone.

2.1.7 To the north, the bedrock comprises the Rossendale Formation of Rough Rock (oldest in the succession) and Rossendale Formation (undifferentiated). The succession is becoming progressively younger in a south westerly direction.

2.1.8 In the area around Higher Barn Farm, in the north of the site, the Lower Coal Measures are expected to be near surface as no superficial deposits are shown on the BGS map.

2.2 HISTORICAL BOREHOLE RECORDS

2.2.1 There are 25 publicly available historical borehole records within the site boundary shown on the BGS GeoIndex website and the appended Historical Borehole Location Plan.

2.2.2 18 boreholes records are in the centre of the site.

2.2.3 Two borehole records (SD80NW141 and SD80NW588) are in the north of the site, close to Coal Pits Farm, although one borehole record is confidential (SD80NW588) and there is no publicly available information for it.

2.2.4 One borehole record is in the northwest corner of the site, close to Pilsworth cottages (SD80NW104). Two borehole records are in the southwest of the site, in or close to, Pike Fold Golf Club (SD80NW722 and SD80NW449). Two further borehole records are in the northeast of the site, adjacent to the M62.

2.2.5 Hundreds of boreholes were also drilled in the north of the site as part of the Coal Authority's Pilsworth Opencast Prospecting project. The Geo-environmental and Geotechnical Desk Study have described that thirty of these boreholes collapsed after completion. The records describe the depth of strata, but do not include any details on the composition of superficial deposits. These records have therefore not been considered further in this report.

2.2.6 The historical records for 22 boreholes within the site, for which full data is available, are summarised in the below table and are arranged from north to south. All figures are in metres (m). The MSA the borehole is within is shown in the last column. The two other borehole records, for which data is available, are described below the table in paragraphs 2.2.11 and 2.2.12. Most of the borehole records are within or close to the MSAs for sand and gravel. There are numerous references across the borehole logs to the presence of lignite within the superficial deposits.

Table 1 – British Geological Survey Historical Borehole Records

BH reference	Topsoil/ Made Ground Depth (m)	Strata 1 Depth (m)	Strata 1 Description	Strata 2 Depth (m)	Strata 2 Description	Strata 3 Depth (m)	Strata 3 Description	Strata 4 Depth (m)	Strata 4 Description	Strata 5 Depth (m)	Strata 5 Description	Strata 6 Depth (m)	Strata 6 Description	Total depth (m)	MSA
SD80NW146	0.5	1.6	Silty CLAY	0.9	Silty, SAND, COAL contamination	3.2	Silty and clayey SAND. COAL present	3.3	Silty sandy CLAY					9	S&G, Cl, Co
SD80NW147	0.4	6.4	Silty SAND	0.4	Silty, clayey SAND	2.8	Silty CLAY							11	S&G, Cl, Co
SD80NW149	0.5	4.5	Silty clayey SAND	4.5	Silty SAND,	2	Sandy, clayey SILT	2.5	Silty, sandy CLAY					14.5	S&G, Cl, Co
SD80NW148	0.4	0.6	Sandy CLAY	1.5	Silty, clayey SAND	5.5	Silty SAND	0.5	Silty CLAY	4.2	Silty, clayey SAND	4.8	Silty, sandy CLAY	17.5	S&G, Cl, Co
SD80NW159	0.6	0.9	Sandy, silty CLAY	2.5	Silty SAND	1	Silty SAND	1.5	Silty SAND	1	Silty, clayey SAND	3.5	Silty, sandy CLAY	8.5	S&G, Cl, Co
SD80NW153	0.5	5.5	Silty CLAY											6	S&G, Cl, Co
SD80NW152	0.6	0.9	Sandy SILT	1	Silty, sandy CLAY	1.5	Silty SAND	5	Silty, sandy CLAY					9	S&G, Cl, Co
SD80NW151	0.6	7.4	Silty SAND with CLAY	1	CLAY	0.5	Silty SAND	2	CLAY					11	S&G, Cl, Co
SD80NW150	0.5	2	Silty SAND	1.5	Silty, sandy CLAY	3.2	Silty SAND	3.3	Silty CLAY					10.5	S&G, Cl, Co
SD80NW160	0.5	5	Silty, sandy CLAY											5.5	S&G, Cl, Co
SD80NE298	2	8.5	Gravelly, sandy CLAY												Cl, Co
SD80NE305	1.6	2.2	Gravely, silty SAND	2.2	Sandy, gravelly CLAY	5	Sandy, gravelly CLAY							10.0	Cl, Co
SD80NW154	0.5	5.5	Silty SAND	0.5	Silty CLAY	5.5	Silty SAND	2.5	CLAY					14.5	S&G, Cl, Co
SD80NW155	0.4	1.1	Silty SAND	1	Silty, sandy, gravelly CLAY	3	Silty, sandy CLAY							5.5	S&G, Cl, Co
SD80NW158	0.5	2	Silty SAND	1.5	Silty, clayey SAND	1.5	Silty CLAY	3	Silty CLAY					8.5	S&G, Cl, Co
SD80NW161	0.5	5.5	Silty CLAY											6	S&G, Cl, Co
SD80NW162	0.5	5.5	Silty, sandy CLAY											6	S&G, Cl, Co
SD80NW156	0.4	1	Sandy CLAY	0.6	Sandy CLAY	3.2	Silty CLAY							6.2	S&G, Cl, Co
SD80NW157	0.5	1	Sandy CLAY	1	Sandy CLAY	2	Silty CLAY	1.7	Silty CLAY					6.2	S&G, Cl, Co
SD80NW163	0.5	9.5	Silty, clayey SAND	4.5	CLAY & SAND									14.5	S&G, Cl, Co
SD80NW449	0.5	2	CLAY	0.5	SAND and GRAVEL	3.3	CLAY	11.2	GRAVEL	6.5	SANDSTONE			24	S&G, Cl, Co
SD80NW722	0.95	2	Gravelly SAND	0.5	Sandy SILT									3.45	Cl, Co

2.2.7 The strata identified in the historical boreholes located centrally within the site were typically clay with sands and silts. There are fewer records/ bands of strata where sand is the predominant strata and fewer records/ bands of strata again where silt is the predominant strata. The clay is described as ‘sandy’ and ‘silty’ while the sand is described as ‘clayey’ and ‘silty.’

2.2.8 The historical boreholes within centre of the site were seemingly constructed for the purposes of minerals evaluation (for sand and gravel extraction). Six of the borehole records, where sand was recorded as the predominant strata, contain the comments ‘barely workable’ or ‘not workable.’

2.2.9 One borehole (SD80NW722) record in the southwest of the site, by Unsworth Moss Farm, within the MSA for Brick Clay and Coal predominately comprised sand with silt. The other borehole record (SD80NW449) in the southwest of the site, by the club house for Pike Fold Golf Club, is within a MSA for Sand and Gravel and was shown to predominately comprise gravel and clay with bands of sandstone and sand. The sand and gravels were recorded at a 3m depth, below made ground (0.5m) and clay (2.5m).

2.2.10 The two borehole records located in the northeast of the site (SD80NE396 and SD80NE298) within the MSA for Brick Clay and Coal were predominately found to comprise clay. The clay is described as ‘sandy’ and ‘gravelly.’

2.2.11 The borehole record (SD80NW104) in the northwest of the site indicates two boreholes were constructed to depths of 79.6 and 82.2m, but no detail of the strata types are provided.

2.2.12 The borehole record (SD80NW141) adjacent to the northern boundary was constructed to a depth of 1,616m. The borehole record shows there were alternating bands of sandstone, coal, siltstone, and mudstone and is summarised below:-

- Unknown strata to 5.10m bgl;
- Rough Rock Sandstone to 16.60m bgl;
- Two bands of Coal (unknown thickness) – anticipated to be the Sand Rock Coal and Subcrenatum Marine Band (SMB);
- Rough Rock Sandstone to 35.70m bgl;
- Upper Haslingdon Flags Sandstone to 54.50m bgl;
- Mudstone Siltstone to 76.20m bgl;

- G. Cumbriense Marine Band 73.50m bgl;
- Coal at 76.20m bgl;
- Lower Haslingdon Flags primarily Sandstone with mudstone bands to 171.60m bgl; and
- Varying thicknesses of sandstone, shales and mudstone beds to 1619m bgl.

2.3 ANALYSIS

2.3.1 There are 18 boreholes in the centre of the site, within or close to the MSA for Sand and Gravel. The comments on the borehole records suggest that the area has been assessed for the potential of mineral extraction, and the high clay content seemingly led to a conclusion that the deposits were not of sufficient quality for commercial working.

2.3.2 The other available records within the site also recorded clays with some sand and gravel. It is also clear that part of the site has been previously considered for coal mining.

2.3.3 The presence of lignite is indicated on numerous borehole logs.

2.4 MINERALS AND OTHER LAND DISTURBANCE

2.4.1 The site falls within a Coal Mining Reporting Area which the Coal Authority has described as *'the known extent of coal mining activity.'*

2.4.2 There is a large area of recorded workings as part of the sand rock mine in between the area now occupied by Birch Industrial Park, Higher Barn Farm and Barlow Coal Pit Farm. Depths of these workings are recorded between 0-50m. This is shown in the appended Contamination Constraints Plan.

2.4.3 In the same area, there are three coal seams, Lower Mountain coal seam, the Bassey coal seam, and the Sand Rock coal seam. The coal seams form a Coal Mining Reporting Area classed as a high risk for development. Between these coal seams, the area is within a Development High Risk Area from the shallow mine working. There are also five mineshafts within this area, adjacent to Higher Barn Farm and Barlow Coal Pit Farm. These mineshafts are part of the Barlow coal pits and have an assumed diameter of 2.5m.

2.4.4 Tetra Tech's Geo-environmental and Geotechnical Desk Study and Coal Mining Risk Assessment Report also shows a small Coal Mining Reporting Area which has a high risk for development in the northeast of the site adjacent to the M62 roundabout.

2.4.5 The appended Contamination Constraints Plan shows there are numerous former mineral sites across the site. Two sand pits are located at Stock Nook Farm and Lower Whittle. A sand pit and a sand and gravel pit are located adjacent to Whittle Lane. Another sand pit is located on the area now occupied by Pike Fold Golf Club. Two 'Lands End' sand mineral site are located east of Barlow Coal Pit Farm. A sandstone mineral site is located to the west of Barlow Coal Pit Farm.

2.4.6 The plan also shows three small former quarries located adjacent to Lower Whittle. Two former sandstone quarries and a sand pit is located immediately east and west of Barlow Coal Pit Farm. A former brick field is located adjacent to the Brick House in the southwest of the site. A small former gravel pit is located between the M66 and Pike Fold Golf Club. The footprint of most of the former workings are unknown.

2.4.7 The appended Geology Plan shows that the Ashton Moss Fault Line goes across the central and north of the site. There is an area of infilled ground south of Birch Industrial Park. This is likely from former quarries, brick pits or opencast coal sites.

2.4.8 The Plan also indicates that there will have potentially been earthworks associated with Pike Fold Golf Club. The playing field adjacent to the golf course, an area east of the playing field and area south of the golf course is shown to be infilled/ made ground. A small landfill is located adjacent to Egypt Lane.

2.5 SAFEGUARDED MINERALS

2.5.1 Paragraph 2.16 of the Greater Manchester Joint Minerals Plan (JMP) states that the main minerals worked, or for the potential for working in Greater Manchester; are construction aggregates from sand, gravel and crushed rock, natural building stone, brick clay, coal, unconventional gas resources and peat.

2.5.2 Figure 2, on page 2 of this report, shows that the majority of the site is within a MSA for Brick Clay and Coal. Three areas of land in the centre, east and southeast of the site within a MSA for Sand and Gravel. An area in the north of the site is within a MSA for Sandstone. The proposed access road in the north of the site also coincides with thin areas within Sand and Gravel and Sandstone MSAs.

2.5.3 Smaller parts of the application site also fall within Areas of Search for Sand and Sandstone.

2.5.4 The North West Aggregates Working Party Annual Monitoring Report (NWAMR) was published in 2023 and provides data produced in 2021 on aggregates in the northwest including sales and reserves.

2.5.5 The Greater Manchester Joint Minerals Development Plan Authority Monitoring Report (GMAMR) was published in 2020 and assesses the performance of the policies within Greater Manchester Minerals Plan.

2.5.6 The Joint Annual Local Aggregate Assessment (LAA) was published in 2020 and provides aggregate data within Greater Manchester, Merseyside and Halton and Warrington in 2018.

2.5.7 Paragraph 2.21 of the JMP states the 10 local authorities within Greater Manchester need to provide a sustainable supply of aggregates to meet the annual apportionment set out by the North West Aggregates Working Party and ensure future landbank supplies specified by the National Planning Policy Framework (NPPF). Sale figures are combined with the sub regions of Merseyside, Halton, and Warrington due to commercial confidentiality.

Brick Clay

2.5.8 The GMAMR and the JMP state that there is only one quarry in Greater Manchester; Harwood Quarry. This supplies half of the mineral resource to the only brickworks operated in Denton, Tameside, around 25km from the application site. The other half of the mineral resource is imported from Mouselow Quarry in Derbyshire. Reserves at Harwood are due to be depleted by 2026. Therefore, there are not sufficient reserves to guarantee the 25-year supply required by the NPPF. The JMP *'recognises the importance of ensuring a continued supply of brick clay to operations within Greater Manchester'* which is stated in paragraph 2.27.

2.5.9 The GMAMR further states that there was a planning application for a quarry extension at Morleys Quarry in Wigan for the winning and working of sand and clay until 2024. It is presumed that these workings have now been exhausted and this site is more orientated around its sand and gravel resources (it is largely referred to as sand and gravel site).

2.5.10 There is no landbank for brick clay, contained with any of the monitoring/ reporting documents. Paragraph 3.33 of the JMP states that *'there is no evidence at this time to suggest interest in extracting it'* (brick clay).

2.5.11 The application site is underlain by Diamicton, which the BGS show is variable, mainly comprising clay, with sand and gravel, as well as large boulders. The BGS report different conditions at Harwood Quarry and Mouselow Quarry with no recorded superficial deposits across most of both sites. These sites are more likely to comprise pure clays.

Coal

2.5.12 Paragraph 2.29 of the JMP describes that Greater Manchester lies within the South Lancashire Coalfield, where coal seams are present in the Pennine Lower and Middle Coal Measures. Greater Manchester's' demand for energy is high due to industrial activity and the size of the population. However, there is a low

demand for coal as there are no coal fired power stations located in Greater Manchester. Nevertheless, *'the Minerals Plan should seek to set out the appropriate circumstances under which coal can be won.'*

2.5.13 The JMP was adopted in 2013 and it is considered likely that the Greater Manchester Combined Authority's stance on coal mining will likely have changed.

2.5.14 There is no required landbank for coal and there is no available data on the sales and reserves of coal.

Sand and gravel

2.5.15 Paragraph A1.19 of the JMP states that sand and gravel resources are *'concentrated in the northeast of Greater Manchester [principally within the districts of Bury, Rochdale and Oldham]. Outside of these Districts are other, scattered, Areas of Search for Sand and Gravel.'*

2.5.16 Paragraph 2.2 of the JMP states that between 2005-2020, the annual requirement for land won sand and gravel production in northwest England is 3.25 million tonnes per year.

2.5.17 The NWAMR states that since 2018, only Astley Moss quarry is operational. Planning permission however expired in 2022.

2.5.18 The NWAMR also states that Offerton Sand and Gravel Quarry in Greater Manchester has small amounts of reserves, but the site was inactive in 2019 and 2020.

2.5.19 Total reserves of sand and gravel were 1.68 million tonnes in 2020. This constitutes a landbank of 4.9 years based on 2020 average sales of 0.34 million tonnes. This is below the 7-year minimum requirement from the NPPF.

2.5.20 The GMAMR stated that the landbank will be *'fully depleted during the Plan period unless additional proposals for minerals extraction come forward and planning permissions are granted for the release of additional reserves.'* This is also described in the other monitoring and policy documents used in this section. The JMP period is to 2028.

2.5.21 The monitoring reports also state that the that region highly relies on imported aggregates. The GMAMR states 76% of imported aggregates were imported from outside the region in 2009 and 2014.

2.5.22 The NWAMR states there has been a continued decline in sand and gravel reserves in north west England since 2015. Decreasing from 28.63 million tonnes in 2015 to 18.69 million tonnes in 2021. This results in a landbank of 7.68 years in 2021.

Crushed Rock

2.5.23 Paragraph 2.20 of the JMP states that crushed rock is obtained from sandstone and gritstone deposits.

2.5.24 Paragraph 2.2 of the JMP states that between 2005-2020, the annual requirement for land-won crushed rock in northwest England is 9.63 million tonnes per year.

2.5.25 The LAA, for 2018, stated that there were nine active crushed rock sites in the region, including five quarries located in Greater Manchester. Six of the nine crushed rock sites within the sub region were due to cease operations by December 2026 and one quarry was already inactive.

2.5.26 The most up to date information, the NWAMR states that the total reserves of crushed rock were 12.05 million tonnes in 2020. This provided a landbank of 16.2 years in 2020 based on the 2020 average sale of 0.74 million tonnes. This is steadily above the 10 year landbank requirement by the NPPF.

2.5.27 The NWAMR further states that the region also heavily relies on imports of high-quality rock with the sub-region importing 92% of crushed rock consumed in 2009, which increased to 93% in 2014.

2.5.28 The NWAMR shows total crushed rock reserves in northwest England were 227.87 million tonnes in 2021. This equated to a landbank of 33.12 years in 2021. This is above the landbank requirement but the report further states that *'there has been a continuing decline in crushed rock reserves since 2015'.*

Sandstone

2.5.29 Paragraph 2.26 of the JMP states that *'sandstone resources within Greater Manchester are confined to a broad strip running north to south along the eastern margin of the Plan area, and east to west along the northern margin.'* The use of this material has decreased over the years but is still required for conservation purposes and works relating to older buildings where this stone has been used. Therefore, *'the Minerals Plan recognises the importance of protecting sources of building stone for the maintenance and repair of historic buildings, as identified by England's Building Stone Pits (EBSPits) national database.'*

2.5.30 Table 7 of the NWAMR shows that there are five operational sandstone quarries in Greater Manchester with the earliest operational end date of 2026 and the latest operational date of 2042.

2.5.31 A small area north of the site is within the MSA for Sandstone.

2.6 PILSWORTH QUARRY

2.6.1 A former sand and gravel quarry, Pilsworth Quarry, is located to the northwest of the site. In more recent years the former quarry has operated as a non-hazardous waste landfill and well as other waste and energy uses.

2.6.2 The quarry was worked in various phases, for example, with former planning applications referring to Pilsworth North, Pilsworth South, and Pilsworth South West. The quarrying and subsequent restoration of Pilsworth South West was permitted in 1998 and a similar application at Pilsworth South was granted in 2003. Landfilling is permitted at Pilsworth South until 2028 and is understood to be ongoing. It is understood some of this area is being restored and now accommodates an Environmental Education Centre and a Recycling Facility.

2.6.3 Sand and gravel was quarried at Pilsworth North, with phased in filling with ‘controlled waste’ between 1984 and 2007. Landfilling ceased in Pilsworth North between 2006 and 2007 and it is understood an energy facility is now located at the site.

2.6.4 The BGS shows the quarry comprised Hummocky (Moundy) Glacial Deposits. The BGS define this as glacial sand and gravel deposits that comprise a heterogeneous, largely unbedded admixture of sandy pebble-cobble gravel with lenses of locally pebbly sand, laminated clay, and gravelly till.

2.6.5 There are Hummocky Glacial Deposits in the northwest of the site, south of Pilsworth Quarry and adjacent to the M66 western boundary, although these are not classified as safeguarded minerals.

3.0 MINERALS PLANNING POLICY REVIEW

3.0.1 The safeguarding of non-renewable resources, such as minerals, is a key aspect of sustainable development. Paragraph 216 of the National Planning Policy Framework (NPPF), which was last updated in December 2023, obliges Mineral Planning Authorities to define MSAs when preparing local plans.

3.0.2 MSAs are produced to define known locations of specific mineral resources of local or national importance and to ensure these resources are not needlessly sterilised by non-mineral development, though MSAs carry no presumption that the resource will be worked.

3.1 GREATER MANCHESTER JOINT MINERALS DEVELOPMENT PLAN

3.1.1 The Greater Manchester Joint Minerals Development Plan (JMP) was adopted in 2013 and provides the planning policies for mineral development to meet aggregate requirements until 2028.

3.1.2 The Strategic Aim of the Minerals Plan is:-

'To provide a minerals spatial planning framework which takes into account the unique features of Greater Manchester. This framework will facilitate economic development, whilst ensuring that the environment and community are protected from the impacts of minerals developments in order to deliver a steady and sustainable supply of minerals, safeguard mineral resources, enable Greater Manchester to contribute to its sub-regional apportionment of aggregates and facilitate greater use of recycled aggregates and secondary mineral products.'

3.1.3 An objective of the plan is:-

'…to safeguard potentially economically viable mineral resources and infrastructure from sterilisation, protect minerals related infrastructure and encourage the appropriate use of high quality materials.'

3.1.4 The main policy regarding development within MSAs is Policy 8- 'Prior Extraction of Mineral Resources Within Mineral Safeguarding Areas', which states:-

"All non-mineral development proposals within the Mineral Safeguarding Area should extract any viable mineral resources present in advance of construction. Proposals for prior extraction of minerals will be permitted provided the proposal is in accordance with Policy 2 Key Planning and Environmental Criteria.

Proposals for non-mineral development within the Mineral Safeguarding Areas that do not allow for the prior extraction of minerals will only be permitted where:-

1. The need for the development outweighs the need to extract the mineral; or

2. It can be clearly demonstrated that it is not environmentally acceptable or economically viable to extract the mineral prior to non-mineral development taking place; or;

3. It can be clearly demonstrated that the mineral is either not present or of no economic value or too deep to extract in relation to the proposed development; or;

4. The development is limited or temporary and would not prevent minerals extraction taking place in the future.'

3.1.5 Paragraph 4.13 of the JMP states that '*proposals for non-minerals development within an MSA are only required to meet one of the 4 criteria identified in MSAs'* and stated above in Policy 8.

3.1.6 As stated in Policy 8- 'Prior Extraction of Mineral Resources Within Mineral Safeguarding Areas', proposals for prior extraction will need to be in accordance with Policy 2- 'Key Planning and Environmental Criteria'. This policy states:-

'All proposals for minerals working or the provision of minerals infrastructure will be permitted where any adverse impacts on the following criteria is avoided or can be appropriately mitigated:

1. *Controlled waters and flood risk management;*
2. *Landscape and visual intrusion;*
3. *Biological and geological conservation including European sites;*
4. *Historic environment and built heritage;*
5. *Best and most versatile agricultural land;*
6. *Infrastructure;*
7. *Traffic and access;*
8. *Amenity e.g. noise, dust, vibration, and odours;*
9. *Air Quality;*
10. *Land instability;*
11. *Potential land use conflict;*
12. *Design, phasing and operational details;*
13. *Aviation safety'*

3.2 OTHER POLICY CONSIDERATIONS

Places for Everyone Joint Development Plan Document (PfE)

3.2.1 The Plan was adopted in March 2024 and is a development plan for the nine districts within Greater Manchester until 2039. This Plan has been adopted but may be subject to minor amendments from approval by the nine districts.

3.2.2 The site forms part of wider site allocated for development under Policy JP Allocation 1.1: 'Heywood/Pilsworth (Northern Gateway). Regarding minerals, paragraph 19 states that the development needs to:-

'…consider the extraction of any viable mineral resources within Mineral Safeguarding Areas, in accordance with Policy 8 of the Greater Manchester Joint Minerals Development Plan (or any relevant policies in subsequent minerals plans'.

3.2.3 This is because, as stated in paragraph 11.39 the allocated site (which includes additional areas to the land assessed in this report) contains *'Mineral Safeguarding Areas for sandstone (3.9% of the site); sand and gravel (10.2%); surface coal (99.4%); and brick clay (99.4%) as defined in the Greater Manchester Joint Minerals Development Plan.'*

3.2.4 Paragraph 11.39 also states that *'the need for extraction prior to development commencing will be assessed against policies of that minerals plan (or any subsequent minerals plan) to ensure that specific mineral resources of local or national importance are not unnecessarily sterilised.'*

Rochdale Core Strategy

3.2.5 Rochdale's Core Strategy was adopted in 2016 and forms part of the Local Plan.

3.2.6 The Core Strategy includes Policy G10: 'Managing Mineral Resources' which states:-

'We will ensure the sustainable management of mineral resources and make an appropriate contribution towards helping Greater Manchester to meet its contribution to the regional apportionment for land-won aggregate and maintaining an appropriate land bank.'

Bury Unitary Development Plan

3.2.8 Bury's Unitary Development Plan was adopted in 1997 and the council are now working to replace and update the Plan with a new Bury Local Plan.

3.2.9 All mineral policies within the Unitary Development Plan have been superseded by the Greater Manchester Minerals Plan and the PfE. Therefore, policies from the Bury Unitary Development Plan are not considered in this report.

3.3 MINERAL PRODUCTS ASSOCIATION AND PLANNING OFFICERS' SOCIETY MINERALS SAFEGUARDING PLANNING GUIDANCE

3.3.1 In April 2019, the Mineral Products Association and the Planning Officers' Society published a Minerals Safeguarding Practice Guidance document. Paragraph 4.22 states that *'in order to demonstrate compliance with minerals safeguarding policies… developers will be required to provide sufficient information to enable the Minerals Planning Authority and Local Planning Authority to consider the potential effect of non-exempt development in MSAs/MCAs on mineral safeguarding, and the viability of prior extraction of mineral ahead or in conjunction with the non-mineral development.'* Paragraph 4.23 goes onto state that *'such information should be in the form of a Minerals Resource Assessment.'*

3.3.2 The guidance document includes detailed information on the requirements of Minerals Resource / Safeguarding Assessments. Paragraph 4.24 states that the required information includes: the type of mineral resource thought to be present, the economic value and viability of the mineral and potential options for prior extraction. Table 2, on Page 17 of the document, also sets out matters to address in Mineral Resource Assessments, which includes a review of constraints to mineral extraction and a detailed list of requirements is provided in Annex 1. The guidance document has been considered in the preparation of this appraisal.

3.3.3 Paragraph 4.37 of the guidance document states:-

'The maximum amount of extraction should be encouraged to minimise the amount of resource sterilised and with associated potential financial benefits to the site owner and developer.' Paragraph 4.39 proceeds to state that *'It may be concluded that only a portion of material may be extracted, prior to and during the development, through site preparation and incidental to groundworks. This may be suitable for on-site use but also some may require to be exported. Incidental extraction of small amounts of mineral, for example as part of site preparation or digging of foundations, is likely to be considered as ancillary to or even enabling of the non-minerals development and not normally require separate/standalone planning permission for mineral extraction. Use of materials on-site, and export of excess, could be addressed through the terms of the permission and associated conditions or legal agreements.'*

3.3.4 The guidance document has helped informed the scope of this report.

3.4 ANALYSIS

3.4.1 This chapter has identified the planning policy in respect of minerals safeguarding. This policy is designed to ensure that economically viable mineral resources are not unnecessarily sterilised and that where non-mineral development is permitted that due consideration is given to ensuring that appropriate investigations are undertaken to establish if the mineral deposits are of economic importance can be recovered as part of the development process from prior extraction. The JMP does not provide a framework of the type of prior extraction (i.e. incidental or full extraction).

3.4.2 The policy is flexible in allowing effective sterilisation of a resource where the economic viability of extracting the resource is not likely.

3.4.3 In addition, the JMP recognises the impact of mineral resource extraction on local amenity.

4.0 SITE LOCATION AND SETTING

4.1 LOCATION & DESCRIPTION

4.1.1 The site is located to the north of the M62 and east of the M66 motorways at approximate centralised grid reference SD 838 080. The site, which primarily forms part of the allocated JPA 1.1 site, is 586 hectares (ha). The site area also includes land outside of the allocated site boundary for road improvements and access.

4.1.2 Aerial mapping indicates that the site is predominantly in agricultural use with numerous small access roads and farm buildings. The majority of the fields within the site are subdivided by hedgerows with areas of woodland. The site also contains Birch Industrial Park, residential properties, commercial properties, and a golf course. Some notable features within the site are described below.

4.1.3 Two bridges across the M62 southeast of the site leads to Egypt and Simone Lane that gives access to a collection of farms buildings within the site including Egypt Farm. A bridge across the M66 west of the site leads to Castle Road which gives access to two farms including Unsworth Moss Farm and dwellings and a stable within the site.

4.1.4 The A6045 (Manchester Road) dissects part of the site in the east. This road connects the neighbouring towns north and east of the site. There are a cluster of buildings located on numerous lanes from Manchester Road within the site. These include dwellings, New Gap Farm, Stock Nook Farm, a hotel, industrial buildings, and a restaurant.

4.1.5 Birch Industrial Park is in the centre of the site and is accessed from Moss Hall Road and Whittle Lane which runs through the centre of the site. Coal Pits Farm is in the north of the site. A motorway service station called Birch Services is located on the southern boundary adjacent to the M62. A golf course at Pike Fold Golf Club and playing field is located in the southwest of the site and is accessed by Hills Lane.

4.1.6 There are a network of streams, brooks and surface water features at the site including Whittle Brook and Castle Brook in the west and Brightley Brook that extends across the north of the site.

4.2 TOPOGRAPHY

4.2.1 A plan showing the topography of the site is appended to this report. The plan shows there is higher land to the northeast and centre of the site with peaks at around 130m above ordnance datum (AOD). The land

height then decreases to the south. The site falls to around 90m AOD in the southwest. Areas along Castle Brook and Whittle Brook fall to around 80m AOD at its lowest point.

4.3 SITE SETTING

4.3.1 The site setting is mixed with mainly areas of built development for industrial and residential uses to the north (Heywood), west (Bury), southeast (Middleton) and south (Simister). These built development areas are mixed with agricultural and recreation areas.

4.3.2 The western boundary of the site is defined by the M66. Beyond the motorway is the district of Bury with towns of Radcliffe and Whitefield and the village of Unsworth.

4.3.3 The south/ eastern boundary of the site is defined by the M62 and the land beyond the motorway is mainly in agricultural use, along with the villages of Simister, Bowlee and Birch. Beyond this land and these villages is the large town of Middleton.

4.3.4 Heywood Distribution Park and Broadfield Industrial Park is immediately north of the site, with Pilsworth former sand and gravel quarry to the northwest. A lake is located immediately northwest of the site, between the former quarry and the site. The large town of Heywood is located beyond industrial areas to the north.

Planning

4.3.5 The Greater Manchester Open Data Infrastructure Map (2015) developed by the Greater Manchester Combined Authority shows that the site is within the Green Belt, although the inclusion of the site within PfE removes the site from the Green Belt.

Ecology

4.3.6 The MAGIC website, managed by Natural England, shows there are numerous small areas of woodland at the site including woodland classified as Priority Habitat Deciduous Woodland and National Forest Inventory Broadleaved Woodland. The woodland is located alongside or close to the M62, M66, and alongside Whittle Brook.

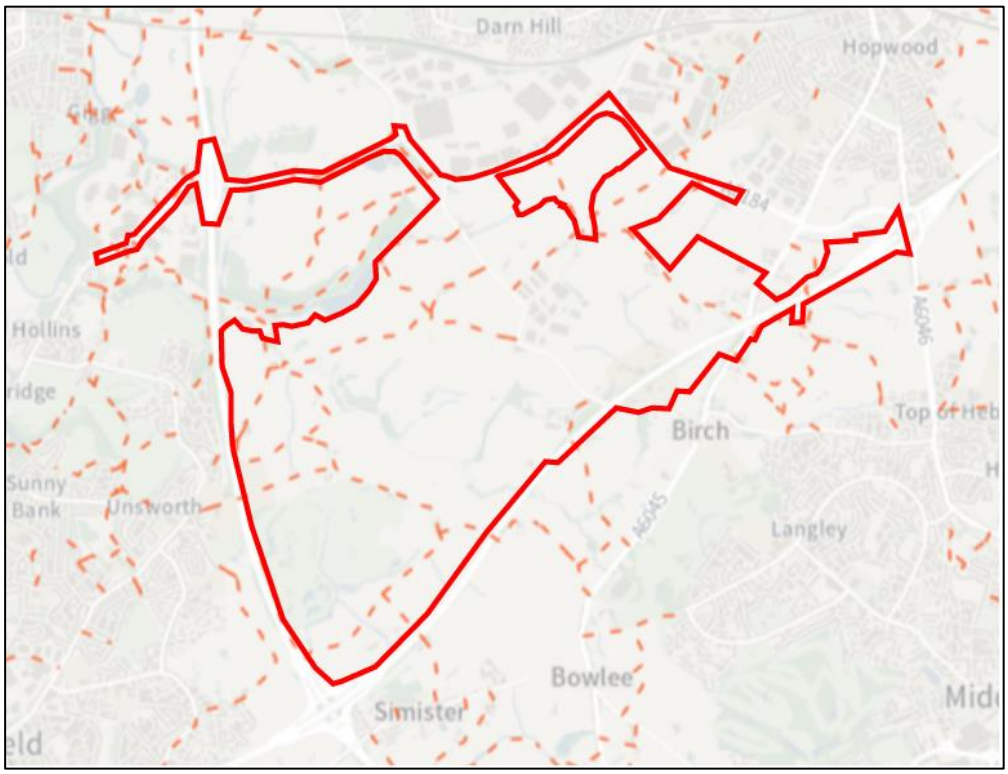
4.3.7 The MAGIC website shows that there are two Local Nature Reserves within 1km of the site. Hollins Vale Local Nature Reserve is located approximately 60m west of the site, on the opposite side of the M66. Hopwood Woodlands is located approximately 390m east of the site, on the opposite side of the M62.

Landscape

4.3.8 The site is not located within any statutory designated landscape areas.

4.3.9 The Greater Manchester Open Data Infrastructure Map (2015) shows there is an extensive Public Right of Way (PRoW) network that extends across the site. This is shown in Figure 3 with the PRoW shown as orange dashed lines.

Figure 3: Extract from The Greater Manchester Open Data Infrastructure with annotated Site Boundary



Water Environment

4.3.10 There are five named watercourses within the site comprising Brightley Brook, Pilsworth Clough, Whittle Brook, Castle Brook, and Hollins Brook.

4.3.11 Brightley Brook flows along the northwestern boundary from under the M66 and joins Pilsworth Clough in the north of the site. The brook and Pilsworth Clough flows from east to west across the site, close to Moss Hall Road, north of Birch Industrial Park.

4.3.12 Whittle Brook flows from the northwest corner of the site in a southeasterly direction towards the M62 where is passes under the motorway. In the northwest of the site the brook combines with Brightley Brook. Castle Brook flows through the golf course and flows north where it also joins with Whittle Brook.

4.3.13 Hollins Brook is formed from the merging of the other three brooks on the northwestern boundary, adjacent to Castle Road before flowing offsite to the northwest.

4.3.14 Aerial mapping shows there are small water features in the south of the site, at Pike Fold Golf Club.

4.3.15 The Greater Manchester Open Data Infrastructure Map shows that the lake immediately northwest of the site is a Site of Biological Importance.

4.3.16 The Environment Agency shows that land around Whittle Brook is within Flood Zone 2. This is shown in the Environmental Constraints Plan, as are the surface water features within the site. The rest of the site is within Flood Zone 1.

4.3.17 The MAGIC website shows that the site falls within Secondary Aquifer A. The Environment agency states that *'Secondary A aquifers comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers.'*

4.3.18 The site does not lie within a groundwater Source Protection Zone.

Heritage

4.3.19 The Greater Manchester Open Data Infrastructure Map shows there are two Grade II Listed Buildings within the site. Brick House is in the southwest of the site and Lower Whittle is in the east of the site. There are a further five Grade II Listed buildings around 500m from the site. The closest is St Marys Church approximately 200m away from Birch Services east of the site. These features are shown in the appended Built Development Plan.

4.3.20 Non-designated heritage assets have also been identified in the site. These include, but are not limited to, 'Bridge at Whittle Brook', Birch Hotel, Gardeners Arms, Whittle Farm and Egypt Farm.

Utilities

4.3.21 Aerial mapping shows that there are four overhead electrical transmission lines with pylons located within the site boundary. In the west of the site, an electrical transmission line extends across the site, from Brick House Farm, on Grief Lane, to the agricultural fields adjacent to Simon Lane in the east of the site. Another electrical transmission line extends north, from Manchester Road along Dr Fold Lane. Another electrical

transmission line extends from Pilsworth Road along Moss Hall Road and proceeds along an access road towards Higher Barn Farm. This electrical transmission line contains sixteen pylons, all located within the site boundary. A smaller electrical transmission line containing three pylons travels from Whittle Lane adjacent to the M62 to the end of an unnamed road from Whittle Lane.

4.3.22 The Geo-Environmental and Geo-technical Desk Study and Coal Mining Risk Assessment Report states there is a high-pressure gas main that passes through the golf course (Pike Fold) to the junction between Simon Land and Egypt Lane. A gas main also passes below Griffe Lane in the northwest of the site, through Brick House Farm. The gas mains are shown on the appended Built Development Plan and High Level Analysis Plan.

4.3.23 A water main passes through Brick House Farm towards Birch Industrial Park. Two further water mains extend northwest from the northeastern boundary, again through Brick House Farm. This is shown on the appended Built Development Plan and High Level Analysis Plan.

4.4 CONTRAINTS

4.4.1 The existing built development around and within the site, and the environmental features will constrain the potential extraction of the mineral resources. Paragraph 18 of The Minerals National Planning Practice Guidance (NPPG) states that *'any proposed separation distance should be established on a site-specific basis...'*

4.4.2 The Greater Manchester authorities do not specify buffer zone distances that should be used from sensitive receptors regarding mineral extraction. However, paragraph 2.50 of the JMP states that the *'Minerals Plan recognises the importance of protecting local communities.'* This is further described within the Strategic Aim which states *'This framework will facilitate economic development, whilst ensuring that the environment and community are protected from the impacts of minerals developments.'* Paragraph 3.20 further states that *'In determining applications for mineral working, the Mineral Planning Authority will consider whether a buffer zone should be established between the mineral development and neighbouring uses.'*

4.4.3 As guidance for indicative buffer distances, the Minerals Planning Policy for Wales, Minerals Technical Advice note (TAN) 1: 'Aggregates', states that a '*minimum'* buffer zone for hard rock quarries should be 200m and for sand and gravel quarries (and others where no blasting is permitted) the '*minimum'* distance should be 100m. Minerals Planning Policy for Wales, Minerals Technical Advice note (TAN) 2: 'Coal' shows that a 500m buffer zone is used for coal.

4.4.4 Other local authorities also define buffer zones. For example, Hampshire County Council use a *minimum* 100m buffer for sand and gravel workings and state that buffer zones should be used around sensitive land uses, which for example, would include housing, schools, and hospitals. Essex County Council also use a *minimum* 100m buffer zone from residential properties to protect the local amenity. This report has used a 100m buffer zone from certain land uses shown on the Built Development Plan for indicative purposes and to show a positive indication of the potential mineral resources that could be recovered. A High Level Analysis Plan, showing the combined environmental and built constraints is appended to this report.

4.4.5 This Mineral Safeguarding Assessment has been produced to inform a request for an EIA Scoping Opinion. The request has been produced on a worst-case scenario where the majority of the features will not be retained. For the purpose of this assessment the utility infrastructure, two small residential areas, Birch Industrial Estate, Grade II Listed Buildings, non-designated heritage assets, Castle and Whittle Brook will be retained. It is also understood that a minimum stand-off distance of 50m will be applied to Whittle Brook. It can also be reasonably assumed the woodland and land in the immediate vicinity of the brooks will also be retained. For the purposes of this study, the remaining buildings and structures would be removed.

4.4.6 Any removed buildings will however comprise previously disturbed land and previous developments may have encroached into underlying mineral reserves.

4.4.7 The site is bordered by the urban areas of Unsworth to the west, Simister to the south, and Heywood Distribution Park and Broadfield Industrial Park to the north of the site. It is probable that a buffer zone would be required from the housing and industrial areas in the event of mineral extraction, especially in the case for the extraction of hard rock.

4.4.8 There are five named watercourses within the site, as previously described. It is understood these features will be retained as part of the development. It is also considered unlikely that mineral extraction could satisfactorily be achieved in these areas. The land around Whittle Brook is also within Flood Zone 2. There are numerous areas of woodland within the site.

4.4.9 Aerial mapping shows four overhead electrical transmission lines including pylons south across the allocated site area. Two gas mains and three water mains are also located underground within the site. It is presumed that these features would not be expected to be relocated to facilitate a future minerals extraction site.

4.4.10 There is also an extensive network of PRoW footpaths across the site, although diversions may be needed for these features anyway in order to facilitate the proposed development.

4.5 SUMMARY AND OTHER CONSIDERATIONS

4.5.1 The setting of the site, as described in this chapter, has the potential to constrain the physical extraction of any identified mineral resource. The Environmental Constraints Plan shows the site is relatively unconstrained regarding environmental designations, although there are features to consider such as existing woodland and watercourses. The site also borders existing built development, as summarised in the appended Built Development Plan. There are also existing buildings that would be retained, and development would be built around these features.

4.5.2 Areas within the site have also been previously worked for minerals. There are areas of infilled ground including the golf course and nearby playing fields located in the southwest of the site. A large sand rock mine is located between Birch Industrial Park, Higher Barn Farm, and Barlow Coal Pit Farm. Five mineshafts are also located in this area including two small former sandstone quarries and a small sand pit located immediately east and west of Barlow Coal Pit Farm.

4.5.3 There are numerous former mineral sites across the site and Ashton Moss Fault Line goes through the central and northern parts of the site. Three small former quarries are located adjacent to Lower Whittle and a former brick field is located adjacent to Brick House in the southwest of the site. A small former gravel pit is located between the M66 and Pike Fold Golf Club, and a small landfill is located adjacent to Egypt Lane, in the southwest of the site.

4.5.4 Although quarrying operations are subject to stringent controls in respect of issues such as noise generation and dust management, it would be expected that appropriate buffer zones would be maintained, in the case of the full prior extraction of minerals, between mineral working and existing sensitive land uses. The appended Built Development Plan has included a 100m buffer zone from built development for indicative purposes.

4.5.5 Other considerations to make will include the potential impact on hydrogeological and hydrological water flows. The extraction of surface mineral deposits, such as brick clay and sand and gravel, requires the removal of overlying surface soils and vegetation and the winning of mineral deposits, which can impact on these flows.

4.5.6 Any extraction below the water table would likely require de-watering activities. As well as any hydrological and hydrogeological impact this could have knock on effects and for example, give rise to ecological considerations. Consent would be required from the Environment Agency (EA) to allow for the water collected from the pumping exercise to be discharged into the local watercourses.

4.5.7 The site is a strategic allocated site for commercial development and mineral extraction would cause considerable delays to the development. Due to the scale of the site, the full or an extensive minerals extraction would highly likely be considered EIA development. The time for an EIA planning application, determination, the gaining of required permits and licences, and the working and restoration of the site would be over a number of years.

4.5.8 The PfE plan is for the period 2022 to 2039. The PfE states the allocation is required to deliver 935,000m^2 of industrial and warehousing space by the end of the plan period. So far, only around 135,000m^2 has been delivered by the first planning permission at the allocated site (16-01399). It is considered it would be extremely challenging for the mineral extraction and restoration to be achieved in this time, as well as, delivering the built development site. For context, on a recent call (May 2024) with the Mineral Production Association it was mentioned that the average determination time (time between submission and approval) for a new quarry site is three years.

4.5.9 Incidentally, on the subject of JPA 1.1 planning permission 16-01399, the Minerals and Waste Planning Unit concluded: *'it is considered that the prior-extraction of any material resource within the site would be unlikely to be economically viable and in any case be outweighed by the need for the proposed development. There is therefore no conflict with Policy 8 of the Minerals Plan.'* This site is underlain by the same MSAs as the application site subject of this Minerals Assessment and was also shown by the BGS to be mainly underlain by Glacial Till, with smaller areas of Head Deposits, Lacustrine Deposits, and Glaciofluvial Deposits.

5.0 TYPES AND EXTENT OF EXTRACTION

5.0.1 From the review of planning policy, the issue of minerals safeguarding will need to be considered through the planning application process.

5.0.2 It is recommended that the mineral planning authority/ unit are engaged to agree an approach to assessing the issue of minerals safeguarding and consider potential options for the actual physical extraction of any mineral should viable deposits be identified.

5.1 EXTRACTION OPTIONS

5.1.1 High-level potential mineral extraction options are summarised below.

Full Prior Extraction

5.1.2 Full prior extraction would see the entire viable superficial brick clay, sand and gravel, sandstone and coal resource recovered across the promoted site. This approach would see the maximum amount of minerals recovered. Depending on the extent of the extractable resource such an approach might facilitate the temporary development of on-site minerals processing plant to facilitate its export into the wider market and facilitate its use within the built development at the promoted site.

Partial Extraction

5.1.3 Where there is a constraint to full extraction (such as an overriding phasing of development need), or if it is realised that there is no interest in extracting some of the safeguarded minerals, there may be an opportunity for partial extraction.

Incidental Extraction

5.1.4 Incidental extraction would comprise the excavation of any brick clay, sand and gravel, sandstone and coal resource that was encountered through the preparatory earthworks required for the construction of the development. Incidental extraction at the promoted site would potentially be over a large area as excavation would be required for the construction of the 200 homes and 1,034,540m^2 of other floorspace.

5.1.5 Excavation would also be required for all roads and drainage systems. An incidental extraction approach would not unduly delay the construction of the development as this material would have to be extracted in any event (whether it be non-mineral (which would typically be exported as muck-away) or sand and gravel which could be put to a beneficial use both on and off-site.

Mixed Approach

5.1.6 It might be feasible to adopt a mixed approach to mineral extraction.

5.1.7 For example, a combination of partial extraction and incidental extraction may be appropriate depending on the distribution of viable mineral reserves and the phasing and timing requirements of the built element.

Mineral Recovery

5.1.8 Dependent on the volume of any viable deposits the developer would need to link with an operator in the local mineral market to facilitate the extraction and distribution of recovered mineral resources.

5.1.9 It would also be practicable to investigate the re-use of recovered mineral directly within the construction of the built development. This would not be possible for the brick clay as it would need to be processed but could be possible with sand and gravel that was encountered. This would have sustainability benefits by reducing the reliance on imported aggregate. Alternatively, it may be possible to use any underlying clays as areas of general fill around the site.

6.0 ANALYSIS

6.0.1 This section provides an assessment of the suitable options for mineral extraction in respect of each of the reported underlying minerals.

6.1 BRICK CLAY

6.1.1 The whole site, excluding a very small area in the northwest where highways improvements are proposed, is within a MSA for Brick Clay.

6.1.2 Whilst there are shortages of supply in the region, the JMP states in Paragraph 3.33 that there is *currently* (written in 2013) no evidence to suggest interest in extracting Brick Clay. Furthermore, it is evident there is still no landbank for clay in Greater Manchester. It would therefore suggest there may be no economic grounds to extract the mineral, say to any targeted depth.

6.1.3 Criteria 2 of Policy 8 of the JMP states that:-

'…proposals for non-mineral development within the Mineral Safeguarding Areas that do not allow for the prior extraction of minerals will only be permitted where… It can be clearly demonstrated that it is not environmentally acceptable or economically viable to extract the mineral prior to non-mineral development taking place'

6.1.4 Due to the constraints at the site, as summarised on the appended High Level Analysis Plan, it is also considered unlikely that an extensive minerals extraction would be possible across the site. Certainly, areas to the west of Whittle Brook are constrained. A 50m buffer either side of the brook is also proposed. Much of the land in this area has been previously disturbed, a Grade Listed II building, is proposed to be retained and a gas main and Castle Brook extend from north to south in this area of the site. The areas of the site along the M62 could also be constrained from a future mineral extraction by the areas of existing built development. The areas in and around Birch Industrial Park would also be constrained.

6.1.5 There are pockets of unconstrained areas. The two main unconstrained areas in the site are perhaps east and west of Birch Industrial Park, although the underlying superficial deposits in these areas would appear to be variable.

6.1.6 Another important consideration is that the geological environment at the two operational clay quarries, that provide material to Denton Brickworks, are different to that at this site. It is considered unlikely that the underlying clays will be compatible. The Diamicton that underlies the site is highly variable in composition.

Lignite is also present within the superficial deposits recorded at the site, as shown in numerous historical borehole records. This would be a further complicating factor at a brickworks or processing facility, which are likely to require pure clays to use in their brick making moulds. Given the nature of the underlying materials, and the seeming lack of economic viability, it is not considered the site could be worked commercially, say to any targeted depth.

6.1.7 Due to the constraints, past activities and ground conditions, the site would also not be straight forward to be worked for minerals. Clay workings generally require significant open areas to be commercially viable. It is clear from the High Level Analysis Plan that there are not significantly sized unconstrained open areas within the site.

6.1.8 It is however likely to be possible to use any underlying clays, that for example, are incidentally encountered in the preparatory earthworks, as general fill material around the site. This could prevent the need of importing material into the site, which would have sustainability benefits.

6.2 SAND AND GRAVEL

6.2.1 Approximately 60 ha (around 10%) of the site is within four MSAs for Sand and Gravel.

6.2.2 There are three Sand and Gravel MSAs in the main body of the site. The largest of which is within the centre of the site and historical borehole records, available through the BGS, indicate that this material has been previously assessed for its suitability for mineral extraction. The borehole records show the encountered strata contained high quantities of clay. There were comments on the records in which the strata were described as ‘barely workable’ and ‘not workable.’

6.2.3 Furthermore, this MSA is partly located within and around Birch Industrial Park. The retention of the Industrial Park as well as any buffer zones will constrain this area from future extraction. The southern area of this MSA has already been worked for minerals and has been backfilled, as shown on the appended geology plan.

6.2.4 The Sand and Gravel MSA to the west of the site coincides with Pike Fold Golf Club. The land will have been disturbed to create the golf course and material may have been imported. A historical borehole record in this area of the site recorded a 2.5m band of sand and gravel, below 3m of overburden. A large area of infilled ground is also located in the southwest corner of the site. The appended Geology Map, which has been informed by a variety of sources, as described in section 2, also shows that the reported area of sand and gravel in the west of the site is quite small, much smaller than the MSA.

6.2.5 An area of Deciduous and Broadleaved Woodland is located along the M66 within the Sand and Gravel MSA to the west of the site. A former gravel pit is located between the M66 and the golf club. Castle Brook also flows through Pike Fold Golf Club. It is understood this Brook will be retained as part of the development.

6.2.6 The sand and gravel MSA in the east of the site is around the M62, Manchester Road, and Doctor Fold Lane. Much of the land in this MSA has also been disturbed, and for example, currently comprises, roads, houses, and commercial buildings. The houses, Grade II Listed Building, and non-designated heritage assets in this area which will be retained.

6.2.7 Three small former quarries and a sand pit are also within the MSA so at least some of this area has been worked. The exact extent of some of these workings are unknown.

6.2.8 Tetra Tech's professional opinion is that these sand and gravel deposits may be further north of this MSA and are around Stock Nook Farm. This area is shown in the appended Geology Plan. Part of this area has also already been worked for minerals, but there are potentially unconstrained areas east and west of the farm. Based on the available information, it is considered that these areas represent the best opportunity for any targeted prior extraction, although further site investigation works would need to be completed to ensure this is viable. Further information is required to learn the extent (quality and quantity), the depth of any resource and groundwater levels. The BGS show that this area of the site is mainly underlain by Lacustrine Deposits. The BGS state these deposits *'includes fine-grained sediments (i.e. clay and silt)'.* It is also potentially telling that the part of this area that has been previously worked is within a different area of geological classification (Glaciofluvial Ice Contact Deposits Devensian Sand and Gravel).

6.2.9 The tested sand and gravel deposits in the centre of the site is also seemingly low quality and the deposits in the west of the site are constrained and have been previously disturbed. It is not considered these deposits could be worked for minerals on a commercial scale prior to the proposed development. Site investigation works are required to gain an understanding on the extent (quality and quantity) of the reported sand and gravel in the east/ northeast of the site, although, as above Tetra Tech anticipate these minerals will contain clays and silts.

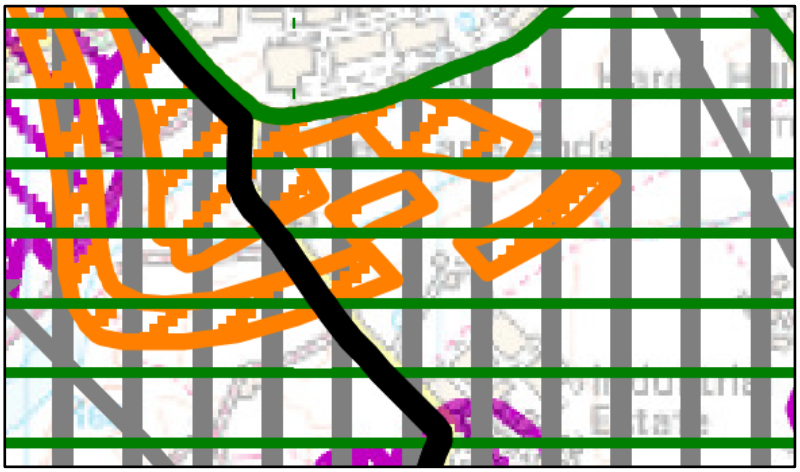
6.2.10 An area of Hummocky Glacial Deposits is in the northwest of the site, south of Pilsworth Quarry and adjacent to the M66 and western boundary of the site. As described previously, these deposits include sands and gravels and, although not within an MSA, this is the same strata that underlay Pilsworth Quarry. This area of the site is however very constrained. Two gas mains cross through the centre of the area. An area of infilled ground is in the south of this area of Glacial Deposits. Castle Brook flows along the eastern edge of the Glacial Deposits. This Brook will be retained as part of the development and could require a protective

buffer. Furthermore, this area is adjacent to the M66, and a buffer zone is assumed to be required from the motorway. It is not considered feasible that an extensive minerals extraction could take place in this area.

6.3 SANDSTONE

6.3.1 An area of around 20 – 25ha is shown to include some MSAs for sandstone. The MSAs show several separate sandstone MSAs in the north of the site, which combined cover a much smaller area than this. The MSAs correspond with coal seams, which have been described previously in the report and are shown on the appended Geology Plan. For clarity, the Sandstone MSAs are shown below.

Figure 4 – Extract from 'Map 21 Bury' of Greater Manchester's Joint Minerals Plan – Close up of Sandstone MSA



6.3.2 The MSAs for sandstone is in the very north of the site, immediately south of the existing Heywood Distribution Park. Birch Industrial Park is located to the south of this MSA and Coal Pits Farm is located within this area. The Industrial Park will be retained. This hard rock would likely require techniques such as blasting to achieve its recovery. A large buffer zone from existing premises would likely be required for amenity reasons. It is not considered that it would be acceptable in this local environment to recover sandstone prior to the development on a commercial scale.

6.3.3 Criteria 2 of Policy 8 of the JMP states that:-

'…proposals for non-mineral development within the Mineral Safeguarding Areas that do not allow for the prior extraction of minerals will only be permitted where… It can be clearly demonstrated that it is not environmentally acceptable or economically viable to extract the mineral prior to non-mineral development taking place.'

6.3.4 Pilsworth Clough partially flows through the MSAs. The gas and water mains shown on the appended High Level Analysis Plan also partially goes through the MSAs. It is understood that the watercourses will be retained within the development, and it is presumed that the gas and water mains will not be expected to be relocated to facilitate a future minerals extraction site.

6.3.5 The BGS has recorded six former mineral sites across the site for sand and sandstone. Two small former sandstone quarries, a former sand pit and a mineshaft are also located west and east of Coal Pits Farm. A large sand rock mine is also located within the MSA for Sandstone. Therefore, it would seem that at least some of this area has already been worked for sandstone.

6.3.6 It is not considered viable for any of the remaining sandstone resource to be extracted to any targeted level, but if any sandstone is encountered during the preparatory earthworks and for example needs to be cut out, it is recommended that this material is recovered for reuse as appropriate.

6.4 COAL

6.4.1 The whole site, excluding a very small area in the northwest where highways improvements are proposed, is within an MSA for Coal. Lignite is also present within the superficial deposits recorded in the historical boreholes at the site.

6.4.2 The JMP was adopted in 2013 and much has changed in the intervening period regarding coal mining/ extraction. it is considered unlikely that the Greater Manchester authorities will seek coal extraction at the site.

6.4.3 The environmental impact of coal mining is contentious, and it is considered highly unlikely that the Greater Manchester Combined Authority, or BMBC and RBC, would expect the site to be worked for any coal should any reserves be identified.

6.4.4 If any coal is encountered during the site's preparatory earthworks and, for example, needs to be cut out, it is recommended that it is exported off site for use as appropriate.

7.0 CONCLUSIONS

7.1 CONCLUSIONS

7.1.1 Tetra Tech has been instructed by Northern Gateway Development Vehicle LLP to prepare a Minerals Safeguarding Assessment in relation to a 586-ha site, that primarily forms part of a strategic allocated site (JPA 1.1) in the Greater Manchester Places for Everyone Joint Development Plan (PfE).

7.1.2 The planning application is for upto 1,024,540m^2 of B2/B8 employment floorspace, 200 homes, and 10,000m^2 of supporting uses.

7.1.3 The vast majority of the site is within a MSA for Brick Clay and for Coal. Parcels of land totalling around 60ha are within MSAs for Sand and Gravel. Several smaller areas in the north of the site are within MSAs for Sandstone.

7.1.4 The geology of the site, as described in this report, has been obtained from a range of sources which show that the site is directly underlain by the superficial deposits of Glacial Till. Above the Till, peat deposits (in pockets) were found in the southwest, Ice Contact deposits of sand and gravel were found in the centre and northeast. Glaciofluvial deposits of sand and gravel were found adjacent to the northeastern boundary and Morainic deposits of sand, gravel and clay were found in the northwest. A linear section of Head deposits consisting of clay and sand follows Whittle Brook. The bedrock of the site is primarily Pennine Lower Coal Measure.

7.1.5 Planning policies within Greater Manchester are designed to ensure that economically viable mineral resources are not unnecessarily sterilised and where non mineral development is permitted, appropriate investigations need to be undertaken to establish if minerals of economic importance can be extracted. However, the policies are flexible in allowing sterilisation of a resource if the economic viability of extracting the resource is unlikely. The planning policies also recognises the impact of mineral resource extraction on local amenity.

7.1.6 The report has shown that the site is constrained in terms of a future mineral extraction. There are two Grade II Listed Buildings, five water courses, four electrical transmission lines including pylons within the site. Birch Industrial Park is in the centre of the site. It is assumed that these features will be retained within the development as would the existing roads used to access these features. Two gas mains and three water mains are also located underground within the site.

7.1.7 Any built features that are removed will comprise disturbed land. This could include farmhouses, dwellings and commercial buildings as well as other roads, although at this stage the features that would and would not be retained are not fixed.

7.1.8 The site is also bordered by the urban areas of Pilsworth, Unsworth, and large industrial areas.

7.1.9 The site falls within a Coal Mining Reporting Area, which the Coal Authority has described as *'the known extent of coal mining activity.'* There is a large area of recorded workings as part of the sand rock mine in between the area now occupied by Birch Industrial Park, Higher Barn Farm and Barlow Coal Pit Farm. In the same area, there are three coal seams, Lower Mountain coal seam, the Bassey coal seam and the Sand Rock coal seam. The coal seams form another Coal Mining Reporting Area which has a high risk for development. Five mineshafts are located north within the site, as well as two former sandstone quarries and a former sand pit. There is also a large area of infilled ground in the southwest of the site.

7.1.10 There are numerous former mineral sites across the site and Ashton Moss Fault Line goes through the central and northern parts of the site. Three small former quarries are located adjacent to Lower Whittle. A former brick field is located adjacent to the Brick House in the southwest of the site. A small former gravel pit is located between the M66 and Pike Fold Golf Club.

7.1.11 There are potential earthworks associated with the golf course at Pike Fold Golf Club. The playing field adjacent to the golf course, an area east of the playing field and areas south of the golf course is shown to be infilled/ made ground. A small former landfill is located adjacent to Egypt Lane.

7.1.12 The retention of the built and environmental features, implementation of buffer zones, and the previous extraction activities would constrain large parts of the site.

7.1.13 Due to the size of the site, there still are unconstrained areas, for example, such as those located either side of Birch Industrial Park. These areas are mainly in the MSA for brick clay, although reported geology would suggest they also contain some sand and gravel.

7.1.14 There are shortages of brick clay in the region. However, Paragraph 3.3. of the JMP states that there is no evidence to suggest interest in extracting the mineral and there is also no current landbank for clay in Greater Manchester. Furthermore, it is not considered likely that the clay that underlies the site would be compatible with the clays that are worked commercially in Greater Manchester. The application site is underlain by Diamicton, which the BGS show is variable, mainly comprising clay, with sand and gravel as well as large boulders. The BGS report different conditions at the operational clay quarries in Greater Manchester with no recorded superficial deposits across most of Harwood and Mouselow Quarry. Lignite

is also present within the superficial deposits recorded at the site, as shown in numerous historical borehole records. This would likely be a further complicating factor at a brickworks or processing facility, which are likely to require pure clays to use in their brick making moulds. It is however probable that any clays that incidentally encountered, as part of the preparatory earthworks, would be suitable for use on site, for example as general fill.

7.1.15 Around 60ha of the site is within three MSA's for Sand and Gravel. The proposed access road in the north of the site is also underlain by a MSA for sand and gravel. It is clear that the largest sand and gravel MSA in the centre of the site has been previously considered for a mineral extraction, but the strata were found to be unworkable. Much of this area is now occupied by Birch Industrial Park and part of the MSA to the south has already been worked for minerals. The MSA to the west has been previously disturbed and coincides with a golf course, woodland, and made ground. A borehole in this area of the site also shows that sand and gravel was below 3m of overburden.

7.1.16 This assessment has also considered the extraction of the Hummocky Glacial Deposits, which is the same strata that underlay Pilsworth Quarry, which is to the northwest of the site. This area of the site is however very constrained, with two gas mains crossing through it, and an area of infilled ground in the south of it.

7.1.17 Due to the constraints of the site, the retained features within the development and the land disturbance, and the quality and nature of the minerals, it is considered highly unlikely that these deposits will be commercially viable to extract to any targeted depth. The potential deeper working of sand and gravels in the east/ northeast of the site is to be explored. Site investigation work is proposed at the site later in the planning process, and this would include investigative works in the northeast of the site, where the reported areas of unconstrained sand and gravels are located. It is however anticipated that (based on information from the BGS) that these Lacustrine deposits will contain clays and silts.

7.1.18 An area of around 20-25 ha north is within MSAs for Sandstone. This rock would likely require techniques such as blasting to achieve its large-scale recovery. A large buffer zone from existing premises would likely be required for amenity reasons. The previous land disturbance within the area would also indicate that at least some of this area has already been worked for sandstone. Furthermore, this area of the site includes gas and water mains and Pilsworth Clough. Blasting would likely not be possible close to the gas mains.

7.1.19 The site is also within a MSA for Coal. The JMP was adopted in 2013 and since then there has been a shift away from the need to extract coal. The environmental impact of coal mining is contentious and is considered highly unlikely the local authorities would expect the site to be worked for any coal.

7.1.20 Policy 8 of the JMP states that *'proposals for non-mineral development within the Mineral Safeguarding Areas that do not allow for the prior extraction of minerals will only be permitted where… It can be clearly demonstrated that it is not environmentally acceptable or economically viable to extract the mineral prior to non-mineral development taking place.'* It is considered there are environmental and economic reasons why the minerals could not be extracted prior to the proposed development on a commercial scale across the site.

7.1.21 With the potential exception of a possible area of sand and gravel in the east/ northeast of the site, where site investigation works are required to determine a suitable strategy, it is considered that an incidental minerals extraction scheme is the most appropriate strategy for the management of minerals at this site. Incidental extraction would comprise the excavation or cutting out of any encountered mineral resource through the preparatory earthworks required for the construction of the development. Incidental extraction would not unduly delay the construction of the development. It is considered that more detailed arrangements could be conditioned through a Material Management Plan.

7.1.22 It is considered that an incidental approach to minerals extraction, which subject to the findings of site investigation works, may be coupled with an area of deeper sand and gravel working, accords with the mineral safeguarding policies of the JMP. This approach constitutes a sustainable approach to the management of the underlying minerals resource at this development site. It is not considered that it would be economically viable and/ or environmentally acceptable to extract the minerals that underly this site on a commercial scale in their entirety. The minerals extraction and recovery could likely take place as part of the phasing arrangements of the site. The topography of the site may also lend itself to the additional recovery of resources through site levelling works.

7.1.23 As a next stage approach, it is recommended to hold discussions with the Minerals Unit of the Greater Manchester Combined Authority to discuss the findings of this report or for these findings to be discussed formally through the EIA Scoping process.

DRAWINGS

784-B048805/1 – Site Location Plan

784-B048805/2 - Topography Plan

784-B048805/3 - Environmental Constraint Plan

784-B048805/4 - Built Development Plan

784-B048805/5 - High Level Analysis Plan

B048805-TTE-00-XX-DR-U-1003-02 – Contamination Constraints Plan

B048805-TTE-00-XX-DR-U-1002-02 - Geology Plan

B048805-TTE-00-XX-DR-U-1004-02 - Historical Borehole Location Plan



Site Location Plan (JPA 1.1)

Northern Gateway

Legend

Application boundary

Notes:

Drawn by: dylan.gussman

Checked by: Chris Muir

Figure No. 1

Revision No. A

17 September 2024

0 200 400 600 800 Meters

Scale 1:18,000 @A3

British National Grid

NGR: 384038E 407937N

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