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Surface Water and SuDS Assessment Rev0

24 Brookfield,
Prestwich,
Manchester,
M25 1EL

11 March 2022

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Prepared by	Checked by	Date
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This document has been prepared solely as a Surface Water and SuDS Assessment for Seed Architects. Base Energy accepts no responsibility or liability for any use that is made of this document other than by the Client for the purposes for which it was originally commissioned and prepared.

1. Introduction

This Surface Water and SuDS Assessment has been prepared to support the planning application for the proposed residential development at 24 Brookfield. A site location plan is provided in **Appendix A**.

Existing Site Description

24 Brookfield is a residential dwelling with associated hard and soft landscaped areas. The existing site layout is shown on the existing site plans in **Appendix B**.

Development Proposals

Proposals are for the demolition of the existing dwelling, and the construction of 3no. terraced houses with associated hard and soft landscaped areas. A copy of the proposed site layout plans is provided in **Appendix C**.

2. Planning Policy

Bury Council

Bury Local Plan Topic Paper 6 Flood Risk Sustainable Urban Drainage Systems (SUDS)

5.9 Paragraph 165 of the NPPF states that “major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate”. Decisions on whether a sustainable drainage system would be inappropriate is a matter of judgement, based on guidance and advice from the Lead Local Flood Authority who will consider what type of sustainable drainage is reasonably practicable for a site.

5.10 SUDS are often viewed as taking up large areas of land within development sites. This is not necessarily the case, as there are a number of different SUDS components that can be used.

The following hierarchical approach should be used when considering drainage options:

- Into the ground (infiltration);
- To a surface water body;
- To a surface water sewer, highway drain, or other drainage system;
- To a combined sewer.

5.11 Planning applications proposing not to drain surface water in accordance with the above hierarchy, and wishing to connect directly to the public sewerage system will require evidence as part of any submission to demonstrate why other options are not feasible. This will be reviewed by the Lead Local Flood Authority who will determine whether the proposals are acceptable.

Non-Statutory Technical Standards for SuDS

The Non-Statutory Technical Standards for SuDS, (and accompanying Local Authority SuDS Officer Organisation (LASOO) Practice Guidance) sets out the details which should be addressed within a SuDS Report, including:

- Flood Risk Outside of the Development
- Peak Flow Control and Volume Control
- Flood Risk Within the Development

-
- Runoff Destinations
 - Structural Integrity
 - Designing for Maintenance Considerations
 - Construction

3. Surface Water and SuDS

The whole site comprises approximately 400m² (0.04ha) and is made up as follows:

- Roof areas ~60m²
- Hardstanding ~20m²
- Landscaped - ~320m²

Given the large extent of landscaped areas, the **ICP SuDS** method within Micro Drainage has been used to calculate flow rates from the total site (as detailed in **Appendix D** and shown in **Table 1**).

Table 1 – ICP SuDS – Proposed Greenfield Runoff Rates (l/s)

Return Period	Flow Rate for 400m ² (0.04ha) (l/s)
QBAR	0.2
1 in 30 year	0.4
1 in 100 year	0.5

Following redevelopment of the site, the areas will be made up as follows:

- Roof areas ~180m²
- Hardstanding ~40m²
- Landscaped - ~180m²

The proposals will result in an increase in hardstanding areas of ~140m².

SuDS Approach

When choosing and designing SuDS for a development, it is important to recognise the constraints associated with the type of SuDS to be installed, including the size of the site and the underlying ground conditions. Most Councils set out a strategic approach for the disposal of surface water runoff, which mirrors the hierarchy set out in Building Regulations Approved Document Part H¹. In general, these are as follows:

Infiltration

The Soilscape Maps provided by the National Soil Resources Institute at Cranfield University indicate that the soils at the site and surrounding areas are comprised of 'Freely draining slightly acid loamy soils'.

The British Geological Survey geology maps indicate that the site is underlain by 'Hummocky (moundy) Glacial Deposits, Devensian - Sand And Gravel. The underlying bedrock is shown to be comprised of Collyhurst Sandstone Formation - Sandstone.

In order to investigate the underlying ground conditions further, reference has been made to the BGS borehole records; there nearest record is from the Octagon Theatre site, approximately 170m to the north-west of the site (**Appendix E**). The record confirms that the site is underlain by Collyhurst Sandstone.

On this basis, infiltration of surface water may be feasible. However, infiltration testing to BRE Digest 365 will need to be carried out to a) confirm the suitability of the ground for infiltration, and b) to confirm a rate of infiltration. This could be a condition of the planning consent.

It should be noted that under Approved Document Part H, it is stated that infiltration devices (including soakaways, swales, filter drains) should not be built within 5m of a building or road. The advice and recommendations of a Structural Engineer / Building Control / SuDS Manufacturer should always be followed.

¹ Building Regulations Approved Document H Section 3 page 45

Discharge to a watercourse

There are no watercourses in the immediate vicinity of the site.

Discharge to a surface water sewer

It is understood that surface water runoff currently connects into the public sewer system. Therefore, it is recommended that surface water continues to drain as existing, with infiltration SuDS incorporated to manage flows from the increase in hardstanding (~140m²; subject to testing to BRE Digest 365).

SuDS Strategy

SuDS aim to mimic natural drainage and can achieve multiple objectives such as removing pollutants from urban runoff at source, controlling surface water runoff from developments, ensuring that flood risk is not increased further downstream and combining water management with green space which can increase amenity and biodiversity value. When selecting SuDS, consideration needs to be given to a range of factors including the ground conditions, type of proposals, and the constraints of the site.

Based on the desktop study of underlying ground condition, and recognising the scale and nature of the proposals, in this instance it is suggested that surface water continues to drain as existing, with permeable paving to manage flows from the increase in hardstanding.

SuDS Maintenance

Schedules are provided below (taken from Ciria C753 The SuDS Manual): these, or similar should be followed.

Permeable Paving

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface Stabilise and mow contributing areas Removal of weeds or management using glyphosphate applied directly into the weeds	As required
Remedial Actions	Remediate any landscaping which through vegetation maintenance or soil slip has been raised to within 50mm of the level of the paving Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users	As required

4. Conclusions

This Surface Water and SuDS Assessment has been prepared to support the planning application for the proposed residential development at 24 Brookfield.

24 Brookfield is a residential dwelling with associated hard and soft landscaped areas.

Proposals are for the demolition of the existing dwelling, and the construction of 3no. terraced houses with associated hard and soft landscaped areas.

The proposals will result in an increase in hardstanding areas of ~140m².

Based on the desktop study of underlying ground condition, and recognising the scale and nature of the proposals, in this instance it is suggested that surface water continues to drain as existing, with permeable paving to manage flows from the increase in hardstanding.

Operation and maintenance schedules have been provided (taken from Ciria C753 The SuDS Manual); these, or similar should be followed.

Appendices

Appendix A - Site Location Plan



NOTES:

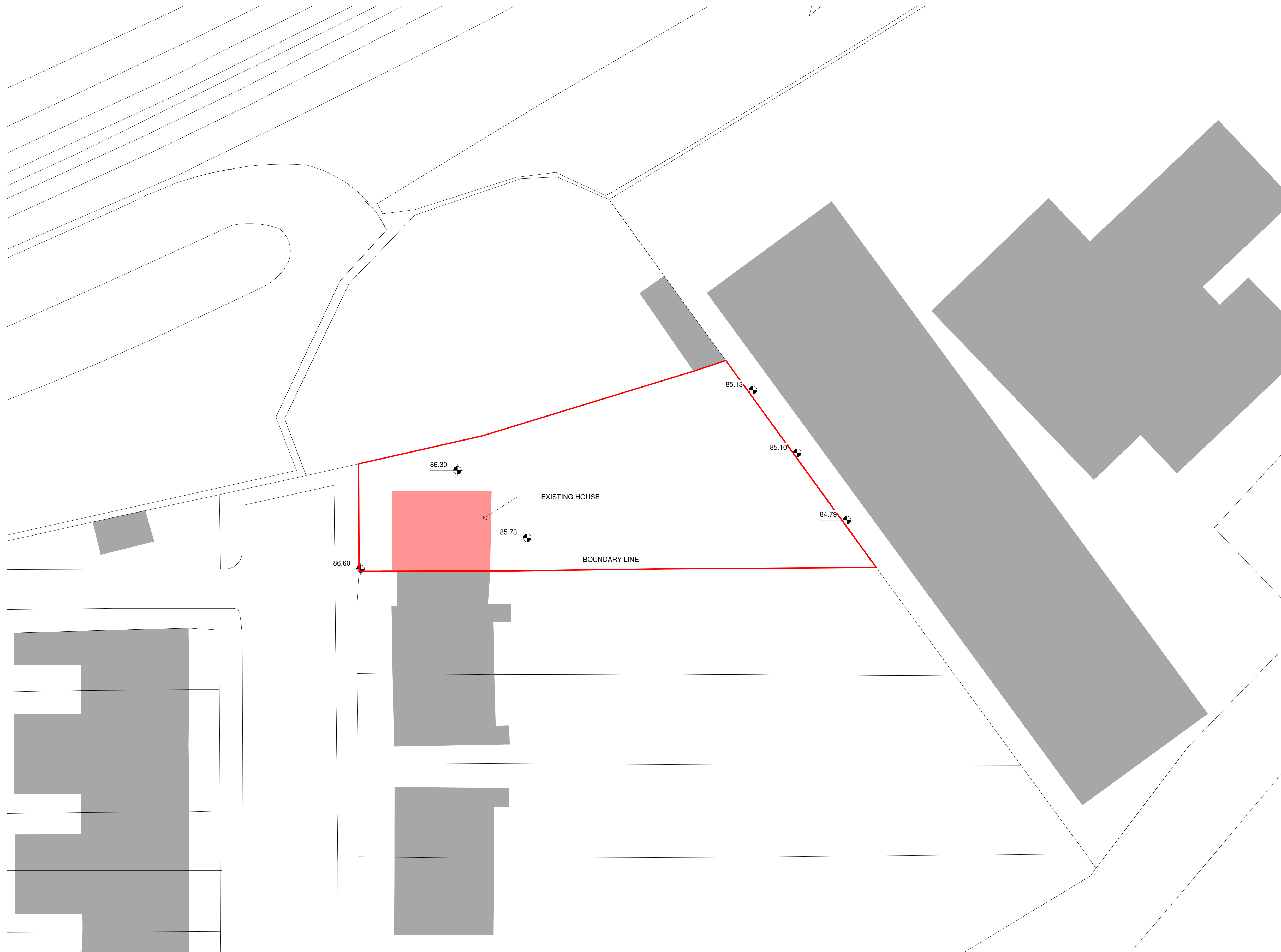
Revision Number	Date	Description of Revision	Chkd	Appd
 SEED Architects		Parsonage Chambers 3 Parsonage Manchester M3 2HW		
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job title	24 Brookfield
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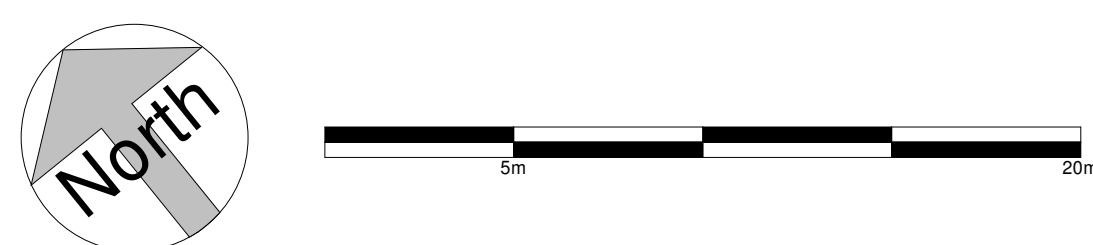
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Site Location Plan	

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Appendix B - Existing Site Layout Plan



00 Existing Site Layout Plan



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NOTES:

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Revision Number	Date	Description of Revision	Chkd	Appr
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status
Planning Permisson

job title	24 Brookfield Prestwich
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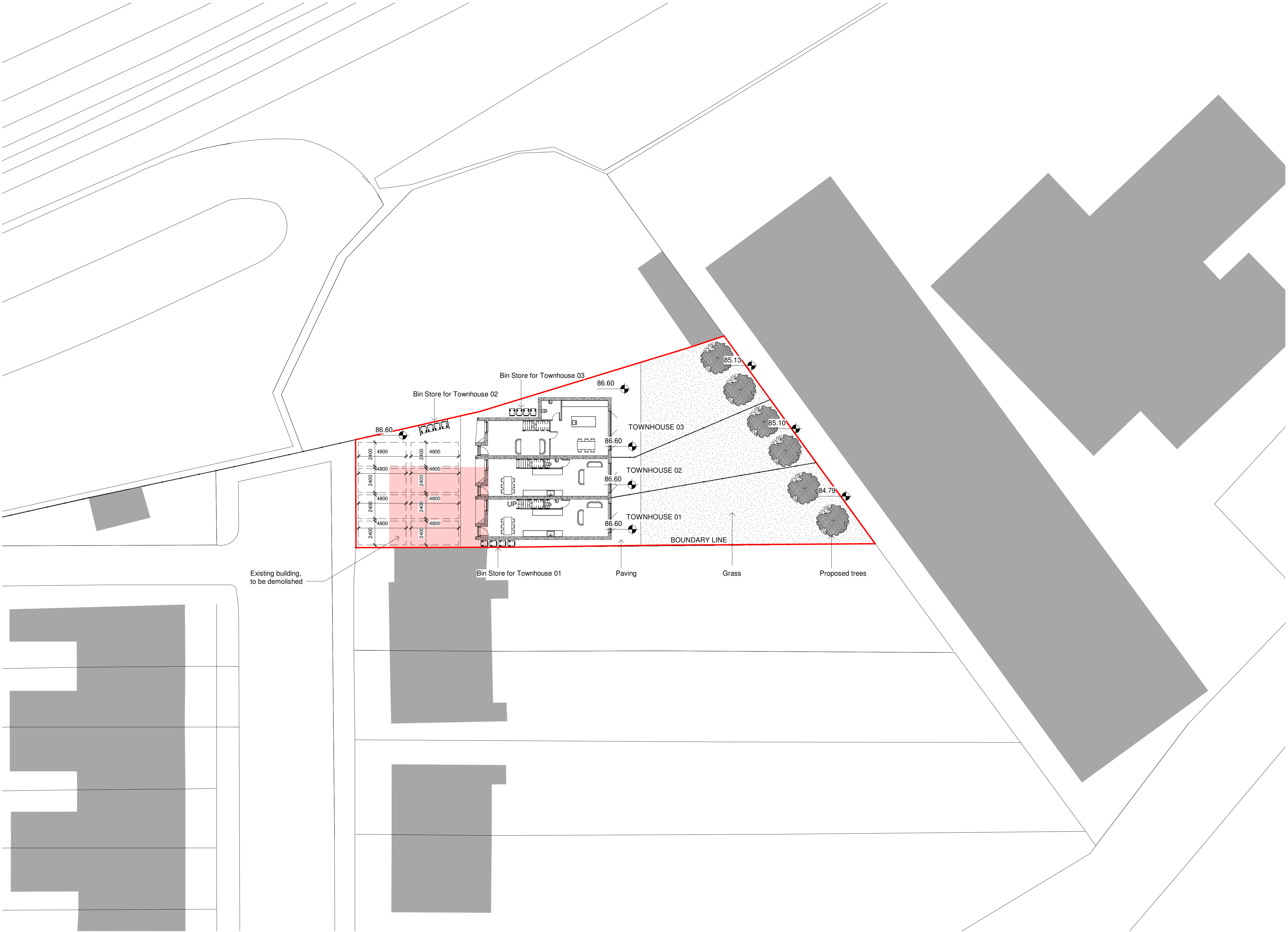
	Location

drawing title		
Existing Site Layout Plan		

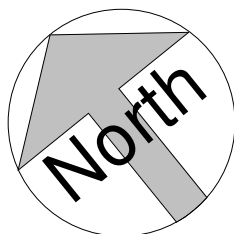
author AS	date 18/01/2022
checker MD	date 18/01/2022
scale 1 : 200	paper size A1

Project no. 3268	Type	Seed drawing no. 00_000	Rev.
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Appendix C - Proposed Site Layout Plan



00 Proposed Site Layout Plan
1 : 200



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Location

drawing title

Proposed Site Layout Plan

author AS	date 18/01/2022
checker MD	date 18/01/2022
scale 1 : 200	paper size A1

Project no.	Type	Seed drawing no.	Rev.
3268		01_000	

Appendix D - Greenfield Runoff

Base Energy Services Limited		Page 1
44 Canal Street Bootle Liverpool L20 8QU	24 Brookfield Greenfied Total Site	
Date 07/03/2022 File	Designed by CC Checked by PK	
Micro Drainage Source Control 2020.1.3		
<u>ICP SUDS Mean Annual Flood</u> Input Return Period (years) 100 Soil 0.450 Area (ha) 0.040 Urban 0.000 SAAR (mm) 876 Region Number Region 10 Results 1/s QBAR Rural 0.2 QBAR Urban 0.2 Q100 years 0.5 Q1 year 0.2 Q30 years 0.4 Q100 years 0.5		
©1982-2020 Innovyze		

Appendix E - British Geological Survey Borehole Records

SD 80SW/68
(County, Sheet and Qtr.)

SECTION OF Heywood Rd Borehole (A1/40)

British Geological Survey

British Geological Survey

British Geological Survey

PURPOSE

(Nat. Grid, Sheet and Qtr.)

EXACT SITE National Grid Reference

E 381949

N 403812

LEVEL AT WHICH

start
bore
depth

COMMENCED RELATIVE TO O.D. + 285.26 ft.

DATE OF SINKING OR BORING 1968

SINKER OR BORER Conestable Exploration Ltd

British Geological Survey

British Geological Survey

Attach tracing from a map or
sketch map if possible

SD 80SW/68

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS		DEPTH	
		FEET	IN.	FEET	IN.
	No cores Cores start. Sandstone, mainly medium, subarenite fine and millet seed layers with grains up to 2mm diameter; a few pebbles of quartz haematite redolent concretions siltstone, soft and poorly cemented; clay matrix from 150ft to 151ft; clay matrix towards base; mass with bedded red-brown, carbonaceous fragments	146	0	146 (44.50m)	0
Base of Collyhurst sandstone	Siltstone, fine ^{fine} purple-red ^{purple-red} micaceous, yellow ochre fines? roots irregular fracture many thin siltstone; bedding obscure; pale yellow green spots and blotches; some shattering the core at 154ft. Core very broken and poor recovery from 155ft to 159ft. Fragments of siltstone and siltstone; good core below 159ft. Purple grey and chordate with pale green spots, bedding appears to dip at 40°; plant fragments at 160ft and sporadic below; heavily fractured at 162ft.	8	0	154 (46.94m)	0
	Siltstone, micaceous, purple-grey, rather fractured with some siltstone dip 40° some ochreous coloring; becoming sandy below 166ft, passing into Sandstone, purple-grey, and ^{and} ochreous bands subarenite siltstone, which is especially micaceous; rather poorly cemented; sandstone is pale buff-ochre color; dip 20° at 170ft, fine grained; much stronger below 171ft; sporadic plant fragments; core broken at 174ft; siltstone bedding planes at 174ft 6in and between 176ft and 176ft 6in; minor brecciation at 178ft 6in; concretions and haematite at 179ft 6in; fractures and haematite siltstone in basal 6in	10	0	164 (49.99m)	0
	Mudstone, silty, micaceous, purple grey, chocolate and pale grey green with ^{with} siltstone siltstone, dip 50° at 181ft; small haematite concretions	4	0	168 (51.21m)	0
		12	9	180 (55.09m)	9
		3	6	184 (56.16m)	3

(poor, false bedding)