

Ref: 6089/R5

**Storridge Road
Westbury
Wiltshire**

Flood Risk Assessment

April 2026



REPORT DETAILS

Site Name:

Storridge Road, Westbury, Wiltshire

Report Title:

Flood Risk Assessment

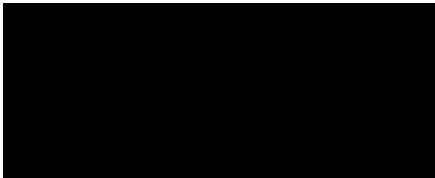
Report Number:

6089/R5

Revision	Date	Status
-	April 2026	For Planning Submission

Client: Gladman Developments

Client Contact: Joshua Cornes



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		Drg. No. 6089/01-03

1.0 **INTRODUCTION**

- 1.1 Lees Roxburgh have been instructed by Gladman Developments to carry out a Flood Risk Assessment (FRA) for proposed residential development of land off Storridge Road, Westbury, Wiltshire.
- 1.2 An outline planning application for the demolition of number 5 and number 6 Storridge Road and the erection of up to 165 dwellings with public open space, landscaping, sustainable drainage system and vehicular access point from Storridge Road. All matters reserved except for means of access.
- 1.3 The site lies within an area designated on EA Flood mapping as Flood Risk Zone 1 and therefore comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year ($< 0.1\%$).
- 1.4 *The National Planning Policy Framework (NPPF)* and the accompanying *National Planning Policy Guidance* sets out the requirements for addressing flood risk with respect to potential development site.

In accordance with the NPPF at over 1 hectare in area the site is required to be the subject of an FRA.

- 1.5 The purpose of an FRA is to address the following;
- The potential for the proposed development to be affected by flooding either from the development proposal or external sources.
 - The potential for the proposed development to increase the flood risk elsewhere.
 - That mitigation measures introduced to deal with any risks identified can be successfully managed.
 - That the site can be developed and occupied safely.

The NPPF indicates that an assessment of flood risk should be proportionate to the risk and appropriate to the scale, nature and location of the development. This report reflects the requirements of the NPPF in this regard.

- 1.6 This report has been prepared specifically for Gladman Developments for the sole purposes of the planning application and any reliance on its contents must be read in conjunction with the requirements of any subsequent planning conditions and statutory approvals.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Location

- 2.1.1 The site is centred on National Grid references 386100, 152580 and is approximately 9.89 hectares in area. **(Appendix 1A).**
- 2.1.2 The site is situated on the north west outskirts of Westbury some 5km to the south of Trowbridge town centre.

2.2 Surrounding Land Use and Access

- 2.2.1 Access to the site is currently at the western corner via a bellmouth entrance from Storridge Road, where a farm gate and 50m long track leads into the main body of the site.
- 2.2.2 Storridge Road runs from north west to south east. The rear gardens to a line of residential properties fronting onto the road predominantly form the south west boundary to the site.

On the opposite side of Storridge Road there are industrial estates and a sewage treatment works, with the land falling away to the south west to Biss Brook, flowing in a northerly direction, some 600m distant.

- 2.2.3 Residential properties line the south east boundary of the site, built around the B3097 The Ham road, with a railway line and Westbury North Junction 250m away. Further to the south east there are a number of large lakes and a second railway line, beyond which lies the main conurbation area of Westbury approximately 1km away.

The line of the south east boundary is interrupted by Wessex Water Hawkridge Park pumping station that projects 40m into the site.

- 2.2.4 To the east of the site there is a large sewage treatment plant and the Lafarge Cement Works located 800m and 2.3km away respectively.
- 2.2.5 Immediately to the north east there are open fields around Glenmore Farm, with an extensive area of farmland and sporadic farmsteads set either side of the A350 and the small village of Heywood some 1.3km away. One of the immediately adjacent fields is used for horse pasture.
- 2.2.6 Along the north west boundary of the site there is a narrow wooded area for much of the length, beyond which lies the extensive West Wiltshire Trading Estate and then an expanse of open farmland either side of Biss Brook which is some 600m to the west of the site at its closest.

2.3 Site Description

- 2.3.1 The site is irregular in shape and comprises one large arable field, most of which was set to a crop of wheat at the time of the site inspection. The north west corner was fallow with some boggy ground.
- 2.3.2 A number of raised manhole covers are visible, reflecting Wessex Water sewers.

- 2.3.3 There is a metal water trough set on brick walls close to the centre of the site. This is now redundant and the water supply is disconnected.
- 2.3.4 The dog-legged north west and north east boundaries are generally post and wire fencing reinforced with trees and bushes with a shallow ditch system, largely dry at the time of the site inspection.
- 2.3.5 There is post and wire security fencing around the pumping station compound that projects into the south east boundary of the site
- 2.3.6 The remaining boundaries to housing areas are a mixture of hedges, post and wire and garden fencing, with occasional brick/block walling.

2.4 Topography

- 2.4.1 There is a general fall across the site in a north westerly direction, varying between 1 in 60 in the southern corner and 1 in 12 over much of the central area of the site before easing into the north west corner.
- 2.4.2 Reference should be made to the topographical survey (**Appendix 2**) but falls can be summarised as follows;
- Level at south corner... 69m AOD
 - Level at the east corner... 64m AOD
 - Level along the north west boundary... 52m - 52.5m AOD

2.5 Existing Drainage

- 2.5.1 Watercourse systems in the area are identified on mapping in **Appendix 1B**. To the west, Biss Brook flows in a northerly direction beyond the industrial area and then alongside Storridge Road and picks up a tributary from the north of the trading estate.
- 2.5.2 As noted, ditch systems are present to the north west and north east boundaries. Both systems collect to a low point on the north west boundary where there is a 225mm diameter piped connection into the industrial estate.
- 2.5.3 The manholes evident within the site appear consistent with Wessex Water adopted sewer assets (**Appendix 3**). In addition, there is a 225mm diameter surface water outfall that emerges from the housing estate behind No.33 Hawkeridge Park to connect into the north west ditch system (as noted above) via the overflow.

The Wessex Water public sewer records also identify a culverted system within the trading estate to the north. More specifically, there are two systems within Broadway East which combine in Quartermaster Road and continue down the road system before outfalling into a tributary to Biss Brook the north west of the site. This system picks up a highway drain within Quartermaster Road.

These systems have all been surveyed and are incorporated in **Appendix 2**.

- 2.5.4 Dye testing has confirmed connectivity from the site outfall culvert via the industrial estate drainage network which outfalls into the Biss Brook tributary **(Appendix 1C)**.

3.0 **FLOOD RISK**

3.1 **Flood Mapping**

3.1.1 **Fluvial Flood Risk**

- 3.1.1.1 Reference to the Gov. UK Flood Map for Planning (**Figure. 1**) indicates that the existing site is situated within a Flood Zone 1 Area of flood risk. This is land defined within the NPPF as land assessed as having a less than 1 in 1000 annual probability of flooding (<0.1% in any year). All uses of land are appropriate in this zone.

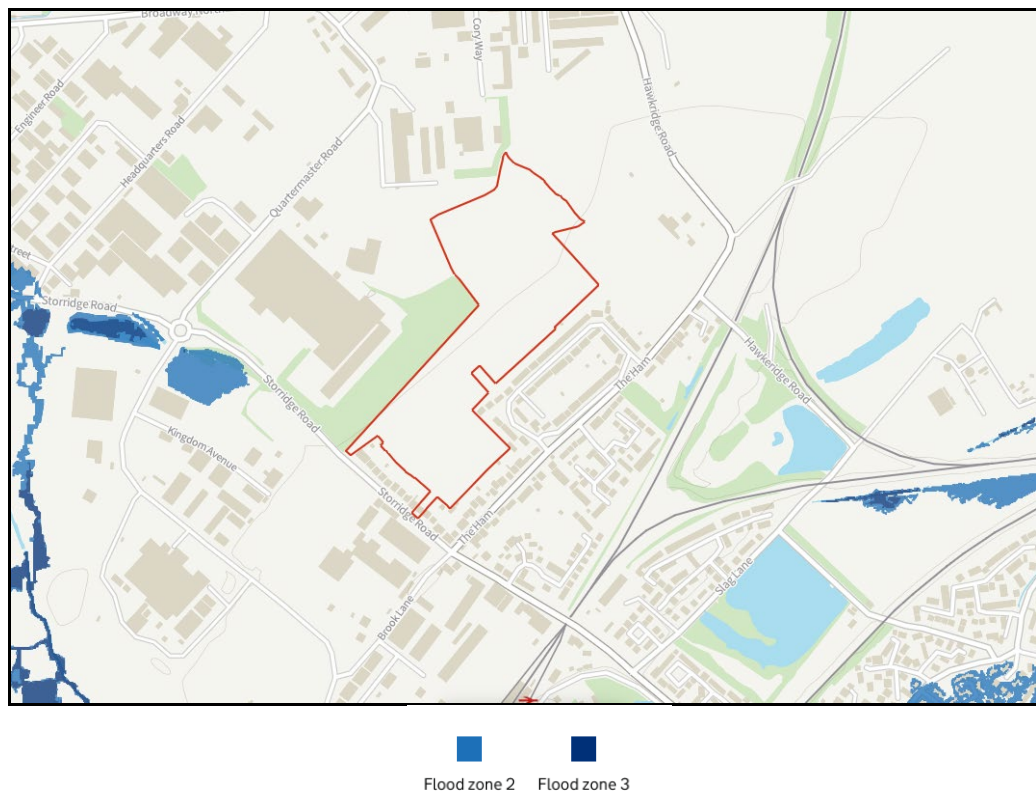


Figure 1: Gov.UK Flood Map for Planning

3.1.2 Pluvial Flood Risk

- 3.1.2.1 Reference to the Gov. UK Surface Water Flood Risk Map (**Figure 2**) identifies a localised area of flood risk straddling the north east boundary of the site and a smaller area abutting the north west boundary.

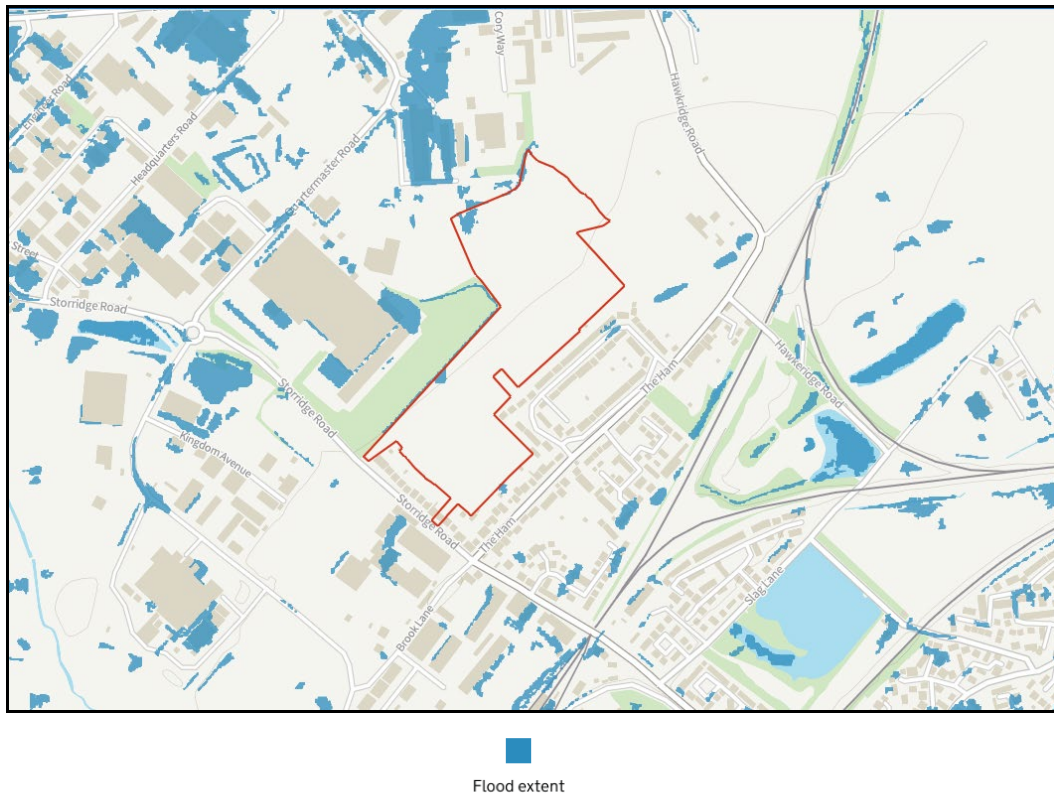


Figure 2: Gov.UK 1 in 100 Annual Likelihood of Flooding from Surface Water

3.1.3 Gov. UK Extent of Flooding from Reservoirs

- 3.1.3.1 Reference to the Gov. UK Extent of Flooding from Reservoirs Map (**Figure 3**) identifies that the overall site is not at risk of flooding from reservoirs.



Figure 3: Gov. UK Extent of Flooding from Reservoirs

3.1.4 Groundwater Flood Risk

- 3.1.4.1 Reference to the Geosmart GWS Map (**Figure 3**) identifies the site as at negligible risk.

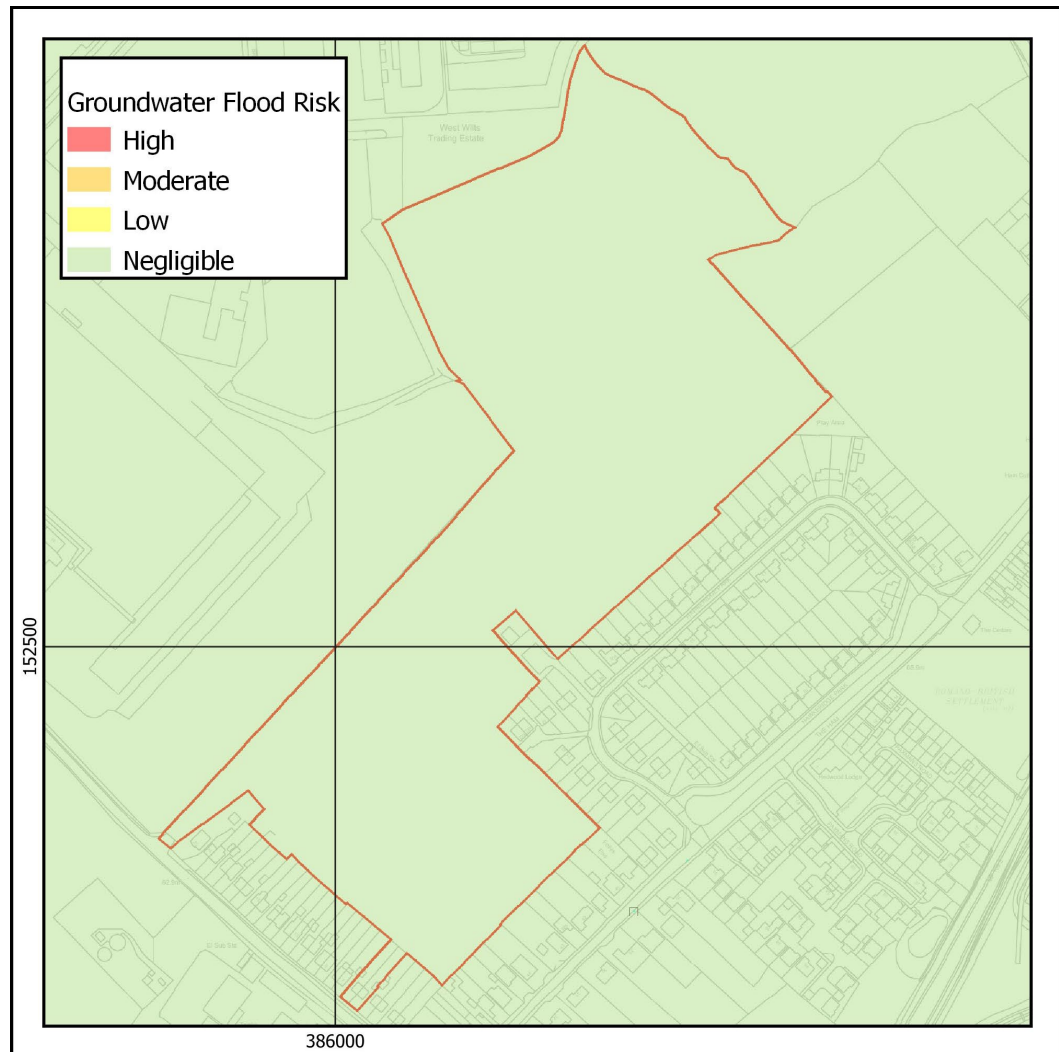


Figure 4: GW5 Groundwater Flood Risk Map (GeoSmart 2025)

3.2 Land Use Vulnerability Classification and Sequential and Exception Tests

- 3.2.1 As set out in the NPPF, the sequential test is a risk based approach which should be applied at all stages of the planning process in order to steer new development to areas at risk from the lowest probability of flooding, in the first instance from areas mapped as Flood Zones 2 and 3 to Flood Zone 1.

The sequential test should also be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site specific Flood Risk Assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk).

- 3.2.2 The NPPF Planning Practice Guidance incorporates a list of appropriate land uses in each flood zone dependent on the vulnerability of the proposed development to flooding. Table 2 of the guidance classifies residential development as 'More Vulnerable'.

Reference is made to the table below, reproduced from Table 3 of the guidance, which sets out the Flood Risk Vulnerability Classification.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	x	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	x	x	x	✓*

Key:

✓ Development is appropriate

x Development should not be permitted.

- 3.2.3 The proposed development is classified in the NPPF as 'More Vulnerable' and is located within a Zone 1 area of flood risk.

This FRA will demonstrate that no built development within the site boundary will be located on an area that would be at risk of flooding from any source having regard to reasonably foreseeable potential changes in flood risk. On this basis the sequential and exception tests will not apply.

3.3 Sources of Flood Risk

3.3.1 **Water Bodies, Watercourse Systems, Surface Water and Groundwater**

- 3.3.1.1 There is a water body along Storridge Road 400m to the north west and a number of significant water bodies to the south, south east and east.

All of these are located at levels below the site and do not present a risk to the development.

- 3.3.1.2 The nearest mapped watercourse system is Biss Brook about 350m to the west with a second system, also described as Biss Brook, a further 300m beyond. Wessex Water records to the north identify a tributary of Biss Brook into which the trading estate drainage including the site has been established as outfalling.

Neither of these systems presents a source of risk to the development.

The minor ditch network to the site boundary sits below the general site levels and does not present a source of risk.

- 3.3.1.3 Surface water flood mapping does identify two very localised areas of risk generated by run off from within the site itself and which to all intents and purposes will inherently be removed by the introduction of the development and its drainage system.

On this basis, the risk from surface water flooding can be discounted.

- 3.3.1.4 The site has been identified as at negligible risk from groundwater .

- 3.3.1.5 On this basis, the risk of flooding associated with water bodies, watercourses, surface water and groundwater can be discounted.

3.3.2 Existing Sewers and Drainage

- 3.3.2.1 Copies of Wessex Water public sewer records have been obtained and identify the presence of adopted drainage infrastructure in the area of the site. These records have been incorporated in **Appendix 3**.

- 3.3.2.2 Reference to the public sewer records indicates the following;

- Foul systems within the residential development to the south east and south west with connections across the south west area of the site into the Hawkridge Park pumping station located within the line of, but outside, the site boundary.
- 225mm rising main enters the site beneath the access track at the south west corner, crossing the site and then wrapping around the pumping station compound on the south east boundary. A second 200mm diameter rising main emerges from the pumping station compound and the two rising mains then run side by side and parallel with the south east boundary to leave the site at the eastern corner.
- Overflow from the pumping station across the site to the north west and shown as connecting into what appears to be a surface water system recorded within the adjacent trading estate. However, site checks identifies this as outfalling into the boundary ditch.
- Private rising main running from the West Wiltshire Trading Estate, crossing the north west boundary close to the 150mm surface water overflow into the ditch, and rising to the pumping station on the south east boundary.
- Piped culvert system within Broadway East to the north now established as picking up the piped outfall from the site. These systems combine just beyond the junction with Quartermaster Road and continue into Broadway North and outfall into the tributary to Biss Brook referred to in Item 3.3.1.2.

- Adopted surface water system in Stephenson Road to the west of the site.

3.3.2.3 Whilst not considered a source of flood risk the systems crossing the site, including the presence of the pumping station, will need to be considered within the development proposals.

3.3.3 **Land Drainage**

3.3.3.1 The site appears well drained and no evidence of any land drainage issues has been identified which cannot be readily dealt with.

3.3.4 **Comment**

3.3.4.1 On the basis of the assessment of the potential sources of flood risk described above, it is concluded that the risks associated with the following need to be addressed by this FRA;

- Development drainage proposals

4.0 SURFACE WATER RUNOFF

4.1 Requirements for Surface Water Drainage of the Site

- 4.1.1 The NPPF recommends that surface water generated by the development site should, as far as is practicable, be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development.
- 4.1.2 Proposals should ensure that peak flow rates of surface water leaving the developed site are no greater than those prior to development, reducing surface water run off where possible and taking climate change into consideration.

4.2 Site Area

- 4.2.1 The overall site area comprises 9.89 hectares of which the area proposed for development is 4.26 hectares.

4.3 Existing Site Run Off

- 4.3.1 The existing site is greenfield.
- 4.3.2 Existing greenfield run off rates have been calculated using the FEH-22 Method for the developable area (Adev) (**Appendix 5**) and these are as follows;

- $Q_{bar...}$ 20.7 litres/sec
- $Q_{1...}$ 16.1 litres/sec
- $Q_{30...}$ 40.9 litres/sec
- $Q_{100...}$ 50.0 litres/sec

4.4 Surface Water Run Off from the Developed Site

- 4.4.1 The development plan is incorporated in **Appendix 6**.
- 4.4.2 Uncontrolled flows from the development will exceed greenfield run off rates. For the purposes of this FRA, it is considered that development run off rates limited at minimum to the greenfield run off rates identified in 4.3.2 would be appropriate.

5.0 DRAINAGE HIERARCHY

5.1 National Planning Practice Guidance

5.1.1 National Planning Practice Guidance states the aim that surface water run off should be discharged as high up the drainage hierarchy as reasonably practicable;

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

The following measures have therefore been considered and identified.

5.2 Potential for Ground Infiltration Based Drainage

5.2.1 Phase 1 Geoenvironmental Assessment has been undertaken (ref. 6089/R1) and has identified that the site is free of superficial deposits and immediately underlain by mudstones and ironstones likely to be weathered at surface. Infiltration testing has been undertaken and has confirmed that ground conditions in the low northern area of the site comprise clay and are unsuitable for an infiltration based drainage solution (**Appendix 4**).

5.2.2 A positive surface water outfall from the development is therefore required.

5.3 Surface Water Outfall

5.3.1 Ground levels from the proposed development area fall towards the north east area of the site where there is an existing ditch system and a piped outfall into the industrial estate drainage system which continues north along Broadway North and outfalls into the Biss Brook tributary, all as proven (**Appendix 1C**).

At the time of the industrial estate development flows from land to the south, now proposed for development, will have been picked up and culverted to outfall. Connection to this system will therefore mimic long established outfall arrangements.

6.0 MITIGATION MEASURES

6.1 Development Surface Water Drainage

6.1.1 Drainage Strategy

- 6.1.1.1 The greenfield run off rates have been established in Section 4.3.2 and have identified a 1 in 1 year rate of 16.1 litres/sec.

In accordance with the Wiltshire Council betterment policy it is proposed to restrict flows to a 20% reduction on the 1 in 1 year run off rate i.e. 12.88 litres/sec.

Connection will be made to the culverted system at the site boundary.

- 6.1.1.2 Highways, houses and associated hard surfaces will be served by a piped surface water system designed to adoptable standards to ensure, at minimum, no flooding up to the 1 in 30 year event and will discharge into an attenuation basin prior to the outfall connection.

Overall flows up to the 1 in 100 year event plus allowance for 45% climate change will be contained on site within the basin and pipe systems.

The basin has been sized accordingly, on a preliminary basis, all remaining subject to detailed design (**Appendix 6A**). The impermeable area reflected in the calculations for the developable area has been based on 50% impermeability of the Adev plus 10% allowance for urban creep i.e. 55% of the Adev.

- 6.1.1.3 The potential for the introduction of additional SuDS and source control measures will be assessed at a more detailed stage.

6.1.2 Future Maintenance

- 6.1.2.1 It is proposed that the main piped systems and the basin and outfall will be adopted under a S104 agreement by Wessex Water or a NAV company.

- 6.1.2.2 Responsibility for maintenance of the private drainage system including any SuDS measures to be identified at a later stage within private areas will become the responsibility of the individual house owners.

- 6.1.2.3 Provision will be made for maintenance access to the SuDS basin area all also in accordance with Wessex Water or a NAV company requirements.

6.1.3 Water Quality

- 6.1.3.1 The risk to water quality from housing developments is categorised as low to very low.

Notwithstanding, the provision of trapped gullies to adoptable roads and the attenuation basin will provide two levels of treatment to address any perceived risk to water quality.

- 6.1.3.2 At detailed design stage a surface water quality treatment assessment will be undertaken on the overall drainage proposals in accordance with the simple index approach set out in the Ciria SUDS Manual and which will include the identification of any enhancement measures required to the basin, all in consultation with the relevant parties.

6.1.4 **Drainage Strategy**

- 6.1.4.1 The drainage strategy for the development has been prepared accordingly and is incorporated in **Appendix 6B**.

6.2 Exceedance Flows

- 6.2.1 More generally, floor levels will be set a minimum of 0.15m above proposed external ground level and will encourage any flows generated by an exceedance event within the proposed surface water drainage network to pass safely through the development.

- 6.2.2 Flow routes will of course follow the topography and have been indicated in **Appendix 6B**.

6.3 Land Drainage Consent

- 6.3.1 Formal land drainage consent will be required for the development surface water outfall.

7.0 **CONCLUSIONS**

- 7.1 The proposed residential development is classified in the NPPF as 'More Vulnerable' and is located within a Zone 1 area of flood risk.

Potential sources of flooding from water bodies, the watercourse network, surface water and groundwater have been considered and found to be negligible, with the development drainage system itself providing additional mitigation in reducing uncontrolled run off.

This FRA has therefore concluded that built development within the site boundary can be delivered so as not to be at risk of flooding from any source having regard to reasonably foreseeable potential changes in flood risk. On this basis the sequential and exception tests will not apply.

- 7.2 It has been established that ground conditions will not be suitable for the introduction of ground infiltration based drainage and a positive surface water outfall is therefore required.

Ground levels from the proposed development area fall towards the north east area of the site where there is an existing ditch system and a piped outfall into the industrial estate system which outfalls to the Biss Brook tributary to the north and into which connection is proposed. This mimics existing long established arrangements.

- 7.3 Flows offsite will be restricted to 12.88 litres/sec thus providing 20% betterment as compared with the existing greenfield 1 in 1 year runoff rate.

It is proposed to provide an attenuation basin located within the open space in the north east area of the site.

Highways, houses and associated hard surfaces will be served by a piped surface water system designed to adoptable standards to ensure, at minimum, no flooding up to the 1 in 30 year event and will be discharged into the basin from which flows will be restricted via a hydrobrake and then connected into the boundary culvert.

Overall, flows up to the 1 in 100 year event plus allowance for 45% climate change will be contained on site.

- 7.4 It is proposed that the main piped systems and the basin and outfall will be adopted under a S104 agreement by Wessex Water or a NAV company.

Responsibility for maintenance of the private drainage system including any SuDS measures to be identified at a later stage within private areas will become the responsibility of the individual house owners.

- 7.5 The risk to water quality from housing developments is categorised as low to very low.

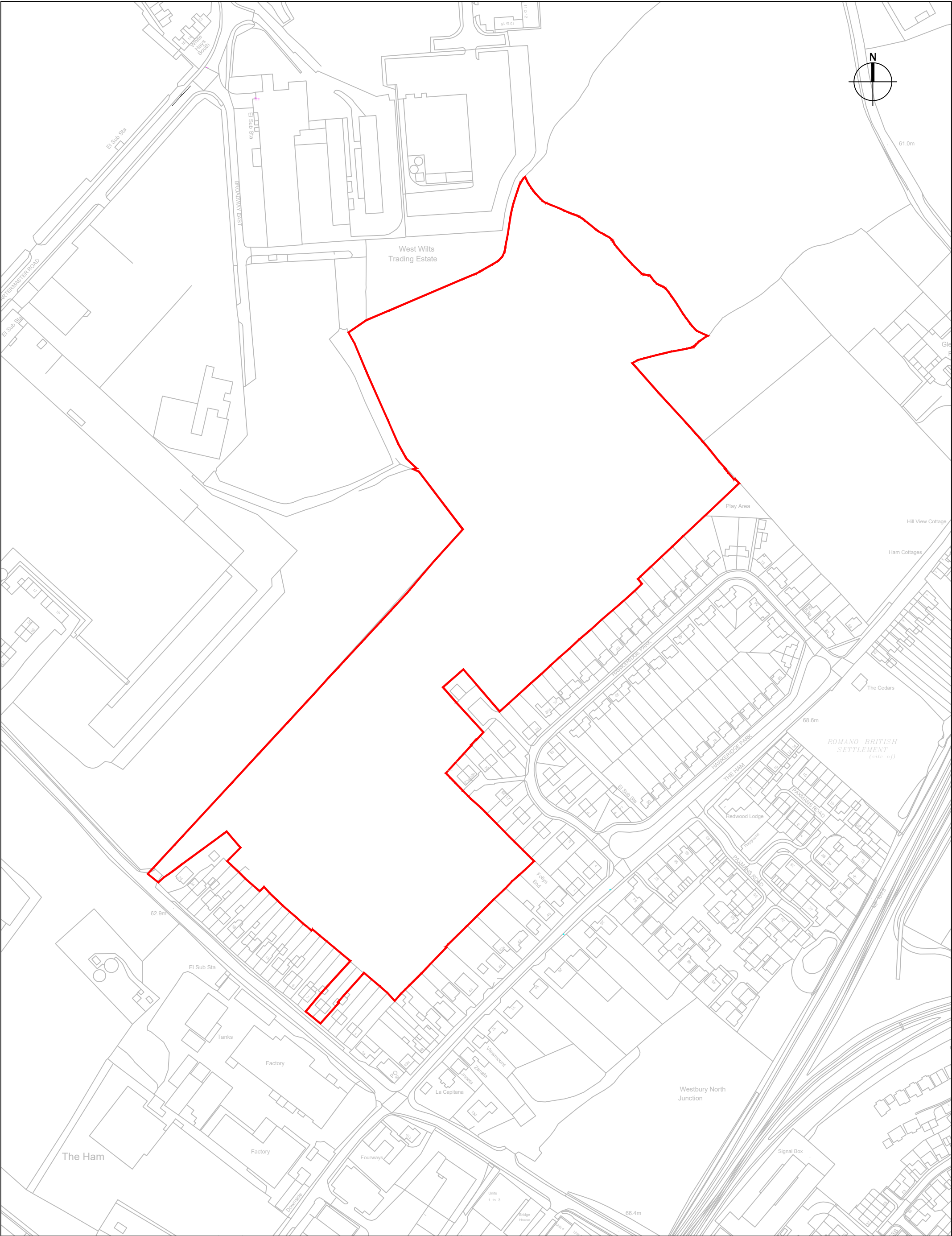
Notwithstanding, the provision of trapped gullies to adoptable roads and the attenuation basin will provide two levels of treatment to address any perceived risk to water quality.

At detailed design stage a surface water quality treatment assessment will be undertaken on the overall drainage proposals in accordance with the simple index approach set out in the Ciria SUDS Manual and which will include the identification of any enhancement measures required to the basin, all in consultation with the relevant parties.

- 7.6 Floor levels will be set a minimum of 0.15m above external ground level and will encourage any flows generated by an exceedance event (i.e. greater than the 1 in 100 year plus climate change design event) to pass safely through the development.
- 7.7 Formal land drainage consent will be required for the development surface water outfall.
- 7.8 It is therefore concluded that this FRA has demonstrated in accordance with the NPPF that the development is not at risk of flooding from external sources, will not increase flood risk associated with the development and its environment and is therefore appropriate.

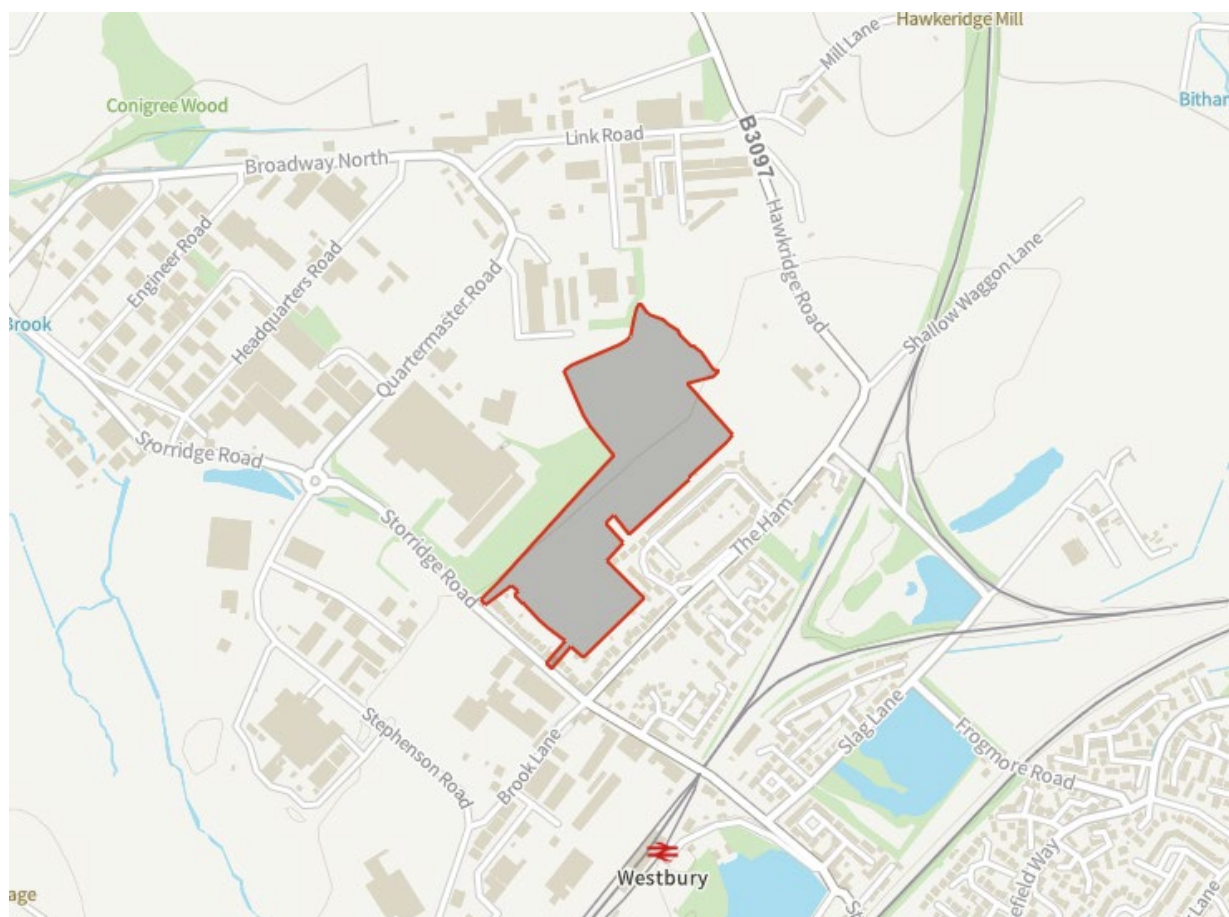
Appendix 1: Site Details

Appendix 1A: Location Plan



 GLADMAN Gladman House, Alexandria Way Congleton Business Park Congleton, Cheshire CW12 1LB Tel: 01260 288800 Fax: 01260 288801 www.gladman.co.uk	A	27/04/16	DB	Red line change at access	Project Westbury, Storridge Road	Drawn by SDJG Issue date 18.03.16 Title checked by DB Title checked date 27/04/16 Highways checked by DB Highways checked date 27/04/16 Topo checked by DB Topo checked date 27/04/16	
	B	21/02/25	JC	Red line change at access			
	Rev	Date	By	Revision notes	Title Location Plan		
	Status						Scale(s) 1:2500 @ A3
	INFORMATION						
					Drawing No 2016-027-001 Rev B		

Appendix 1B: Watercourse Systems



WATERCOURSE SYSTEMS
STORRIDGE ROAD, WESTBURY

Appendix 1C: Offsite Connectivity Drainage Survey 10th January 2023

IF IN DOUBT - ASK



Notes

Rev	Revision	By	Date



Storrige Road
Westbury

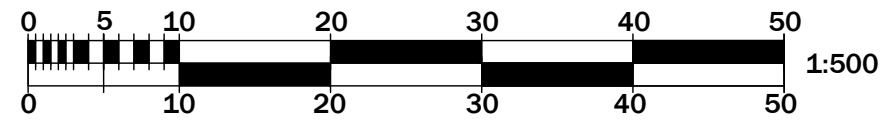
Off Site Connectivity
Drainage Survey
10th January 2023

LeesRoxburgh
Consulting Engineers
The Genesis Centre
Science Park South
Birchwood
Warrington
WA3 7BH


01925 812898
office@leesroxburgh.co.uk
www.leesroxburgh.co.uk

Appendix 2: Topographical Survey

2019-048 Topo_03_2D Sheets 1 to 3



THIS SURVEY IS ORIENTED TO ORIGINATE SURVEY GRID NORTH: THE SURVEY IS
TO A PLANE GRID. HORIZONTAL MEASUREMENTS TAKEN FROM THIS SURVEY WILL
BE GROUND DISTANCES.

SITE CENTER: E 389143, N 192580

LOCAL SCALE FACTOR: 0.99960393

ALL LEVELS RELATE TO ORIGINATE SURVEY DATUM GENERATED BY ACTIVE GPS
NETWORK.

DRAINAGE:

NO ALLOWANCE HAS BEEN MADE FOR SUR SURFACE ACCESS TO MANHOLES OF
ANY TYPE SIZE. CUTTINGS OR BELOW GROUND DRAINAGE ARE TAKEN
FROM THE SURFACE AND THINGS WILL ONLY BE APPROXIMATE. ANY FLOW TYPES
(FOUL WATER, SURFACE WATER OR COMBINED) ARE ASSURED AND THEREFORE
REQUIRE VERIFICATION.

ROAD MARKINGS:

ROAD MARKINGS DISPLAYED ARE SYMBOLIC. LENGTH, SPACING AND THICKNESS
ETC. ARE INDICATIVE ONLY.

LEGEND



ABBREVIATIONS

[illegible]

STATION CO-ORDINATES

STATION	EASTING	NORTHING	LEVEL	DESCRIPTION
STN#1	366025.64	152343.32	66.07	Survey Nail
STN#2	366005.99	151450.69	70.13	Survey Nail
STN#4	365885.75	152365.79	61.51	Survey Nail
STN#5	365885.55	152365.47	61.52	Survey Nail
STN#6	365890.61	152301.81	66.99	Survey Nail
STN#8	366094.00	152376.80	61.59	Survey Nail
STN#30	366079.12	152323.24	66.57	Survey Nail
STN#51	366119.71	152321.17	69.91	Survey Nail
STN#52	366174.18	152321.17	69.92	Survey Nail

TREE SCHEDULE

No.	DIAM.	SPREAD Ø	HEIGHT
TE/1	0.50	4	4
TE/2	0.25	6	5
TE/3	0.25	6	5
TE/4	0.25	6	3
TE/5	0.50	10	10
TE/6	0.30	8	8
TE/7	0.70	6	6
TE/8	0.40	8	6
TE/9	0.50	6	8
TE/10	0.30	8	3
TE/11	0.15	6	3
TE/12	0.15	6	3
TE/13	0.30	8	3

TREE DIAMETER MEASURED APPROXIMATELY 1.5M ABOVE GROUND LEVEL. TREE SPREADS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE GENERALISED CANOPY SIZE. TREE BOLE MAY NOT SIT CENTRALLY TO THE CANOPY. TREE HEIGHT ESTIMATED FROM GROUND LEVEL.

PLOT LOCATIONS

Rev	Date	Revision notes	By
DO NOT SCALE			

INFORMATION

Project
Westbury, Storridge Road.

Title	TOPOGRAPHICAL SURVEY AS OF 09.01.23 SHEET 1 OF 3
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Drawn By	Publish Date	Scale(s) 1:500	Sheet Size A0
JW	18.01.23		
Project no. 2019-048		Drawing no. Topo_01_2D	Revision 0

Drawn By	Publish Date	Scale(s)	Sheet Size
JW	18.01.23	1:500	A0
Project no.	Drawing no.		Revision
2019-048	Topo_02_2D		0

№	DIAM.	SPREAD Ø	HEIGHT
TE/1	0.50	4	4
TE/2	0.25	4	4
TE/3	0.25	5	5
TE/4	0.25	5	5
TE/5	0.50	10	10
TE/6	0.30	8	8
TE/7	0.70	8	8
TE/8	0.40	8	8
TE/9	0.50	6	8
TE/10	0.30	8	8
TE/11	0.15	6	8
TE/12	0.15	6	8
TE/13	0.30	8	8



THIS SURVEY IS ORIENTATED TO ORDNANCE SURVEY GRID NORTH. THE SURVEY TO A PLANE GRID. HORIZONTAL MEASUREMENTS TAKEN FROM THIS SURVEY WILL BE GROUND DISTANCES.

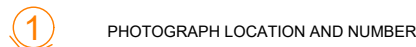
LOCAL SCALE FACTOR: 0.9996038

DRAINAGE:-

NO ALLOWANCE HAS BEEN MADE FOR SUB SURFACE ACCESS TO MANHOLES OR CHAMBERS. ANY PIPE SIZES, DEPTHS OR BELOW GROUND DIMENSIONS ARE TAKEN FROM THE SURFACE AND THUS WILL ONLY BE APPROXIMATE. ANY FLOW TYPE (FOUL WATER, SURFACE WATER OR COMBINED) ARE ASSUMED AND THEREFORE

ROAD MARKINGS DISPLAYED ARE SYMBOLIC. LENGTH, SPACING AND THICKNESS ETC. ARE INDICATIVE ONLY.

LEGEND



ABBREVIATIONS

[illegible]

STATION CO-ORDINATES

STATION	EASTING	NORTHING	LEVEL	DESCRIPTION
STN1	3660025.64	152243.32	60.07	Survey Nail
STN2	3660055.69	152193.69	79.17	Survey Nail
STN4	366085.75	152366.79	61.51	Survey Nail
STN5	366085.55	152366.47	61.52	Survey Nail
STN6	366090.61	152301.81	66.99	Survey Nail
STN8	366094.00	152376.80	61.59	Survey Nail
STN50	366079.12	152223.24	69.57	Survey Nail
STN51	366079.12	152223.24	69.57	Survey Nail
STN52	366174.18	152321.17	66.92	Survey Nail

TREE SCHEDULE

No.	DIAM.	SPREAD Ø	HEIGHT
TE/1	0.50	4	4
TE/2	0.25	6	5
TE/3	0.25	6	5
TE/4	0.25	6	8
TE/5	0.50	10	10
TE/6	0.30	8	8
TE/7	0.70	6	6
TE/8	0.40	8	6
TE/9	0.60	6	8
TE/10	0.30	8	8
TE/11	0.15	6	8
TE/12	0.15	6	8
TE/13	0.30	8	8

REE DIAMETER MEASURED APPROXIMATELY 1.5M ABOVE GROUND LEVEL. TREE SPREADS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE GENERALISED CANOPY SIZE. TREE BOLE MAY NOT SIT CENTRALLY TO THE CANOPY. TREE HEIGHT

PLOT LOCATIONS

★	★	
Date	Revision notes	B
DO NOT SCALE		

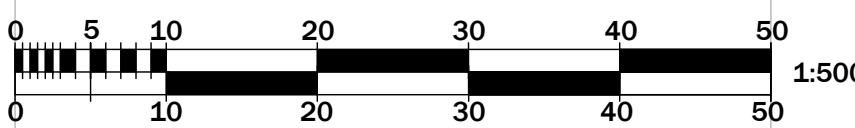
INFORMATION

Westbury, Storridge Road.

TOPOGRAPHICAL SURVEY
AS OF 09.01.23
SHEET 3 OF 3

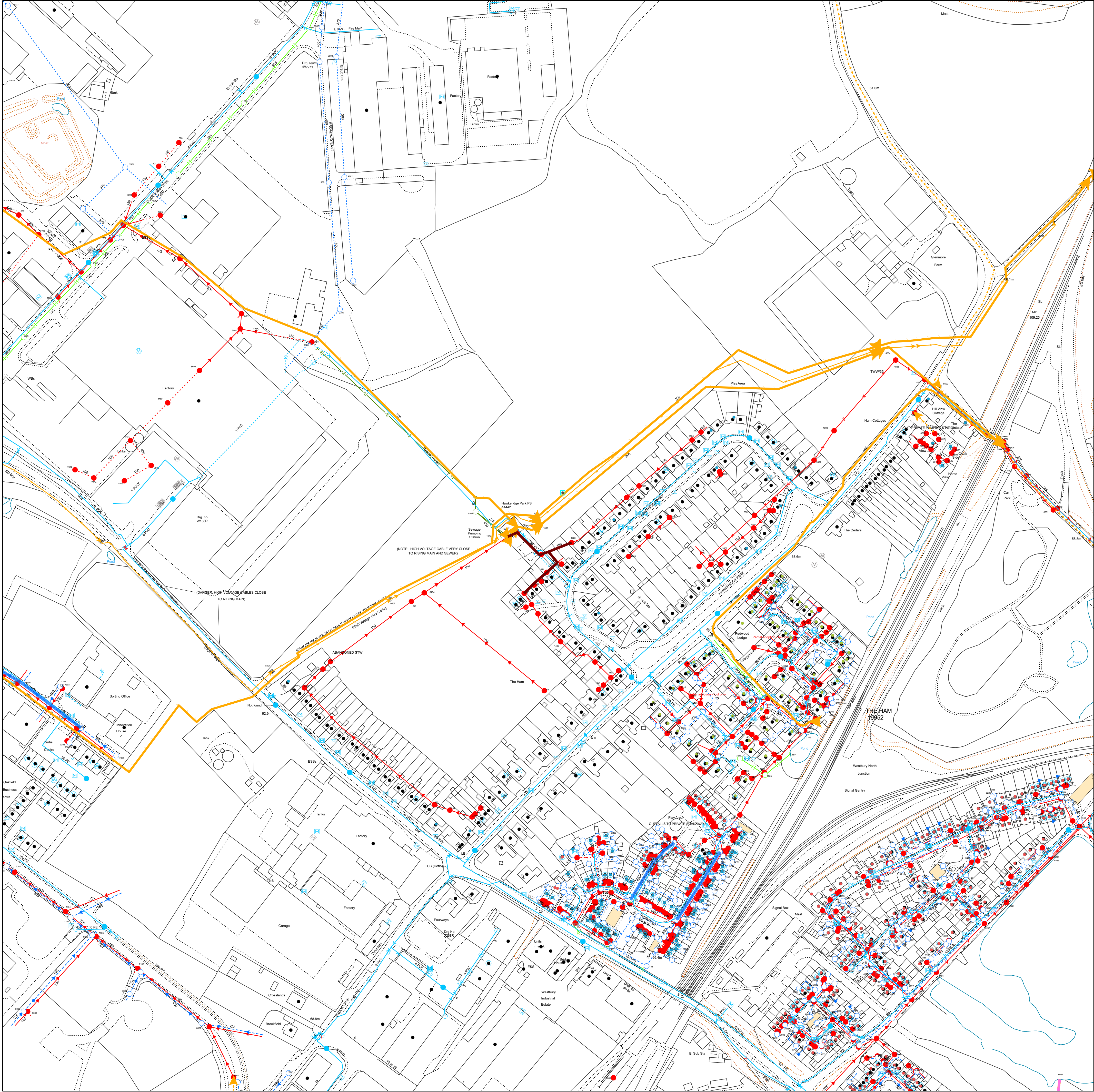


Drawn By	Publish Date	Scale(s)	Sheet Size
JW	18.01.23	1:500	A0
Project no.	Drawing no.		Revision
2019-048	Topo_03_2D		0



Appendix 3: Wessex Water Public Sewer Records

Wessex Water Web Map



Reproduced from the Ordnance Survey map with the permission of the Controller of His Majesty's Stationery Office. © Crown copyright and database rights (2025) OS AC0000848304

WATER MAINS	SEWERS	PUBLIC	PRIVATE	SECTION 104	OTHER WESSEX PIPES	NON-WESSEX / UNKNOWN
Distribution Main	Foul				Rising Mains	Private Rising Mains
Washout Main	Surface				Standby Rising Mains	Culverted Watercourse
Raw Water Main	Combined				Effluent Disposal	Highway Drain
Abandoned Main	Abandoned				Overflow	Use Unknown
Private Main					Syphon	Status Unknown
SITES	STRUCTURES				OTHER STRUCTURES	
Source	Manhole - Foul				Attenuation Tank	Chamber
Reservoir	Manhole - Surface				Storage Tank	Tunnel
Pump	Manhole - Combined					Interceptor
Treatment Works	Outfall					
FITTINGS	Inlet					
Valve - Open	Lamphole					
Valve - Closed	Bifurcation - Foul					
Fire Hydrant	Bifurcation - Surface					
Pressure Reducing Valve	Bifurcation - Combined					
Meter	Combined Sewage Overflow					
	Air Valve					
	Hatch Box					

Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.

Information in this plan is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may not yet be shown. In carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works or purchase. Building over or near Wessex Water's apparatus is not normally permitted.

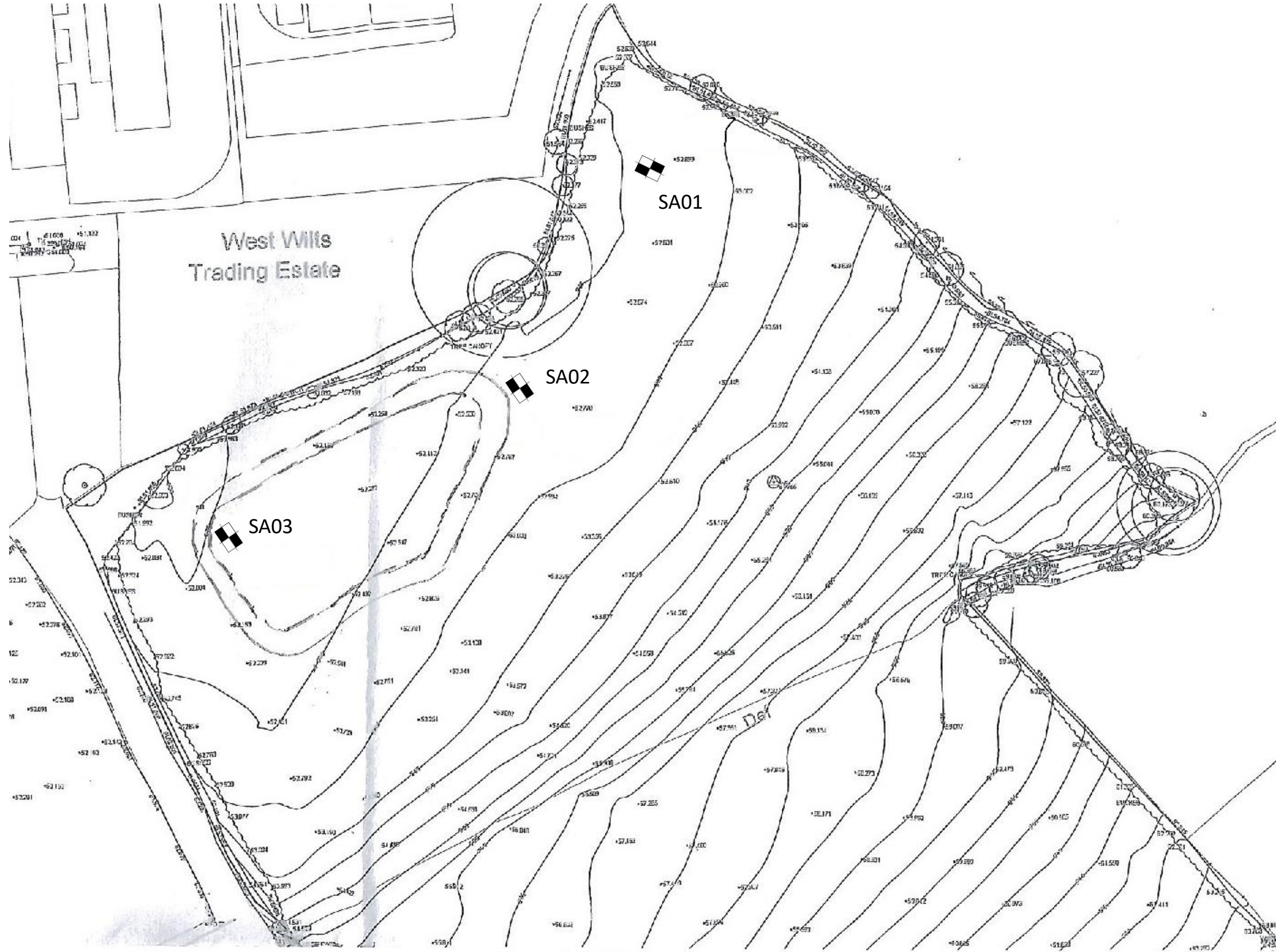
Date: 24/11/2025

Centre: 386148E, 152497N

Scale: 1:1,768
(when printed at A1 size)

Appendix 4: Infiltration Testing

Location Plan, Logs and Testing 29th August 2018



Soakaway Pit Location



**BROWNFIELD
SOLUTIONS LTD**

GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

LEES ROXBURGH LTD

Storrige Road, Westbury

Exploratory Hole Location Plan

Drawing No. M3939/02

Scale: NTS

Drawn By: EC

Checked By: PD



Brownfield Solutions Ltd,
Unit 5, Alfred Court,
Saxon Business Park,
Stoke Prior, Bromsgrove,
B60 4AD

Trial Pit Log

Trialpit No

SA01

Sheet 1 of 1

Project Name: STORRIDGE ROAD

Project No.
M3939

Co-ords: -
Level:

Date
28/08/2018

Location: WESTBURY

Dimensions
(m):

3.1

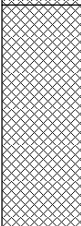
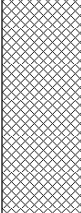
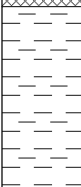
Depth
2.30

0.5

Scale
1:25

Logged
EC

Client: LEES ROXBURGH LTD

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
			HVR=53	0.25			MADE GROUND: Stiff friable brown slightly sandy slightly gravelly clay. Gravel is angular to subangular fine to coarse of brick fragments.	
							MADE GROUND: Firm to stiff yellowish brown and greyish brown mottled clay of medium strength.	
							Pocket of gravelly clay encountered at northern end of pit between 1.0m and 1.1m bgl. Gravel is angular to subangular fine to coarse of brick fragments.	1
			HVR=96	1.70			Stiff grey mottled orangish brown CLAY of high strength.	2
				2.30			End of pit at 2.30 m	3
								4
								5

Remarks: 1. No groundwater encountered.
2. Soakaway test undertaken in base of pit at 2.3m bgl.
3. Drained and backfilled with arisings.

Stability: Sides stable.





Brownfield Solutions Ltd,
Unit 5, Alfred Court,
Saxon Business Park,
Stoke Prior, Bromsgrove,
B60 4AD

Trial Pit Log

Trialpit No

SA02

Sheet 1 of 1

Project Name: STORRIDGE ROAD

Project No.
M3939

Co-ords: -
Level:

Date
28/08/2018

Location: WESTBURY

Dimensions
(m):

3.2

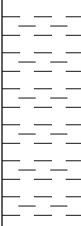
Depth
2.20

0.5

Scale
1:25

Logged
EC

Client: LEES ROXBURGH LTD

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.20			Stiff friable brown slightly sandy clay TOPSOIL.	
			HVR=56				Firm to stiff yellowish brown and greyish brown mottled CLAY of medium strength.	
				1.00			Stiff grey mottled orangish brown CLAY of high strength.	1
			HVR=87					
				2.20			Pocket of soft orange sandy clay encountered at northern end of pit between 2.1m and 2.15m bgl. End of pit at 2.20 m	2
								3
								4
								5

Remarks: 1. No groundwater encountered.
2. Soakaway test undertaken in base of pit at 2.2m bgl.
3. Drained and backfilled with arisings.

Stability: Sides stable.





Brownfield Solutions Ltd,
Unit 5, Alfred Court,
Saxon Business Park,
Stoke Prior, Bromsgrove,
B60 4AD

Trial Pit Log

Trialpit No

SA03

Sheet 1 of 1

Project Name: STORRIDGE ROAD

Project No.
M3939

Co-ords: -
Level:

Date
28/08/2018

Location: WESTBURY

Dimensions
(m):

3.3

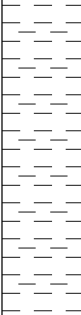
Depth
2.50

0.5

Scale
1:25

Logged
EC

Client: LEES ROXBURGH LTD

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
			HVR=96	0.20			Stiff friable brown slightly sandy clay TOPSOIL.	
							Firm to stiff yellowish brown and greyish brown mottled CLAY of high strength.	
			HVR=98	0.90			Stiff grey mottled orangish brown CLAY of high strength.	1
			HVR=116	2.50			Becoming slightly gravelly below 2.0m bgl. Gravel is subangular to subrounded fine to coarse of limestone. Occasional pockets of firm dark grey slightly sandy clay encountered between 2.2m and 2.4m bgl.	2
							End of pit at 2.50 m	3
								4
								5

Remarks: 1. No groundwater encountered.
2. Soakaway test undertaken in base of pit at 2.5m bgl.
3. Drained and backfilled with arisings.

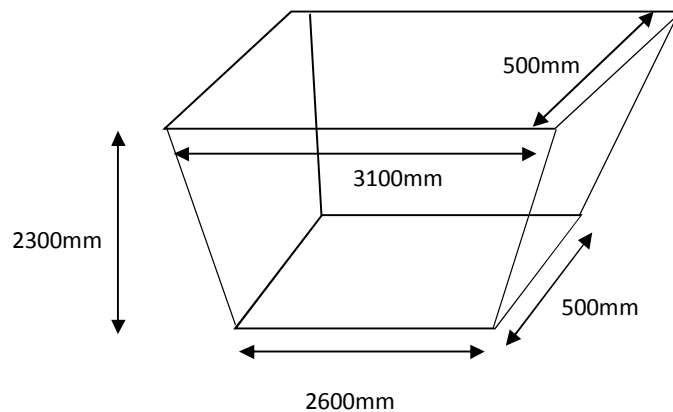
Stability: Sides stable.



Percolation Test	LEES ROXBURGH LIMITED	 BROWNFIELD SOLUTIONS LTD GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE
SA01	STORRIDGE ROAD, WESTBURY	
Test 1	M3939	

Date: 28/08/2018	Logged: EC	Checked: PD
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Dimensions of Pit (mm)



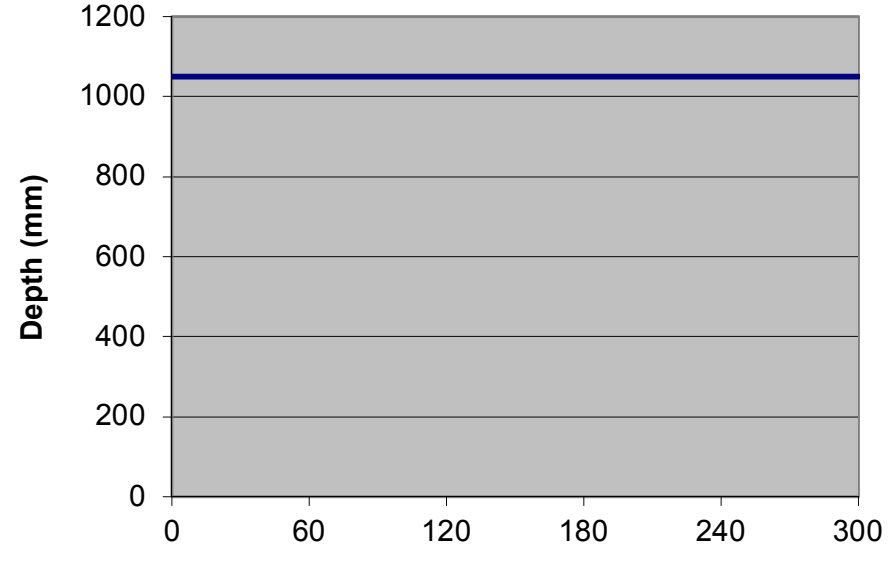
Depth of Pit	2300 mm
Depth Tested:	1250 mm
Pit Details:	Open with no stone filling

Time (mins)	Depth to water (mm)	Time (mins)	Depth to water (mm)
0	1250	50	1250
1	1250	60	1250
2	1250	75	1250
3	1250	90	1250
4	1250	105	1250
5	1250	120	1250
10	1250	180	1250
15	1250	240	1250
20	1250	300	1250
25	1250		
30	1250		
40	1250		

Percolation Test	LEES ROXBURGH LIMITED	 BROWNFIELD SOLUTIONS LTD GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE	
	SA01		STORRIDGE ROAD, WESTBURY
	Test 1		M3939

Date:	28/08/2018	Logged:	EC	Checked:	PD
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Depth vs Time



Volume of Pit (m ³)	1.78125	Void Ratio of Infill	1
Volume of Infill (m ³)	N/A	Volume of Water in Pit (m ³)	1.49625

Compliance Check

Water Level at 75% effective depth (mm)	787.5
Water Level at 25% effective depth (mm)	262.5

Test not BRE 365 compliant - insufficient time to drain past 25% effective depth

Percolation Rate Calculation

Water Level 1	1050
Water Level 2	1050
Time to Drain from Level 1 to Level 2 (mins)	240
Volume of water discharged (m ³)	0

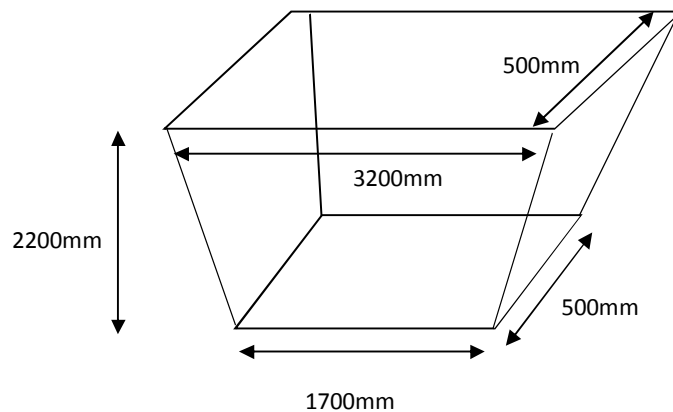
Discharge Area (m ²)	8.335
Soil Infiltration Rate (m/min)	0

Soil Infiltration Rate (m/sec)	0.00E+00
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Percolation Test	LEES ROXBURGH LIMITED	 BROWNFIELD SOLUTIONS LTD GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE
SA02	STORRIDGE ROAD, WESTBURY	
Test 1	M3939	

Date: 28/08/2018	Logged: EC	Checked: PD
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Dimensions of Pit (mm)



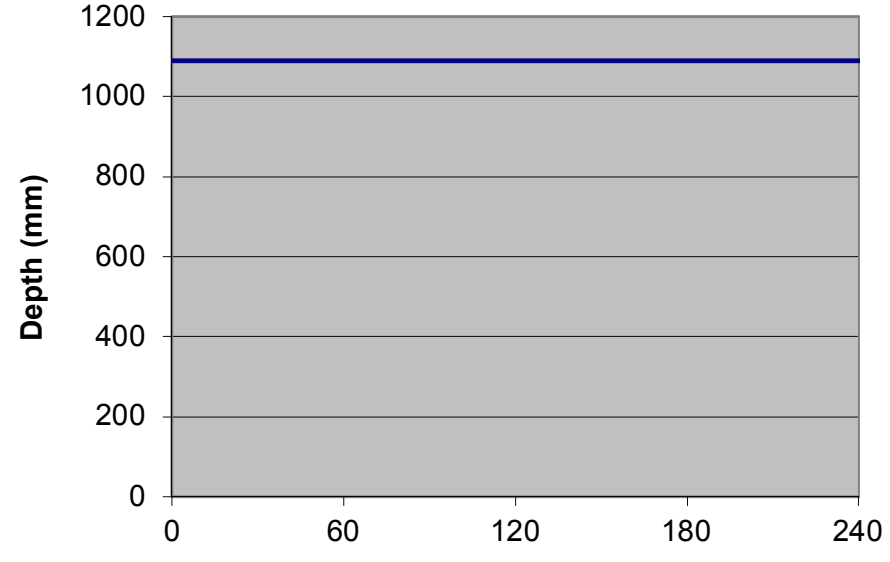
Depth of Pit	2200 mm
Depth Tested:	1110 mm
Pit Details:	Open with no stone filling

Time (mins)	Depth to water (mm)	Time (mins)	Depth to water (mm)
0	1110	50	1110
1	1110	60	1110
2	1110	75	1110
3	1110	90	1110
4	1110	105	1110
5	1110	120	1110
10	1110	180	1110
15	1110	240	1110
20	1110		
25	1110		
30	1110		
40	1110		

Percolation Test	LEES ROXBURGH LIMITED	 BROWNFIELD SOLUTIONS LTD GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE	
	SA02		STORRIDGE ROAD, WESTBURY
	Test 1		M3939

Date:	28/08/2018	Logged:	EC	Checked:	PD
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Depth vs Time



Volume of Pit (m ³)	1.35975	Void Ratio of Infill	1
Volume of Infill (m ³)	N/A	Volume of Water in Pit (m ³)	1.33525

Compliance Check

Water Level at 75% effective depth (mm)	817.5
Water Level at 25% effective depth (mm)	272.5

Test not BRE 365 compliant - insufficient time to drain past 25% effective depth

Percolation Rate Calculation

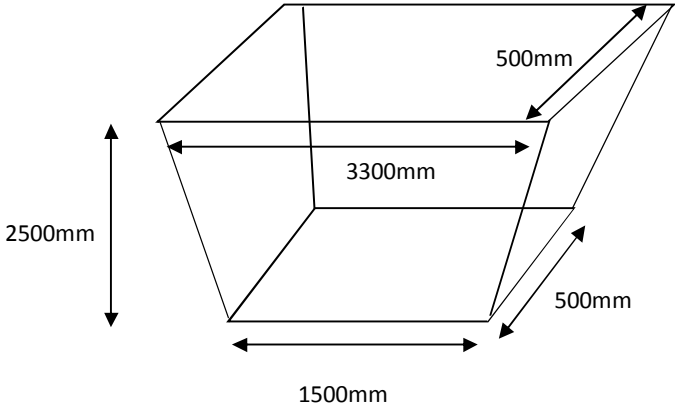
Water Level 1	1090
Water Level 2	1090
Time to Drain from Level 1 to Level 2 (mins)	180
Volume of water discharged (m ³)	0

Discharge Area (m ²)	7.281
Soil Infiltration Rate (m/min)	0

Soil Infiltration Rate (m/sec)	0.00E+00
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Percolation Test	LEES ROXBURGH LIMITED		 BROWNFIELD SOLUTIONS LTD GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE						
	STORRIDGE ROAD, WESTBURY								
	M3939								
SA03 Test 1			<table border="1"> <tr> <td>Date:</td> <td>28/08/2018</td> <td>Logged:</td> <td>EC</td> <td>Checked:</td> <td>PD</td> </tr> </table>	Date:	28/08/2018	Logged:	EC	Checked:	PD
Date:	28/08/2018	Logged:	EC	Checked:	PD				

Dimensions of Pit (mm)



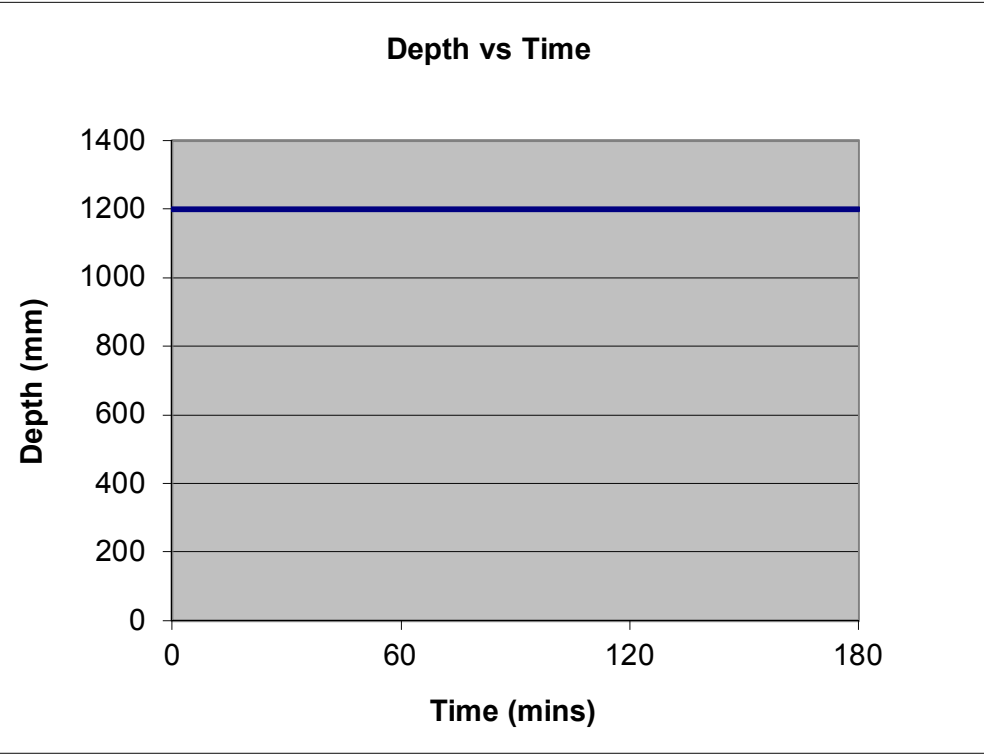
Depth of Pit	2200 mm
Depth Tested:	1000 mm
Pit Details:	Open with no stone filling

Time (mins)	Depth to water (mm)	Time (mins)	Depth to water (mm)
0	1000	50	1000
1	1000	60	1000
2	1000	75	1000
3	1000	90	1000
4	1000	105	1000
5	1000	120	1000
10	1000	180	1000
15	1000		
20	1000		
25	1000		
30	1000		
40	1000		

Percolation Test	LEES ROXBURGH LIMITED	 BROWNFIELD SOLUTIONS LTD GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE	
	SA03		STORRIDGE ROAD, WESTBURY
	Test 1		M3939

Date: 28/08/2018	Logged: EC	Checked: PD
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Depth vs Time



Volume of Pit (m ³)	1.2	Void Ratio of Infill	1
Volume of Infill (m ³)	N/A	Volume of Water in Pit (m ³)	1.44

Compliance Check

Water Level at 75% effective depth (mm)	900
Water Level at 25% effective depth (mm)	300

Test not BRE 365 compliant - insufficient time to drain past 25% effective depth

Percolation Rate Calculation

Water Level 1	1200
Water Level 2	1200
Time to Drain from Level 1 to Level 2 (mins)	120
Volume of water discharged (m ³)	0

Discharge Area (m ²)	7.71
Soil Infiltration Rate (m/min)	0

Soil Infiltration Rate (m/sec)	0.00E+00
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Appendix 5: Existing Run Off Rates

FEH-22 Method

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	x	1 year (l/s)	16.1
Summer CV	1.000	Drain Down Time (mins)	240	30 year (l/s)	40.9
Winter CV	1.000	Additional Storage (m³/ha)	20.0	100 year (l/s)	50.0
Analysis Speed	Normal	Check Discharge Rate(s)	✓	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	0	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.98
Greenfield Method	FEH	Growth Factor 100 year	2.42
Positively Drained Area (ha)	4.260	Betterment (%)	0
SAAR (mm)	728	QMed	19.2
Host	1	QBar	20.7
BFIHost	0.379	Q 1 year (l/s)	16.1
Region	8	Q 30 year (l/s)	40.9
QBar/QMed conversion factor	1.075	Q 100 year (l/s)	50.0
Growth Factor 1 year	0.78		

Other (defaults)

Entry Loss (manhole)	0.250	Entry Loss (junction)	0.000	Apply Recommended Losses	x
Exit Loss (manhole)	0.250	Exit Loss (junction)	0.000	Flood Risk (m)	0.300

Approval Settings

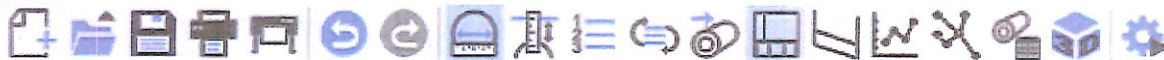
Node Size	✓	Maximum Backdrop Height (m)	1.500
Node Losses	✓	Full Bore Velocity	✓
Link Size	✓	Minimum Full Bore Velocity (m/s)	
Minimum Diameter (mm)	150	Maximum Full Bore Velocity (m/s)	3.000
Link Length	✓	Proportional Velocity	✓
Maximum Length (m)	100.000	Return Period (years)	
Coordinates	✓	Minimum Proportional Velocity (m/s)	0.750
Accuracy (m)	1.000	Maximum Proportional Velocity (m/s)	3.000
Crossings	✓	Surcharged Depth	✓
Cover Depth	✓	Return Period (years)	
Minimum Cover Depth (m)		Maximum Surcharged Depth (m)	0.100
Maximum Cover Depth (m)	3.000	Flooding	✓
Backdrops	✓	Return Period (years)	30
Minimum Backdrop Height (m)		Time to Half Empty	x

Approval Settings

Discharge Rates	✓	100 year 360 minute (m³)
Discharge Volume	✓	

Appendix 6: Surface Water Drainage Strategy

Appendix 6A: Preliminary Surface Water Attenuation Calculations



Simulation Settings

Storm Network

Design Settings

Nodes

Links

Manhole Schedule

Hydrographs

Flow Controls

Storage

Other

Results

Approval Settings

Approval Results

Libraries

Manhole Types

Link Types

Networks

Preferences

Sketch

Storage Estimate

Return Period (years)

100

OK

Climate Change (%)

45

Cancel

Impermeable Area (ha)

2.343

Update

Peak Discharge (l/s)

12.880

Infiltration Coefficient (m/hr)
(leave blank if no infiltration)

Calc

Required Storage (m³)

Calc

from

1763

to

2342

With infiltration (m³)

from

to

Appendix 6B: Surface Water Drainage Strategy

Lees Roxburgh Drg. No. 6089/01-03

Developable area = 4.26 Ha

Greenfield Runoff Rates

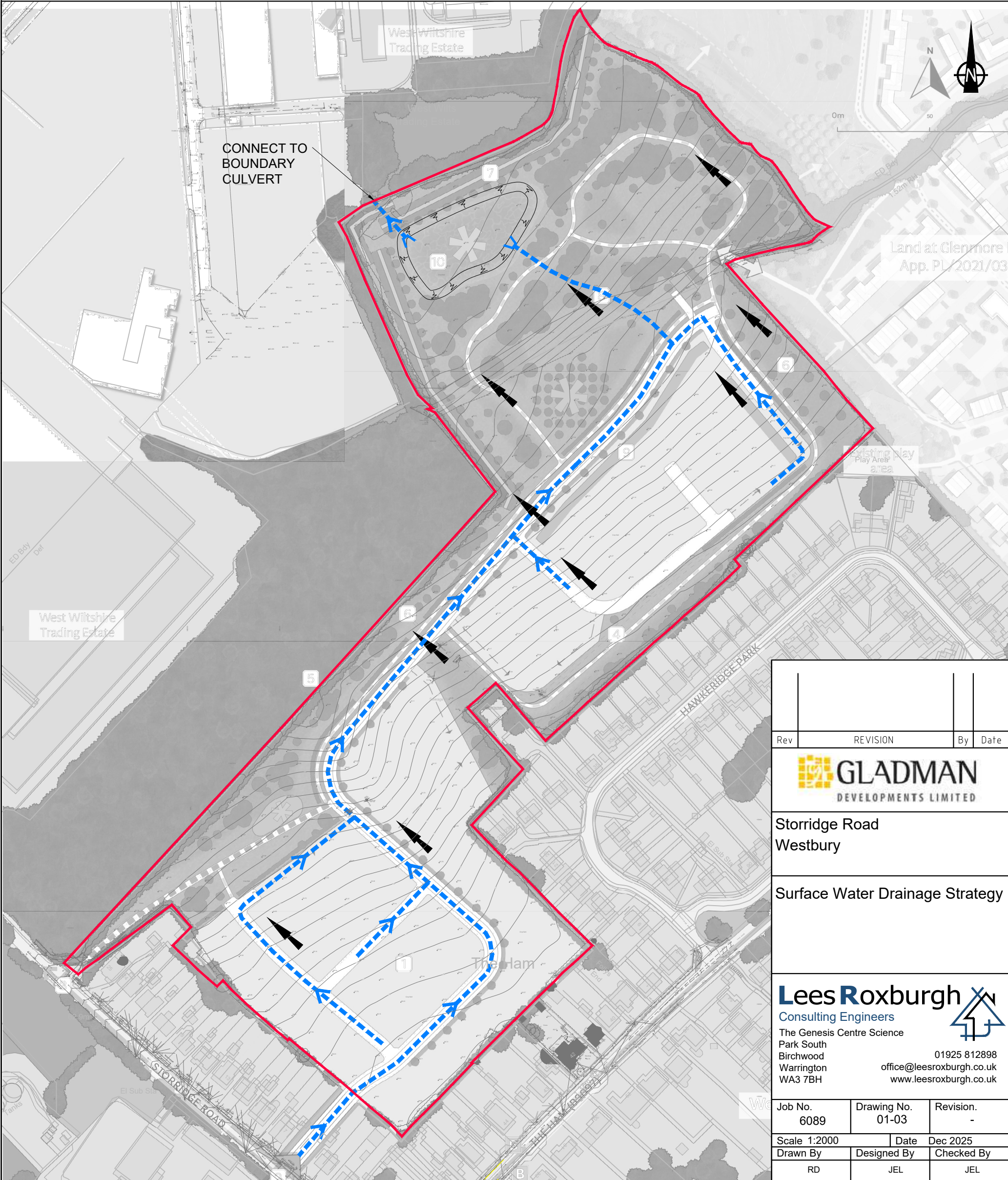
QBar ... 20.7 l/s
Q1 ... 16.1 l/s
Q30 ... 40.9 l/s
Q100 ... 50.1 l/s

To be restricted to 20% reduction on Q1 rate = 12.88 l/sec

Attenuation

Attenuation basin to be designed to accommodate all storm events up to and including 1:100yr + 45% allowance for climate change.

- Development Boundary
- On-site surface water network
- Attenuation basin
- Exceedance Flow Routes



Rev	REVISION	By	Date
GLADMAN DEVELOPMENTS LIMITED			
Storridge Road Westbury			
Surface Water Drainage Strategy			
LeesRoxburgh Consulting Engineers The Genesis Centre Science Park South Birchwood Warrington WA3 7BH 01925 812898 office@leesroxburgh.co.uk www.leesroxburgh.co.uk			
Job No.	Drawing No.	Revision.	
6089	01-03	-	
Scale 1:2000	Date	Dec 2025	
Drawn By	Designed By	Checked By	
RD	JEL	JEL	

DRAWING FILE LOCATION:-