RIDGE

HORTON ROAD – INDUSTRIAL DEVELOPMENT
LE MASURIER LTD

DRAINAGE STRATEGY

23rd May 2025

LE MASURIER – INDUSTRIAL DEVELOPMENT, LE MASURIER LTD

DRAINAGE STRATEGY

5027861-RDG-XX-XX-T-C-000550

May 2025

Prepared for

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VERSION CONTROL

VERSION	DATE	DESCRIPTION	CREATED BY	REVIEWED BY
1.0	23/05/25	Planning Issue	EP	ACB

CONTENTS

EXECUTIVE SUMMARY

Ridge and Partners LLP have been commissioned by Le Masurier Limited to prepare a drainage strategy in support of the full planning application for the proposed development off Horton Road, West Drayton.

The surface water drainage strategy has been designed to capture surface water as close to the source as possible. The design has been developed assuming the existing surface water drainage systems will be abandoned and grubbed up and a new system proposed in its place. Infiltration porous paving structures and below ground geocellular infiltration tanks have been proposed as a means of surface water disposal with additional tanked porous paving where infiltration was not viable due to proximity to the proposed buildings.

InfoDrainage drainage design software has been utilised to develop the surface water drainage strategy for the site. Results indicate that surface water runoff can be contained within the drainage systems for all storm events up to and including the 1in100+20% climate change storm event with ~ 1.25 m^3 of flooding across the site in the most critical event.

As with the surface water, it is assumed any existing foul drainage systems will be abandoned and grubbed up and a new foul drainage system will be provided. The proposed foul drainage network will drain via gravity into the existing Thames Water network across Horton Road. It is assumed the site will not increase the foul load on the Thames Water sewers in comparison to the previous development on the site. It is understood the existing site is made up of more units than the proposed site, which it is assumed will lead to a reduction in the number of foul discharge units. A S106 application will be undertaken following planning approval to confirm the additional flow rate to the Thames Water sewer.

1. INTRODUCTION

Ridge and Partners LLP have been commissioned by Le Masurier Limited to prepare a drainage strategy in support of the full planning application for the proposed development off Horton Road, West Drayton.

The full site area associated with this reserved matters application covers an approximate area of 0.9 ha including the erection of 2 light industrial units and associated external works. This document should be read in conjunction with the Flood Risk Assessment being developed for the site by Ramboll.

This Drainage Strategy sets out the drainage design concept for the proposed development to manage surface and foul water disposal in the post-development scenario.

2. SITE DESCRIPTION

2.1. Site Location

Site Name: Horton Road – Industrial Development
Site Address: Orbital Industrial Estate, West Drayton
Site Location: Easting: 506582, Northing: 180178
National Grid Reference: TQ 065801
Site Area: Total 0.9 ha

The existing site (Orbital Industrial Estate) is located south of Horton Road, West Drayton and is accessed directly via a T-junction. The Grand Union Canal is immediately to the south of the site, with a railway located immediately beyond the canal.

An extract showing the proposed red line boundary from is shown below in *Figure 1*.

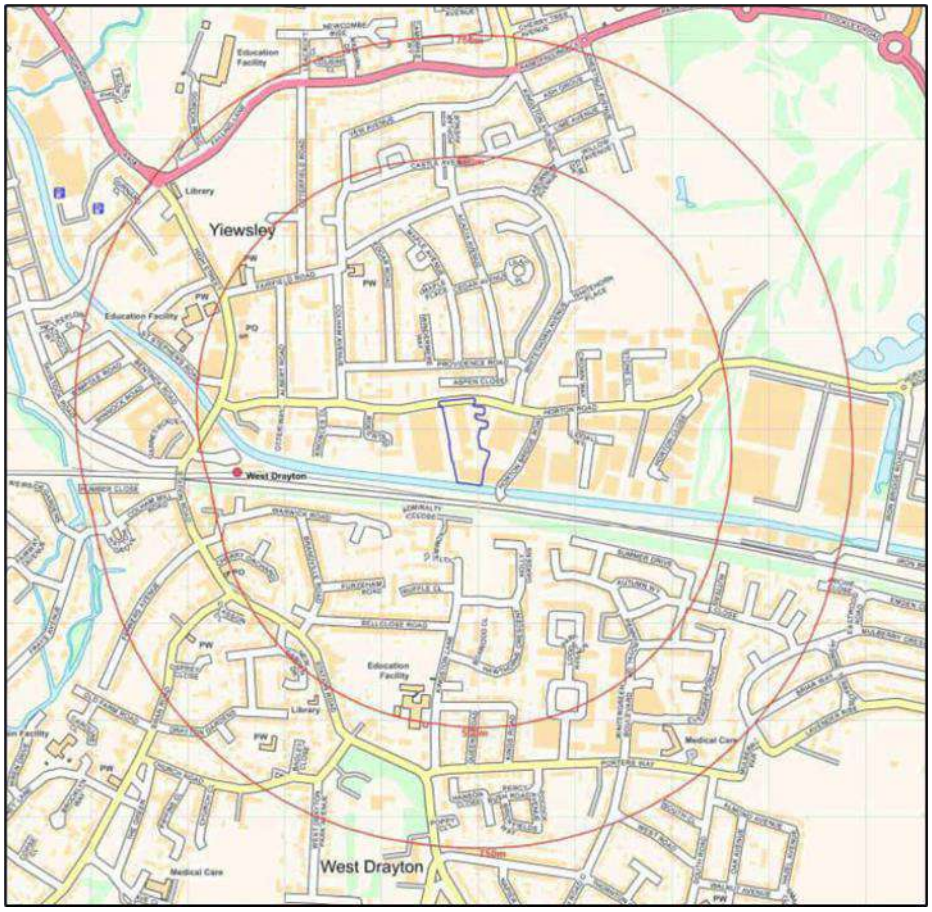


Figure 1 – Approximate Red Line Boundary and Existing Development (Ground Condition Assessment, 2025)

2.2. Land use and Topography

The existing site comprises of light industrial use with no soft landscaping. Existing uses include food production, a butcher, car repairs and a joinery. The site is mainly adjacent to other industrial areas, and the Grand Union Canal to the south, although there are residential flats to the north on the opposite site of Horton Road.

The topography of the site is consistently flat, primarily situated at approximately 30mAOD (Above Ordnance Datum). Across the site, the point of lowest elevation is in the south and west reaching a level of 29.8mAOD, while the point of highest elevation reaches 30.61mAOD along the eastern site boundary.

The topographical survey undertaken at the site is presented in **Appendix A** – Topographical Survey.

2.3. Hydrology

The Grand Union Canal runs alongside the southern boundary of the site. The canal functions as a tributary of Fray's River / the River Pinn approximately 1.4km northwest of the proposed site. The canal is regulated by the Canal & River Trust, while the River Pinn is a designated Main River regulated by the Environment Agency. This information is shown in the below extract (*Figure 2*) from the Statutory Main River Map.

Additionally, the canal also outfalls to the River Brent, located approximately 9km to the east. The River Brent subsequently discharges into the River Thames in Brentford.

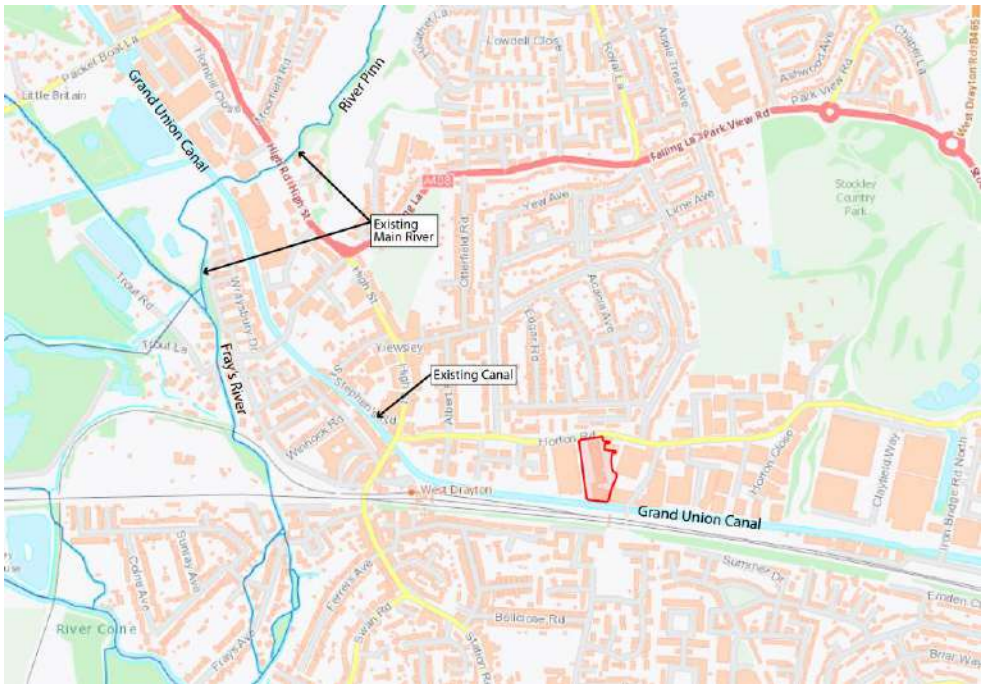


Figure 2 – Extract of Statutory Main River map (Environment Agency, 2025)

2.4. Geological Records

British Geological Survey (BGS) online mapping for the area shows that the site is likely underlain by bedrock of London Clay Formation below superficial geology deposits of formation Lynch Hill Gravel Member. The BGS bedrock and superficial geology records for the surrounding area of the site are shown in *Figure 3* and *Figure 4*.

Figure 3 - Superficial Deposits at the site (British Geological Survey, 2025)

Figure 4 - Bedrock Deposits at the site (British Geological Survey, 2025)

2.5. Site Investigation

An intrusive ground investigation was undertaken by Ridge and Partners LLP on site between 25th and 27th February 2025. This consisted of 8 windowless sample boreholes WS01 – WS08 (up to a maximum depth of 5.0mbgl). The borehole locations are shown in the below extract (*Figure 5*) from the Exploratory Hole Location Plan within the ground condition assessment found in Appendix F – Ground Condition Assessment.

Figure 5 - Windowless Borehole Location Plan (Ground Condition Assessment, Ridge 2025)

The site investigation reported the following ground conditions as summarised below:

Table 1 - Summary of Ground Conditions (Ground Condition Assessment, Ridge 2025)

STRATUM	DEPTH TO TOP (MBGL)	DEPTH TO BASE (MBGL)
Made Ground	0.09 - 0.19	0.95 - 1.58
Lynch Hill Gravel Member	0.96 - 1.58	2.84 – 5.00

Groundwater monitoring was undertaken on the site between 20th March and 31st March 2025. The following groundwater information was recorded:

Table 2 - Groundwater Strikes (Ground Condition Assessment, Ridge 2025)

LOCATION	INITIAL STRIKE (MBGL)	RISING TO (MBGL)	PEAK GROUNDWATER LEVEL (MAOD)
WS01	3.90	3.70 (in 30 minutes)	26.66
WS02	3.80	3.53 (in 60 minutes)	26.67

Table 3 – Groundwater Levels (Ground Condition Assessment, Ridge 2025)

LOCATION	20/03/2025 (MBGL)	24/03/2025 (MBGL)	31/03/2025 (MBGL)
WS01	Damp	Dry	Damp
WS03	Dry	Dry	Dry
WS07	Dry	Dry	Dry

2.6. Infiltration testing

Infiltration testing was completed on the site in accordance with BRE Digest 365. Falling head testing was conducted at locations WS01, WS03 and WS07 (as shown in *Figure 5*) targeting the underlying natural soils to provide indicative infiltration rates. The calculated infiltration rates are shown in *Table 4* below.

Table 4 - Soil Infiltration Testing Results (Ground Condition Assessment, Ridge 2025)

HOLE ID	TEST	RESPONSE ZONE (MBGL)	STRATA TESTED	TOTAL TEST TIME (MINS)	INFILTRATION RATE (M/S)
WS01	1	1.60 – 3.60	Lynch Hill Gravel	15	1.00×10^{-5}
WS01	2	1.60 – 3.60	Lynch Hill Gravel	15	8.57×10^{-6}
WS01	3	1.60 – 3.60	Lynch Hill Gravel	15	6.40×10^{-6}
WS03	1	1.27 – 2.27	Lynch Hill Gravel	15	5.81×10^{-6}
WS03	2	1.27 – 2.27	Lynch Hill Gravel	16	6.55×10^{-6}
WS03	3	1.27 – 2.27	Lynch Hill Gravel	15	4.32×10^{-6}
WS07	1	2.00 – 3.00	Lynch Hill Gravel	2	1.17×10^{-4}
WS07	2	2.00 – 3.00	Lynch Hill Gravel	2.50	9.66×10^{-5}
WS07	3	2.00 – 3.00	Lynch Hill Gravel	5.50	4.76×10^{-5}

Sufficient infiltration was found in all 3 windowless boreholes; therefore, infiltration has been deemed a viable form of surface water disposal. A minimum design infiltration rate of 4.32×10^{-6} m/s can be applied across the site. The design infiltration rate for any proposed infiltration features will be reviewed based on the results from the closest infiltration testing site.

2.7. Hydrogeology

There are no source protection zones within 1.5km of the site boundary.

2.8. Existing Drainage

A full utility survey of the site has not currently been completed and therefore is not included within the scope of this Drainage Strategy. For the purposes of this assessment, it is assumed that the existing drainage infrastructure is inadequate and will be replaced by a newly proposed drainage system.

2.9. Critical Drainage Areas (CDA)

The site is identified as being on the boundary of a critical drainage area, as shown in the extract below (*Figure 6*). A critical drainage area as defined by the Drain London Tier 2 Technical Specification is "a *discrete geographic area (usually a hydrological catchment) where multiple and interlinked sources of flood risk (surface water, groundwater, sewer and/or river) often cause flooding in a Flood Risk Area during severe weather thereby affecting people, property or local infrastructure."*

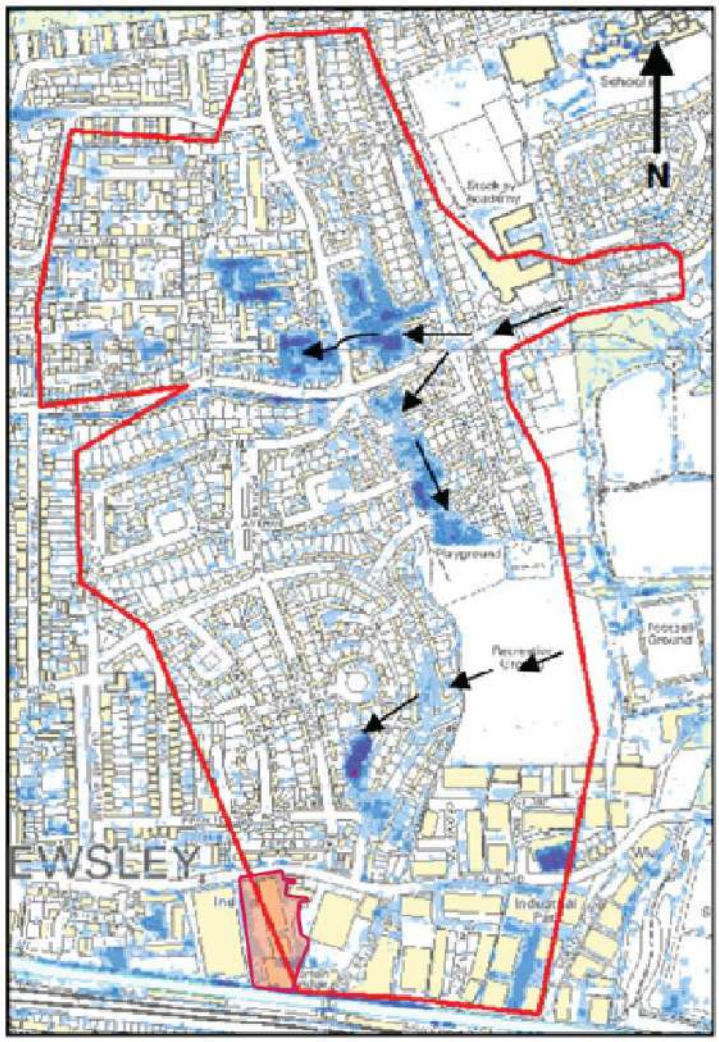


Figure 6 – Critical Drainage Area (London Borough of Hillingdon, Surface Water Management Plan, 2025)

As highlighted in *Figure 6* the site does not intersect with any of the critical overland flow routes as depicted by the black arrows. Moreover, as discussed in Section 4, the proposed surface water drainage strategy has been designed to manage run off from the 1 in 100 + 20% climate change storm event through infiltration. Therefore, the proposed development will not increase the risk of flooding within the critical drainage area or increase pressure on the existing surface water drainage network in the CDA.

3. DEVELOPMENT PROPOSALS

The proposed development covers an area of approximately 0.9 ha. The site is an existing brownfield site comprising of many independent industrial units.

The proposed development is summarised as follows:

- Construction of two no. large industrial units;
- Concrete service yards to facilitate delivery;
- Rework of existing access road to the proposed units; and
- Associated hard and soft landscaping to facilitate access to the units including parking bays and footpaths.

The proposed development is illustrated in Appendix C – Proposed Site Plan.

4. SURFACE WATER DRAINAGE PROPOSALS

4.1. Overview

The proposed surface water drainage strategy is summarised below:

- Proposed tanked permeable paved parking bays with piped connections to infiltration systems;
- Proposed below ground geocellular infiltration tank beneath the service yards; and
- Proposed permeable paved parking bays infiltrating to ground.

The proposed surface water drainage strategy is illustrated in Appendix D – Proposed Drainage Strategy.

4.2. Proposed SuDS Strategy

For the proposed surface water management strategy for the site, the drainage hierarchy has been followed. The drainage hierarchy (in order of preference for surface water runoff disposal) is summarised as follows:

- Infiltration (discharge to ground via soakaway or another form of suitable infiltration system);
- Outfall to a watercourse/ surface water body;
- Discharge to a surface water sewer, highway drainage or other positive drainage system; and
- Where none of the above are viable, discharge to a combined sewer.

Sufficient infiltration was found in all 3 windowless boreholes; therefore, in accordance with the drainage hierarchy, infiltration will be utilised for surface water disposal. As mentioned in Section 2.6, a minimum design infiltration rate of 4.32 $x10^{-6}$ m/s will be used across the site.

To ensure compliance with the London Borough of Hillingdon Council SuDS Design and Evaluation Guide, the site will attenuate surface water up to the 1 in 100 + 20% climate change event. As the site is a commercial development, it is not required to provide storage up to the 1 in 100 + 40% climate change event. Furthermore, Cv Values for 0.9 for areas of hardstanding and 0.95 for roofs have been utilised.

Following the definition of finished floor levels by the architects, a full levels model can be developed, and an overland flow routing plan will be produced. It is currently presumed the site will mimic the overland flow routes of the existing site, with any exceedance flow travelling to the south of the site and into the Grand Union Canal.

4.3. Design of Surface Water Drainage and InfoDrainage Modelling

The site drainage has been modelled using InfoDrainage, which is the latest programme offered by Innovyze to replace MicroDrainage. The output results include all the data that is typically presented in MicroDrainage outputs, plus greater visibility of proposed SuDS features and graphical representation. Innovyze has worked extensively with approving authorities to ensure the output from InfoDrainage facilitates a more streamlined review. InfoDrainage design software has been utilised to design the surface water drainage systems; network details and results for the 2-year, 30-year, 100-year, and 100-

year + 20% climate change storm events are provided in Appendix E – Infodrainage Results and Outputs of this report.

The following section should be read in conjunction with drawing 5027861-RDG-XX-XX-D-C-000500-000501Proposed Drainage Strategy drawings in Appendix D – Proposed Drainage Strategy.

Below ground soakaways formed from high-strength geocellular tanks have been specified beneath the service yard for each of the proposed units to dispose of surface water. Permeable paved parking bays have also been specified to the perimeter of each of the yards and the access road. Where the parking spaces are situated further than 5 m from the face of the building, the permeable paving will be specified to allow for infiltration. Where they are closer to the building, a tanked system is proposed.

The infiltration rate for each of the proposed features has been determined based on the results of the closest infiltration test undertaken as part of the ground condition assessment. Infiltration rates from WS07 have been utilised for Infiltration Tank 1 and Porous Paving 1 and infiltration rates from WS03 have been utilised for Infiltration Tank 2, Porous Paving 3 and Porous Paving 4.

The specification of the SuDS features have been summarised in *Table 5* below:

Table 5 - Proposed SuDS Summary

SUDS FEATURE	FETAURE DEPTH (M)	FEATURE LENGTH (M)	FEATURE WIDTH (M)	OUTFLOW CONTROL
Infiltration Tank 1	1.00	12.0	25.0	Infiltration into ground at 0.1713 m/hr
Infiltration Tank 2	1.00	16.0	22.0	Infiltration into ground at 0.0156 m/hr
Porous Paving 1	0.55	21.6	4.8	Infiltration into ground at 0.1713 m/hr
Porous Paving 2	0.45	7.8	4.8	Free discharge to SW MH 14
Porous Paving 3	0.35	7.2	4.8	Infiltration into ground at 0.0156 m/hr
Porous Paving 4	0.35	9.6	4.8	Infiltration into ground at 0.0156 m/hr
Porous Paving 5	0.70	22.0	4.8	Free discharge to SW MH 15
Porous Paving 6	0.7	50.0	4.8	Free discharge to SW MH 15

Small amounts of flooding occur across the network in the 1 in 100 +20% climate change rainfall event. A summary of the areas of flooding can be found in the *Table 6* below:

Table 6 - Flooded Volumes for the 1 in 100 +20% climate change event

STRUCTURE	FLOODED VOLUME (M3)	LOCATION OF FLOOD
Porous Paving 5	0.612	Surface flooding across Porous Paving 5 to infiltrate into network via tanked porous paving.
SW MH 10	0.253	
SW MH 18	0.388	Flooded volume to be managed within roadway and re enter the network via surface water collection systems

4.4. Water Quality

In accordance with Table 4.3 in Chapter 4 of the SUDS manual (C753) a water quality assessment has been undertaken using the Simple Index Approach. This approach is set out in Section 26.7.1 of the SUDS Manual.

From Table 26.2 of the SUDS Manual, the pollution hazard indices are notes as follows:

Table 7 - Pollution Hazard Indices

LAND USE	POLLUTION HAZARD LEVEL	TOTAL SUSPENDED SOLIDS (TSS)	METALS	HYDROCARBONS
Commercial Roofs	Low	0.3	0.2	0.05
Commercial Roads / Delivery Area	Medium	0.7	0.6	0.7

To deliver adequate treatment, the selected SuDS components should have a total mitigation index that equals or exceeds the pollution hazard index.

Total SUDS Mitigation ≥ Pollution Hazard Index

Where multiple SUDS components are proposed:

Total SUDS Mitigation Index = Mitigation index of the primary SUDS component + 0.5 * Mitigation indices of the secondary SUDS component

There are three treatment trains within the proposed scheme, the mitigation indices for each treatment train are as follows

Table 8 - Pollution Mitigation Indices

TREATMENT TRAIN	TYPE OF SUDS COMPONENT	MITIGATION INDICIES		
		TSS	METALS	HYDROCARBONS
Treatment Train 1	Permeable Paving for discharge to groundwater	0.7	0.6	0.7
Treatment Train 2	Tanked Permeable Paving	0.7	0.6	0.7
	Full retention Separator (e.g. SPEL ESR Full Flow Treatment System)	0.8	0.6	0.9
	TOTAL	1.1	0.9	1.15
Treatment Train 3	Full retention Separator (e.g. SPEL ESR Full Flow Treatment System)	0.8	0.6	0.9

As highlighted above in *Table 8*, the required level of treatment is provided within each treatment train to mitigate the risk of discharge of pollutants for the purpose of the development. Therefore, the design complies with the water quality requirements set out in Chapter 4 of the SuDS Manual.

5. FOUL DRAINAGE PROPOSAL

The location and condition of the existing foul drainage for the site is unknown, therefore it has been assumed the existing network will be abandoned and grubbed up and a new network has been proposed.

The site will drain via gravity, one drain run serving Unit 2 at the rear of the site and one serving Unit 1 to the front. The networks will meet at the site access bellmouth and discharge into the 300 mm dia Thames Water sewer on Horton Road between TW manholes 5201 and 5202.

It is assumed the site will not increase the foul load on the Thames Water sewers in comparison to the previous development on the site. It is understood the existing site is made up of more units than the proposed site, which it is assumed will lead to a reduction in the number of foul discharge units.

6. MAINTENANCE PLAN

The construction, operation, and maintenance requirements of all SuDS components has been considered as part of the proposed drainage strategy. It is important for the performance of the surface water systems that they are maintained on a regular basis. Maintenance should always be completed alongside the manufacturer's requirements.

A summary of the management and maintenance requirements and the expected design life of the above surface water drainage assets is provided in *Table 9* below.

Table 9 - Management and Maintenance Plan

MAINTENANCE SCHEDULE	REQUIRED ACTION	TYPICAL FREQUENCY	ESTIMATED ASSET DESIGN LIFE
Geocellular Tanks			*>50 years if installed to manufacturer recommendations.*
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then annually.	
	Remove debris from the catchment surface (where it may cause risks to performance).	Monthly.	
	Remove sediment from pre-treatment structures and/ or internal forebays.	Annually, or as required.	
Remedial Actions	Repair/ rehabilitate inlets, outlet, overflows and vents.	As required.	
Monitoring	As per 'Regular Maintenance' activities.	Annually.	
	Survey inside of tank for sediment build-up and remove if necessary.	Every 5 years or as required.	
Manholes/ Catchpits			*>50 years*
Regular Maintenance	Inspect chamber for build-up of any debris/ sediment in the base of catchpits and remove as required.	Annually.	

	Inspect covers and frames for any signs of damage, or indications of covers becoming loose/ tampered with.	Annually.	
Remedial Actions	Repair/ replace covers or frame. Remove silt/ debris from base of catchpit.	As required.	
Monitoring	As per 'Regular Maintenance' activities.	Annually.	
Pipes			*>50 years*
Regular Maintenance	Inspect chamber by visually checking for evidence of standing water in pipe runs (pipe invert submerged) and chamber is free-flowing. This may be an indication of blockages within the pipe. High-pressure jet/ rod as necessary to remove any blockage.	Annually.	
	Check for any obstructions across pipe inlets/ outlets within chamber/ Remove any debris or other obstructions as necessary.	Annually.	
Remedial Actions	Rodding and/ or CCTV condition survey and high-pressure jetting. Clearance of pipe inlets/ outlets within the chamber.	As required.	
Monitoring	Intrusive inspection (CCTV condition survey) to be undertaken of pipes and high-pressure jet washing/ rodding to be undertaken as required to cleanse systems of debris/ blockages. Undertake any other repairs e.g. pipe lining if identified from survey.	Every 10 years or as required.	

Porous Paving		*As standard block paving*
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall or altered frequency based on site specific observations of clogging
	Stabilise and mow contributing adjacent areas	As required
	Removal of weeds or management using glyphospate applied directly into the weeds by an applicator rather than spraying	As required, minimum once a year
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip has been raised to within 50 mm of the level of the pacing	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or hazard to users, and relace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10-15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, remedial action	Three- monthly, 48 h after large storms in first six months
	Inspect silt accumulation rate and	Annually

	establish appropriate brushing frequencies		
	Monitor inspection chambers	Annually	
Petrol Separators			*Maintenance should be undertaken in accordance with manufacturers recommendations.*
Routine maintenance	Remove litter and debris and inspect for sediment, oil and grease accumulation	Six monthly	
	Change the filter media	As recommended by the manufacturer	
	Remove sediment, oil, grease and floatables	As necessary – indicated by system inspections or immediately following significant spill	
Remedial Actions	Replace malfunctioning parts or structures	As required	
Monitoring	Inspect for evidence of poor operation	Six monthly	
	Inspect filter media and establish appropriate replacement frequencies	Six monthly	
	Inspect sediment accumulation rates and establish appropriate removal frequencies	Monthly during first half year of operation, then every six months	

7. CONCLUSION

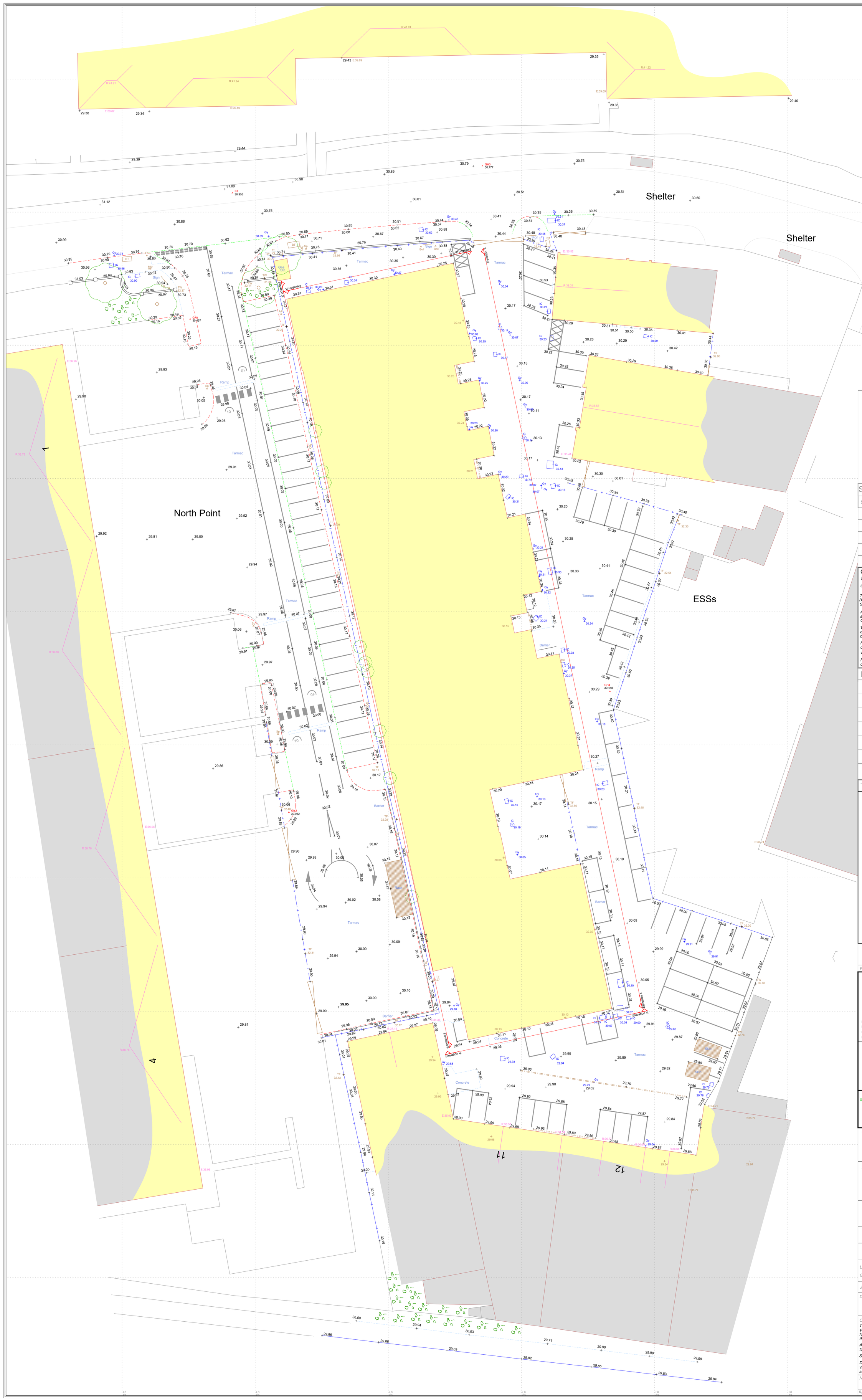
Ridge and Partners LLP have been commissioned by Le Masurier Limited to prepare a drainage strategy in support of the full planning application for the proposed development off Horton Road, West Drayton. This report demonstrates that the scheme complies with the London Borough of Hillingdon Council SuDS Design and Evaluation Guide

The proposed surface water drainage strategy has been sized to accommodate the 1 in 100 +20% climate change storm events with ~ 1.25 m^3 of flooding across the site in the most critical event. Surface water will be disposed via infiltration utilising permeable paving and below ground geo-cellular tank structures. A full levels strategy has yet to be developed for the site. Following this, an exceedance flow routing pan and a proposed surface water catchment areas plan can be developed.

Foul water will be disposed via a gravity connection to the Thames Water sewer network on Horton Road. This connection point is subject to a capacity agreement with Thames Water and approved S106 application.

A water quality assessment has been undertaken using the pollution hazard indices and Simple Index Approach, which has concluded the SuDS treatment train provides a sufficient level of treatment to satisfy CIRIA requirements.

APPENDIX A – TOPOGRAPHICAL SURVEY



Station Information:

Station	Easting (m)	Northing (m)	Level (m)
GH1	506530.253	180243.953	30.457
GH2	506545.075	180169.885	30.052
GH3	506574.171	180266.974	30.777
GH4	506593.295	180188.017	30.418

OS Note:

The Ordnance Survey tile is to be used as a guide only.

OS Buildings *Surveyed Buildings*

This survey has been orientated to the Ordnance Survey (O.S) National Grid OSGB36(15) via Global Navigational Satellite Systems (GNSS) and the O.S. Active Network (OS Net).

A true OSGB36 coordinate has been established near to the site centre via a transformation using the OSTN15GB & OSGM15GB transformation models.

The survey has been correlated to this point and a further one or more OSGB36(15) points established to create a true O.S. bearing for angle orientation.

No scale factor has been applied to the survey therefore the coordinates shown are arbitrary & not true O.S. Coordinates which have a scale factor applied.

Please refer to Survey Station Table to enable establishment of the on-site grid.

Building Survey Legend:

SHt 1.00 HHt 2.12	Sill Height from FFL. Head Height from FFL.
SL 51.03m HL 52.82m	Sill Level from defined datum. Head Level from defined datum.
Susp CHt: 2.00 Struct CHt: 3.00	Suspended Ceiling Height from FFL. Structural Ceiling Height from FFL.
Susp Ceil: 30.00m Struct Ceil: 31.00m	Suspended Ceiling Level from datum. Structural Ceiling Level from datum.
IFL: 100.00m +100.00m	Internal Floor Level (General). Internal Floor Level (Specific).
Insertion Point	Insertion Point for overlay drawings of other floors or details.

Incoming Services: Elec | Gas | Water

Topographical Survey Legend:

Buildings; Wall; Kerb line; Line marking; Drop kerb; Centre line; Overhead Cable; Concrete edge; Tarmac edge; Grass verge; Canopy/Overhang; Verge; Station and Name; Station Level; Tree / Bush / Sapling; Area of Undergrowth; Woodland; R: Ridge Level; E: Eaves Level; F: Flat Roof Level; Gate

Fence types: IW Interwoven; IR Iron Railings; WM Wire Mesh; PIR Post & Rail; PIW Post & Wire; CHL Chain Link; WP Wooden Panels; CP Concrete Panels; SP Steel Palisade

IC	Inspection chamber	Boll	Bollard
Pinv	Pipe invert	IB	Illuminated bollard
Gy	Gully	Bin	Rubbish bin
Bg	Back gully	Vp	Vent pipe
Dp	Down pipe	Grl	Ground light
Pipe	Pipe above ground	Lbox	Letter box
MH	Manhole	Ldr	Ladder
WL	Water level	Sty	Stile
Fl	Flood light	IFL	Internal floor level
Lp	Lamp post	THL	Threshold level
Tp	Telegraph post	Sp	Sign post
Ep	Electricity post	TH	Trailhole
Tl	Traffic light	BH	Borehole
Bus	Bus stop	ELC	Electric
Sv	Stop valve	BT	British Telecom
St	Stop tap	C'box	Control box
Er	Earth rod	TT	Tactile
Wm	Water meter	BP	Brick paved
Gas	Gas valve	CPS	Concrete paving slabs
Av	Air valve	CVR	Cover
ICU	Unidentified inspection	IC	Inspection chamber
Wo	Wash out	R/wall	Retaining wall
Re	Rodding eye	UTL	Unable to lift
BB	Belisha beacon	TCL	Tree canopy level
CTV	Cable tv	G	Girth
Mkr	Marker post	MG	Multi girth
Grmkr	Gas marker post	Stmp	Tree Stump
So	Soffit	CL	Cover level
		IL	Invert level

Rev	Date	Description	Drawn	Q. Ref.

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- Topographical Surveys
- Site Engineering
- Utility / CCTV Surveys
- Bathymetric Surveys
- Measured Building Surveys
- 3D Laser Scanning
- 3D Revit & BIM Models
- Area, Lease & Fire Plans

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Central London: 27 Cornwall Terrace Mews, Regents Park, London, NW1 5LL, t. (0207) 2241806

CLIENT
Michael Sparks Associates

PROJECT
Horton Road West Drayton UB7 8JL

TITLE
Existing Site Topography

SCALE	DATE
A1@ 1: 250	11.06.2024
DRAWN: CK	QUALITY REF: GH21288

Level datum	See OS Note
Grid orientation	See OS Note
Job number	51043

Drawing No. 51043_01_P — Rev. 0

Comments

This plan should only be used for its original purpose. Greenhatch Group accepts no responsibility for this plan if supplied to any party other than the original client.

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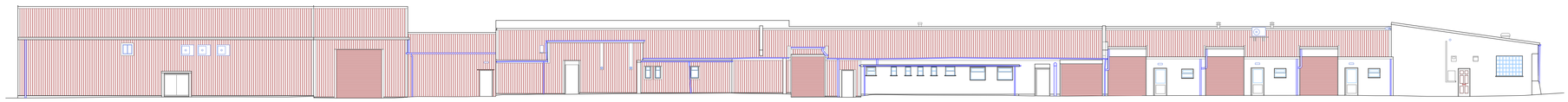
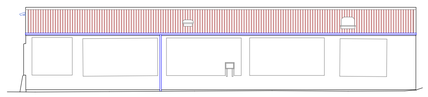
Some services may have been omitted due to parked vehicles.

Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.

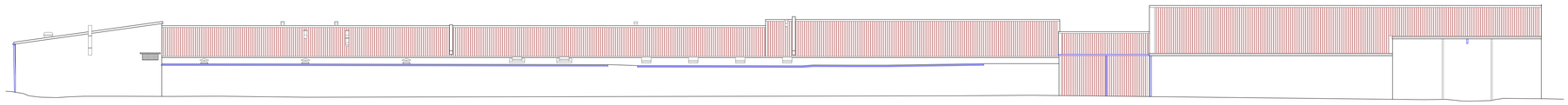
Notes:



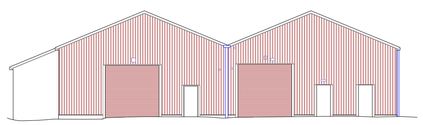
Datum: 25.00m.
Elevation 1.



Datum: 25.00m.
Elevation 2.



Datum: 25.00m.
Elevation 3.



Datum: 25.00m.
Elevation 4.

OS Note:

The Ordnance Survey tile is to be used as a guide only.

OS Buildings *Surveyed Buildings*

This survey has been orientated to the Ordnance Survey (O.S) National Grid OSGB36(15) via Global Navigational Satellite Systems (GNSS) and the O.S. Active Network (OS Net).

A true OSGB36 coordinate has been established near to the site centre via a transformation using the OSTN15GB & OSGM15GB transformation models.

The survey has been correlated to this point and a further one or more OSGB36(15) points established to create a true O.S. bearing for angle orientation.

No scale factor has been applied to the survey therefore the coordinates shown are arbitrary & not true O.S. Coordinates which have a scale factor applied.

Please refer to Survey Station Table to enable establishment of the on-site grid.

Building Survey Legend:

SHt 1.00 HHt 2.12	Sill Height from FFL. Head Height from FFL.
SL 51.03m HL 52.82m	Sill Level from defined datum. Head Level from defined datum.
Susp CHt: 2.00 Struct CHt: 3.00	Suspended Ceiling Height from FFL. Structural Ceiling Height from FFL.
Susp Ceil: 30.00m Struct Ceil: 31.00m	Suspended Ceiling Level from datum. Structural Ceiling Level from datum.
IFL: 100.00m +100.00m	Internal Floor Level (General). Internal Floor Level (Specific).
Insertion Point	Insertion Point for overlay drawings of other floors or details.

Incoming Services

Elec Gas Water

Topographical Survey Legend:

Buildings	Overhead Cable	IC	Inspection chamber	Bol	Bollard
Wall	Concrete edge	Pinv	Pipe invert	Ill	Illuminated bollard
Kerb line	Tarmac edge	Gy	Gully	Bin	Rubbish bin
Line marking	Grass verge	Bg	Back gully	Vp	Vent pipe
Drop kerb	Canopy/Overhang	Dp	Down pipe	Gl	Ground light
Central line	Verge	Pipe	Pipe above ground	Lbox	Letter box
100.000 Station and Name	Manhole	MH	Manhole	Ldr	Ladder
Station Level	Water level	WL	Water level	Sly	Silte
Tree / Bush / Sapling	Flood light	Fl	Flood light	FL	Internal floor level
Area of Undergrowth	Lamp post	Lp	Lamp post	THL	Threshold level
Woodland	Telegraph post	Tp	Telegraph post	Sp	Sign post
R Ridge Level	Electricity post	Ep	Electricity post	TH	Trialhole
E Eaves Level	Traffic light	Tl	Traffic light	BH	Borehole
F Flat Roof Level	Bus stop	Bus	Bus stop	ELC	Electric
Gate	Stop valve	Sv	Stop valve	BT	British Telecom
Fence types	Stop tap	St	Stop tap	Cbox	Control box
SW Interwoven	Earth rod	Er	Earth rod	TT	Tactile
IR Iron Railings	Water meter	Wm	Water meter	BP	Brick paved
WM Wire Mesh	Gas valve	Gas	Gas valve	CPS	Concrete paving slab
PR Post & Rail	Air valve	Av	Air valve	CVR	Cover
PW Post & Wire	Unidentified inspection	ICU	Unidentified inspection	IC	Inspection chamber
CL Chain Link	Wrath nut	Wn	Wrath nut	Rwall	Retaining wall
WP Wooden Panels	Rodding eye	Re	Rodding eye	UTL	Unable to lift
CP Concrete Panels	Belisha beacon	BB	Belisha beacon	TCL	Tree canopy level
SP Steel Palisade	Cable tv	CTV	Cable tv	G	Girth
	Marker post	Mkr	Marker post	MG	Multi girth
	Gas marker post	Gmkr	Gas marker post	Stmp	Tree Stump
	Soffit	So	Soffit	CL	Cover level
				IL	Invert level

Rev.	Date	Description	Drawn	Q. Ref.

greenhatch group

- Topographical Surveys
- Site Engineering
- Utility / CCTV Surveys
- Bathymetric Surveys
- Measured Building Surveys
- 3D Laser Scanning
- 3D Revit & BIM Models
- Area, Lease & Fire Plans

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Tel (01332) 830044 Fax (01332) 830055
admin@greenhatch-group.co.uk
www.greenhatch-group.co.uk

St Albans
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Alban Park
St Albans
Hertfordshire
AL4 0LA
t. (01727) 854481

Newcastle
24 Riverside Studios
Amethyst Road
Newcastle Bus. Park
Newcastle-U-Tyne
NE4 7YL
t. (01912) 736391

Central London
27 Cornwall Terrace Mews
Regents Park
London
NW1 5LL
t. (0207) 2241806

CLIENT
Michael Sparks Associates

PROJECT
Horton Road
West Drayton
UB7 8JL

TITLE
Existing Site Elevations

SCALE	DATE
A1@ 1: 200	11.06.2024
DRAWN	QUALITY REF
CK	GH21288

Level datum	See OS Note
Grid orientation	See OS Note
Job number	51043

Drawing No.	Rev.
51043_02_E	0

Comments
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Notes:

APPENDIX B – THAMES WATER RECORDS

Asset Location Search

Property Searches

Groundwise Searches Ltd
Suite 6 Princess Caroline Hous
ESSEX
SS1 1JE

Search address supplied Land at Horton Road, West Drayton, UB7 8JL

Your reference 001636-1DM-GWS

Our reference ALS/ALS Standard/2025_5125891

Search date 25 February 2025

Keeping you up-to-date

We have a new website and email address

Website URL: thameswater.co.uk/propertysearches

Email address: property.searches@thameswater.co.uk

Please do get in contact with us if you have any questions.

Thames Water Utilities Ltd
Property Searches,
Clearwater Court, Vastern Road, Reading RG1 8DB

property.searches@thameswater.co.uk
thameswater.co.uk/propertysearches

0800 009 4540

Asset Location Search

Property Searches

Search address supplied: Land at Horton Road, West Drayton, UB7 8JL,

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position and size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the contact details below:

Thames Water Utilities Ltd
Property Searches
Clearwater Court
Vastern Road
Reading
RG1 8DB

Email: property.searches@thameswater.co.uk
Web: thameswater.co.uk/propertysearches

Asset Location Search

Thames Water Property Searches

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority. Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners. The public sewer map relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus. The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an ‘as constructed’ record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

Affinity Water Ltd
Tamblin Way

Asset Location Search

Property Searches

Hatfield
AL10 9EZ
Tel: 0345 3572401

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. You can do this by emailing customer.feedback@thameswater.co.uk with the email subject header 'Enquiry – TWOSA', along with details of the request.

If you have any questions regarding sewer connections, budget estimates, diversions or building over issues please direct them to our service desk which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

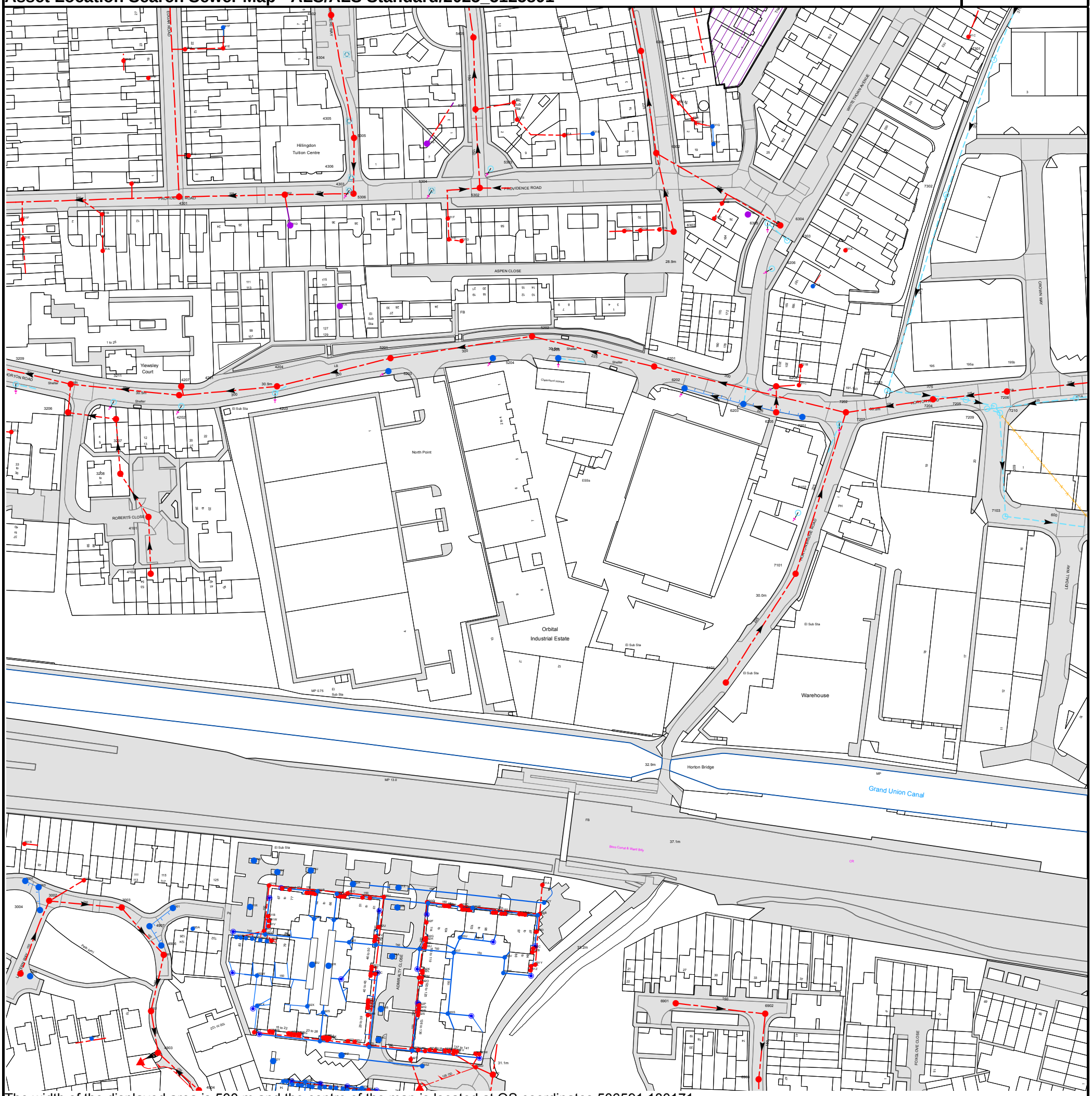
Clean Water queries

Should you require any advice concerning clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2025_5125891



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 506591,180171

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
7301	n/a	n/a
531C	n/a	n/a
631K	n/a	n/a
6301	29.16	26.73
5405	29.35	26.91
531D	n/a	n/a
531E	n/a	n/a
6303	28.92	27.25
631L	n/a	n/a
631M	n/a	n/a
631N	n/a	n/a
531F	n/a	n/a
5304	29.31	27.17
5302	29.37	27.5
5303	29.26	27.15
6302	29.06	26.97
531G	n/a	n/a
531A	n/a	n/a
631B	n/a	n/a
531B	n/a	n/a
5301	29.26	27.1
631J	n/a	n/a
631I	n/a	n/a
631H	n/a	n/a
631G	n/a	n/a
631F	n/a	n/a
631C	n/a	n/a
631D	n/a	n/a
631E	n/a	n/a
6305	28.76	26.41
6206	28.98	26.87
6304	28.72	27.2
7303	28.76	26.52
721A	n/a	n/a
731A	n/a	n/a
7302	n/a	n/a
741C	n/a	n/a
5202	30.68	27.21
5205	30.59	29.01
6201	30.68	27.42
6202	30.93	29.38
6101	30.96	28.24
6203	30.42	26.79
6205	30.44	28.05
6204	30.56	27.73
7101	30.04	27.98
7102	30.3	27.25
721C	n/a	n/a
721B	n/a	n/a
7201	30.24	28.84
7207	30.06	27.14
7202	30.16	27.57
7203	n/a	n/a
7204	29.88	27.77
7205	29.89	28.55
7209	n/a	n/a
7206	30.02	28.28
7210	n/a	n/a
7103	n/a	n/a
821B	n/a	n/a
821A	n/a	n/a
592X	n/a	28.51
592H	n/a	28.26
592W	n/a	28.51
592G	n/a	28.26
593U	28.9	28.07
592V	n/a	28.51
592U	n/a	28.51
592F	n/a	28.15
501J	n/a	28.26
501L	n/a	28.26
501K	n/a	28.26
501M	n/a	28.26
501N	n/a	28.26
501W	28.83	28.12
502B	n/a	27.9
501R	n/a	28.26
501Q	n/a	28.15
501P	n/a	28.15
501C	28.66	27.78
501X	28.66	27.65
501O	28.66	27.65
501T	n/a	28.4
501U	29.19	27.82
501Z	n/a	27.48
5203	30.96	29.31
5201	30.91	26.97
5204	30.93	28.82
492H	n/a	28.51
593H	n/a	28.51
492S	29.11	27.5

Manhole Reference	Manhole Cover Level	Manhole Invert Level
593G	n/a	28.51
492X	29.15	28.4
593F	n/a	28.51
593E	n/a	28.51
593D	n/a	28.51
492R	n/a	26.84
492U	n/a	27.63
492T	29.11	27.53
401O	29.11	27.5
401Q	29.11	27.8
501S	n/a	28.4
401M	n/a	28.51
401K	n/a	28.51
401L	n/a	28.51
401J	n/a	28.51
401I	n/a	28.51
401N	29.15	27.6
401H	n/a	28.51
401C	29.05	27.96
401G	n/a	28.51
401F	n/a	28.51
401P	29.21	27.95
502A	n/a	27.48
401U	n/a	27.9
591S	n/a	28.26
591Q	n/a	28.15
591N	28.9	28.18
592N	28.86	27.08
594C	n/a	27.8
592S	28.15	n/a
593S	28.95	28.21
592R	28.15	n/a
594B	n/a	27.8
592Q	28.26	n/a
592P	28.26	n/a
592O	28.26	n/a
592M	n/a	28.26
592E	29.06	27.36
593B	n/a	28.51
593C	29.1	27.53
593A	n/a	28.51
592L	n/a	28.26
592K	n/a	28.26
592Z	n/a	28.51
592Y	n/a	28.51
594A	n/a	27.9
593T	28.9	27.93
593X	28.95	27.8
592J	n/a	28.26
593Y	29.11	27.63
592I	n/a	28.26
591F	n/a	28.05
591C	n/a	28.1
591B	n/a	28.1
591A	28.7	27.48
491M	n/a	28.05
491L	n/a	28.1
491K	n/a	28.05
593K	28.75	28.17
491H	n/a	28.05
491J	n/a	28.05
491I	n/a	28.1
491G	n/a	28.1
491F	n/a	28.1
492Z	n/a	27.35
593R	28.9	27.91
593I	29	27.96
593J	n/a	28.4
492L	n/a	28.4
492Q	29.11	27.63
491Z	29.11	27.42
492K	n/a	28.51
492I	n/a	28.51
492J	n/a	28.51
5901	30.73	27.3
594D	30.7	n/a
593Z	28.9	27.7
592T	28.8	27.05
591W	n/a	29.5
591X	n/a	29.5
591P	29.5	27.9
591V	n/a	28.96
591U	n/a	28.96
591O	n/a	28.15
591T	n/a	28.26
593Q	28.95	28.02
591R	n/a	28.26
6903	n/a	n/a
6902	n/a	n/a
6901	n/a	n/a
593W	29.31	28.56
591Z	n/a	28.71
592A	n/a	28.71

Manhole Reference	Manhole Cover Level	Manhole Invert Level
591Y	29.35	28.6
593V	29.31	28.39
592B	n/a	28.6
592C	n/a	28.6
592D	n/a	28.6
501V	29.31	28.39
501D	n/a	28.71
501E	n/a	28.6
501B	29.31	28.08
501F	n/a	28.6
501G	n/a	28.26
501H	n/a	28.26
501I	n/a	28.26
501Y	29.27	28
501A	29.08	28.48
3209	30.99	29.97
331F	n/a	n/a
331E	n/a	n/a
3205	30.68	26.28
331B	n/a	n/a
331A	n/a	n/a
331G	n/a	n/a
331C	n/a	n/a
431B	n/a	n/a
4301	29.65	26.84
4201	30.97	27.14
431A	n/a	n/a
431C	n/a	n/a
441E	n/a	n/a
441F	n/a	n/a
4203	30.9	26.72
4302	29.48	27.14
431D	n/a	n/a
4402	n/a	n/a
421A	n/a	n/a
4304	n/a	n/a
4305	n/a	n/a
4303	29.34	27.21
4306	n/a	n/a
5306	n/a	n/a
5305	n/a	n/a
3002	29.06	26.9
401E	n/a	28.4
401D	n/a	28.4
3005	n/a	n/a
401A	29.17	28.26
3006	n/a	n/a
301A	n/a	n/a
401T	n/a	27.9
401S	n/a	27.9
301B	n/a	n/a
4102	28.87	27.62
4101	28.51	27.17
3208	28.91	26.93
321A	n/a	n/a
3207	30.4	26.73
3206	n/a	n/a
4207	30.79	27.5
3211	30.72	28.05
4202	30.74	26.5
4204	30.96	29.73
3901	29.2	27.16
3902	n/a	n/a
3004	n/a	n/a
3003	28.84	26.73
4907	n/a	n/a
4902	28.56	26.29
4906	n/a	n/a
4901	28.14	26.49
4001	n/a	n/a
493A	n/a	n/a
491N	29.3	28.64
491O	n/a	28.64
491P	n/a	28.64
401R	n/a	27.9
491Q	n/a	28.6
491Y	29	27.79
492W	29.1	27.93
491X	29.05	28
491R	n/a	28.59
491U	29.25	26.44
492V	29.26	28.2
491S	n/a	28.59
401B	n/a	28.51
491V	n/a	28.51
491W	n/a	28.51
492A	n/a	28.51
491T	29.3	28.55
492B	n/a	28.51
391E	n/a	n/a
4903	28.85	25.9
4904	28.72	26.18
492Y	n/a	27.7

Manhole Reference	Manhole Cover Level	Manhole Invert Level
491A	28.75	28.08
491B	28.75	28.05
492C	n/a	28.51
492D	n/a	28.51
491C	n/a	28.1
492E	n/a	28.51
491D	n/a	28.05
492F	n/a	28.51
492G	n/a	28.51
491E	n/a	28.05
492N	28.75	28.17

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Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

- Storm Sewer
- Sludge Sewer
- Foul Trunk Sewer
- Surface Trunk Sewer
- Combined Trunk Sewer
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Vacuum
- Thames Water Proposed
- Vent Pipe
- Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

- Sewer
- Culverted Watercourse
- Proposed
- Decommissioned Sewer
- Content of this drainage network is currently unknown
- Ownership of this drainage network is currently unknown

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve
- Meter
- Dam Chase
- Vent
- Fitting

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

- Ancillary
- Drop Pipe
- Control Valve
- Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- Inlet
- Outfall
- Undefined End

Other Symbols

Symbols used on maps which do not fall under other general categories.

- Change of Characteristic Indicator
- Public / Private Pumping Station
- Invert Level
- Summit

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Chamber
- Operational Site

Ducts or Crossings

- Casement

Ducts may contain high voltage cables. Please check with Thames Water.

- Conduit Bridge
- Subway
- Tunnel

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plan are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement.

If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

APPENDIX C – PROPOSED SITE PLAN

1 SITE LAYOUT PLAN
1:500

KEY

APPLICATION BOUNDARY

NOTE:
BOUNDARY TAKEN FROM INTERPOLATION OF TITLE NOS. AGL52907, NGL564654 & NGL254539

BASED ON SURVEY BY GREENHATCH
(DRAWING 51043_01_P REV 0 DATED 11.06.2024)

REV	DATE	NOTES	DRAWN	CHECKED
PL07	15/07/2025	Fence line ameded	sd	mk
PL06	14/07/2025	Red line ameded	sd	mk
PL05	03/07/2025	Sub-station added.	mk	sd
PL04	23/06/2025	General update	sd	dod
PL03	20/05/2025	Amenity spaces added. Acoustic fence amended. Unit 1 cycles moved. PV area increased.	sdd	sd
PL02	20/05/2025	Issued for planning	sdd	sd
PL01	30/04/2025	preliminary issue	sd	mk

MICHAEL SPARKS ASSOCIATES
CHARTERED ARCHITECTS
11 PLATO PLACE ST DIONIS ROAD LONDON SW6 4TU
020 7736 6162 WWW.MSA-ARCHITECTS.CO.UK

LE MASURIER

PROJECT TITLE
HORTON ROAD, WEST DRAYTON

MSA JOB No. **31906**

CLIENT
LE MASURIER

DOCUMENT TITLE
SITE LAYOUT PLAN

SCALE
1:500 @ A1

DATE 14/07/25
DRAWN sd
CHECKED mk

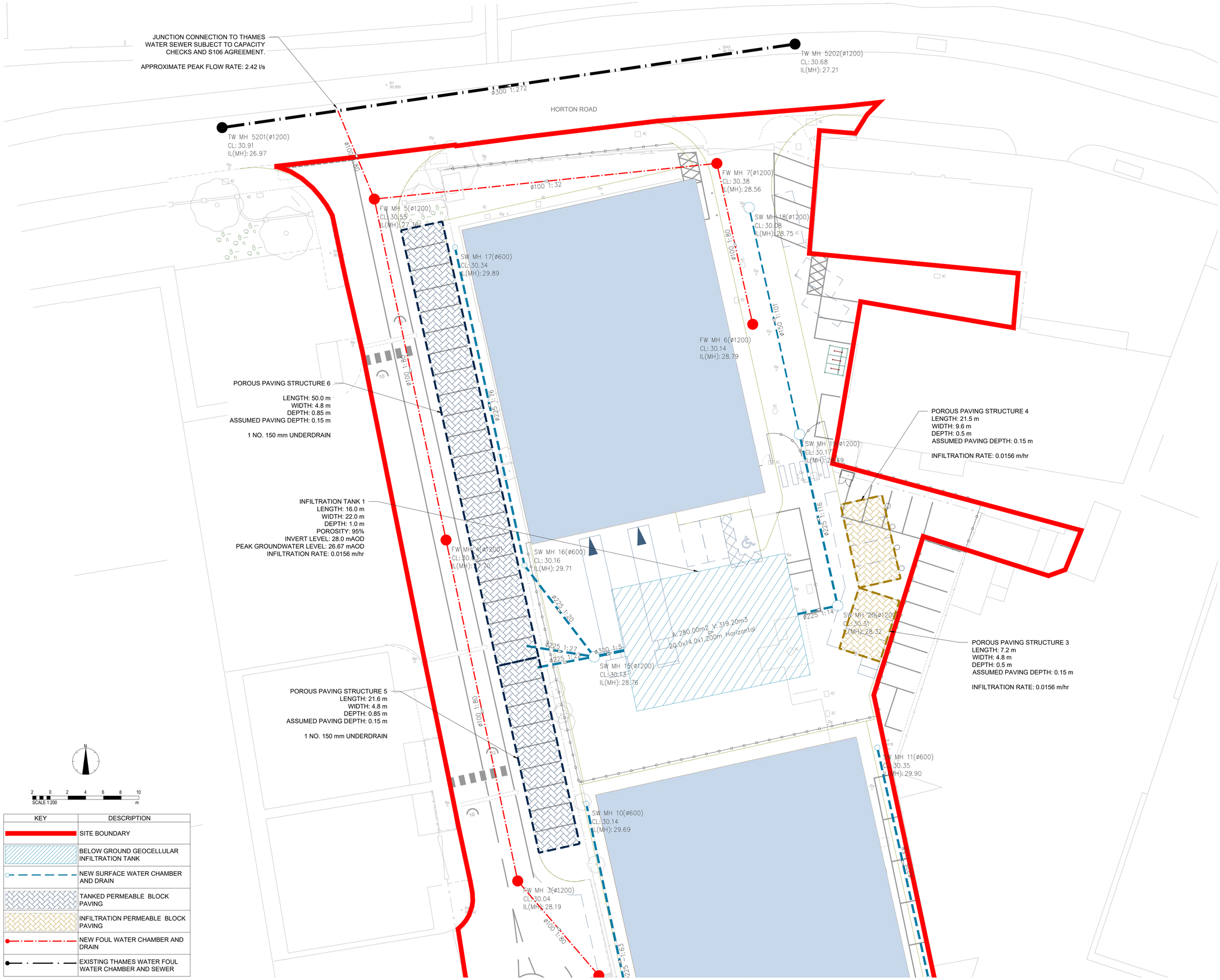
DOCUMENT NUMBER
HRWD-MSA-SI-00-DR-A-20002

STATUS
PLANNING

REV
PL07

0 5 10 15 20 25 50 m

APPENDIX D – PROPOSED DRAINAGE STRATEGY



KEY	DESCRIPTION
	SITE BOUNDARY
	BELOW GROUND GEOCELLULAR INFILTRATION TANK
	NEW SURFACE WATER CHAMBER AND DRAIN
	TANKED PERMEABLE BLOCK PAVING
	INFILTRATION PERMEABLE BLOCK PAVING
	NEW FOUL WATER CHAMBER AND DRAIN
	EXISTING THAMES WATER FOUL WATER CHAMBER AND SEWER

CDM REGULATIONS 2015

Significant or non-obvious risks and risks which are difficult to manage are identified on this drawing using the following symbol identified to the right with brief accompanying text. For further details of the risks identified by designers, reference should be made to CDM hazard register.

REV	DESCRIPTION	DATE	BY	CHKD
P01	PLANNING ISSUE	23/05/2025	EP	ACB

ORIGINATOR: www.ridge.co.uk

RIDGE

PROJECT NUMBER: 5027861

CLIENT:
LE MASURIER LTD

IN ASSOCIATION WITH:

PROJECT:
LA MASURIER
HORTON ROAD

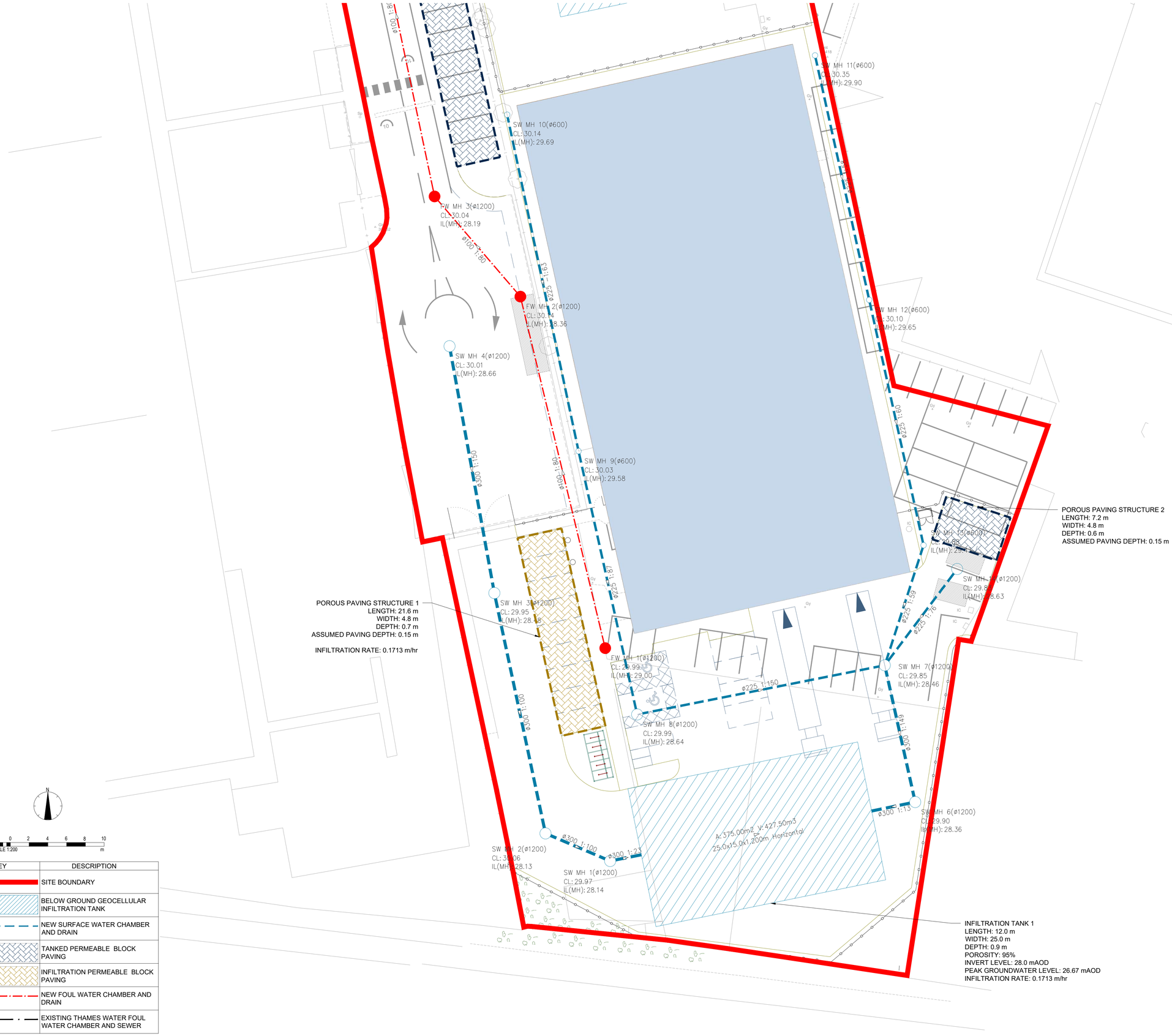
TITLE:
DRAINAGE STRATEGY
SHEET 1-2

DRAWN BY:	TA	CHECKED BY:	ACB	APPROVED BY:	ACB
SCALE @ A1:	1:200	DATE OF REVIEW:	MAY 2025		

ISO 19650 STATUS:
S2 - Suitable for Information

DRAWING No: 5027861-RDG-XX-XX-D-C-000500-P01 Drainage Strategy.dwg

PROJECT:	ORG:	FUNCTION:	SPATIAL:	FORM:	DISCIPLINE:	NUMBER:	REV:
5027861	RDG	XX	XX	D	C	000500	P01



KEY	DESCRIPTION
	SITE BOUNDARY
	BELOW GROUND GEOCELLULAR INFILTRATION TANK
	NEW SURFACE WATER CHAMBER AND DRAIN
	TANKED PERMEABLE BLOCK PAVING
	INFILTRATION PERMEABLE BLOCK PAVING
	NEW FOUL WATER CHAMBER AND DRAIN
	EXISTING THAMES WATER FOUL WATER CHAMBER AND SEWER

CDM REGULATIONS 2015

Significant or non-obvious risks and risks which are difficult to manage are identified on this drawing using the following symbol identified to the right with brief accompanying text. For further details of the risks identified by designers, reference should be made to CDM hazard register.

REV	DESCRIPTION	DATE	BY	CHKD
P01	PLANNING ISSUE	23/05/2025	EP	ACB

ORIGINATOR: www.ridge.co.uk

RIDGE

PROJECT NUMBER: 5027861

CLIENT:
LE MASURIER LTD

IN ASSOCIATION WITH:

PROJECT:
LA MASURIER
HORTON ROAD

TITLE:
DRAINAGE STRATEGY
SHEET 2-2

DRAWN BY: TA CHECKED BY: ACB APPROVED BY: ACB

SCALE @ A1: 1:200 DATE OF REVIEW: MAY 2025

ISO 19650 STATUS:
S2 - Suitable for Information

DRAWING No: 5027861-RDG-XX-XX-D-C-000500-P01 Drainage Strategy.dwg

PROJECT:	ORG:	FUNCTION:	SPATIAL:	FORM:	DISCIPLINE:	NUMBER:	REV:
5027861	RDG	XX	XX	D	C	000501	P01

APPENDIX E – INFODRAINAGE RESULTS AND OUTPUTS

Project:	Date:		
Horton Road Industrial Estate	01/05/2025		
	Designed by:	Checked by:	Approved By:
	EP	ACB	
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: Phase	Ridge and Partners LLP Reading		

Infiltration Tank 1

Type : Soakaway

Dimensions

Exceedance Level (m)	29.900
Depth (m)	1.900
Base Level (m)	28.000
Freeboard (mm)	0
Soakaway Shape	Rectangular
Diameter / Width (m)	25.000
Length (m)	12.000
Porosity (%)	95
Ineffective Storage Depth (m)	1.000
Number of Soakaways	1
Base Infiltration Rate (m/hr)	0.1713
Side Infiltration Rate (m/hr)	0.1713
Safety Factor	3.0
Total Volume (m³)	256.500

Inlets

Inlet (1)

Incoming Item(s)	Pipe (2) (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Incoming Item(s)	Pipe (16)
Bypass Destination	(None)
Capacity Type	No Restriction

Project:	Date:		
Horton Road Industrial Estate	01/05/2025		
	Designed by:	Checked by:	Approved By:
	EP	ACB	
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: Phase	Ridge and Partners LLP Reading		

Infiltration Tank 2

Type : Soakaway

Dimensions

Exceedance Level (m)	29.900
Depth (m)	1.900
Base Level (m)	28.000
Freeboard (mm)	0
Soakaway Shape	Rectangular
Diameter / Width (m)	22.000
Length (m)	16.000
Porosity (%)	95
Ineffective Storage Depth (m)	0.900
Number of Soakaways	1
Base Infiltration Rate (m/hr)	0.0156
Side Infiltration Rate (m/hr)	0.0156
Safety Factor	3.0
Total Volume (m³)	334.400

Inlets

Inlet (1)

Incoming Item(s)	Pipe (3) (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Incoming Item(s)	Pipe (15)
Bypass Destination	(None)
Capacity Type	No Restriction

Project:	Date:		
Horton Road Industrial Estate	01/05/2025		
	Designed by:	Checked by:	Approved By:
	EP	ACB	
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: Phase	Ridge and Partners LLP Reading		

RIDGE

Porous Paving 1

Type : Porous Paving

Dimensions

Exceedance Level (m)	29.900
Depth (m)	0.700
Base Level (m)	29.200
Paving Layer Depth (mm)	150
Membrane Percolation (m/hr)	2.5
Porosity (%)	30
Length (m)	21.600
Long. Slope (1:X)	1000.00
Width (m)	4.800
Total Volume (m^3)	17.226

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	100
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Catchment Area Catchment Area (1) (2)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Advanced

Base Infiltration Rate (m/hr)	0.1713
Side Infiltration Rate (m/hr)	0.1713
Safety Factor	3.0
Conductivity (m/hr)	50.0

Porous Paving 2

Type : Porous Paving

Dimensions

Exceedance Level (m)	29.900
Depth (m)	0.600
Base Level (m)	29.300
Paving Layer Depth (mm)	150
Membrane Percolation (m/hr)	2.5
Porosity (%)	30
Length (m)	7.200
Long. Slope (1:X)	1000.00
Width (m)	4.800
Total Volume (m^3)	4.666

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Catchment Area (2)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe (19)
Outlet Type	Free Discharge

Advanced

Conductivity (m/hr)	50.0

Porous Paving 4

Type : Porous Paving

Dimensions

Exceedance Level (m)	29.900
Depth (m)	0.500
Base Level (m)	29.400
Paving Layer Depth (mm)	150
Membrane Percolation (m/hr)	2.5
Porosity (%)	30
Length (m)	9.618
Long. Slope (1:X)	1000.00
Width (m)	4.800
Total Volume (m³)	4.847

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Catchment Area (7)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Advanced

Base Infiltration Rate (m/hr)	0.0156
Side Infiltration Rate (m/hr)	0.0156
Safety Factor	3.0
Conductivity (m/hr)	50.0

Porous Paving 3

Type : Porous Paving

Dimensions

Exceedance Level (m)	29.900
Depth (m)	0.500
Base Level (m)	29.400
Paving Layer Depth (mm)	150
Membrane Percolation (m/hr)	2.5
Porosity (%)	30
Length (m)	7.200
Long. Slope (1:X)	1000.00
Width (m)	4.800
Total Volume (m^3)	3.629

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (8)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Advanced

Base Infiltration Rate (m/hr)	0.0156
Side Infiltration Rate (m/hr)	0.0156
Safety Factor	3.0
Conductivity (m/hr)	50.0

Porous Paving 5

Type : Porous Paving

Dimensions

Exceedance Level (m)	29.850
Depth (m)	0.850
Base Level (m)	29.000
Paving Layer Depth (mm)	150
Membrane Percolation (m/hr)	2.5
Porosity (%)	30
Length (m)	22.000
Long. Slope (1:X)	500.00
Width (m)	4.800
Total Volume (m^3)	22.448

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (19) Catchment Area (17)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe (3)
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	50.0

Porous Paving 6

Type : Porous Paving

Dimensions

Exceedance Level (m)	29.900
Depth (m)	0.850
Base Level (m)	29.050
Paving Layer Depth (mm)	150
Membrane Percolation (m/hr)	2.5
Porosity (%)	30
Length (m)	50.000
Long. Slope (1:X)	100.00
Width (m)	4.800
Total Volume (m³)	51.019

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (19) (1) Catchment Area (20) Catchment Area (17) (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe (4)
Outlet Type	Free Discharge

Advanced

Conductivity (m/hr)	50.0

Project:	Date:			
Horton Road Industrial Estate	01/05/2025			
	Designed by:	Checked by:	Approved By:	RIDGE
	EP	ACB		
Report Details:	Company Address:			
Type: Manhole Schedule Storm Phase: Phase	Ridge and Partners LLP Reading			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SW MH 2	30.060 28.220	Diameter / Length: 1.200	{1} Pipe	Pipe	28.220	Diam/Width:300	Manhole
E:506563.228 N:180105.228	1.840		{a} Pipe (2)	Pipe	28.220	Diam/Width:300	Not Applicable
SW MH 15	30.130 28.760	Diameter / Length: 1.200	{1} Pipe (3) {2} Pipe (7) {3} Pipe (4)	Pipe Pipe Pipe	28.760 28.760 28.760	Diam/Width:225 Diam/Width:225 Diam/Width:225	Manhole
E:506560.029 N:180198.435	1.370		{a} Pipe (3) (1)	Pipe	28.760	Diam/Width:300	Not Applicable
SW MH 18	30.080 28.750	Diameter / Length: 1.200					Manhole
E:506577.509 N:180249.078	1.330		{a} Pipe (5)	Pipe	28.750	Diam/Width:150	Not Applicable
SW MH 20	30.310 28.320	Diameter / Length: 1.200	{1} Pipe (5) (1)	Pipe	28.320	Diam/Width:225	Manhole
E:506587.500 N:180204.184	1.990		{a} Pipe (15)	Pipe	28.320	Diam/Width:225	Not Applicable

Project: Horton Road Industrial Estate	Date: 01/05/2025			RIDGE
	Designed by: EP	Checked by: ACB	Approved By:	
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SW MH 17	30.340 29.890	Diameter / Length: 0.600					Manhole
E:506544.329 N:180244.599	0.450		{a} Pipe (6)	Pipe	29.890	Diam/Width:225	Not Applicable
SW MH 16	30.160 29.410	Diameter / Length: 0.600	{1} Pipe (6)	Pipe	29.410	Diam/Width:225	Manhole
E:506552.163 N:180208.734	0.750		{a} Pipe (7)	Pipe	29.410	Diam/Width:225	Not Applicable
SW MH 4	30.010 28.660	Diameter / Length: 1.200					Manhole
E:506552.995 N:180157.174	1.350		{a} Pipe (8)	Pipe	28.660	Diam/Width:300	Not Applicable
SW MH 3	29.950 28.482	Diameter / Length: 1.200	{1} Pipe (8)	Pipe	28.482	Diam/Width:300	Manhole
E:506557.776 N:180130.855	1.468		{a} Pipe	Pipe	28.482	Diam/Width:300	Not Applicable
SW MH 8	29.990 28.640	Diameter / Length: 1.200	{1} Pipe (18)	Pipe	28.640	Diam/Width:225	Manhole
E:506573.002 N:180117.910	1.350		{a} Pipe (10)	Pipe	28.640	Diam/Width:225	Not Applicable

Project:	Date:			
Horton Road Industrial Estate	01/05/2025			
	Designed by:	Checked by:	Approved By:	RIDGE
	EP	ACB		
Report Details:	Company Address:			
Type: Manhole Schedule Storm Phase: Phase	Ridge and Partners LLP Reading			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SW MH 7	29.850 28.461	Diameter / Length: 1.200	{1} Pipe (10)	Pipe	28.461	Diam/Width:225	Manhole
E:506599.410 N:180123.152	1.389		{2} Pipe (13)	Pipe	28.461	Diam/Width:225 Diam/Width:225	
			{3} Pipe (14)	Pipe	28.461		
			{a} Pipe (11)	Pipe	28.461	Diam/Width:300	Not Applicable
SW MH 6	29.900 28.361	Diameter / Length: 1.200	{1} Pipe (11)	Pipe	28.361	Diam/Width:300	Manhole
E:506602.655 N:180108.572	1.539		{a} Pipe (16)	Pipe	28.361	Diam/Width:300	Not Applicable
SW MH 11	30.350 29.600	Diameter / Length: 0.600					Manhole
E:506591.974 N:180188.180	0.750		{a} Pipe (12)	Pipe	29.600	Diam/Width:225	Not Applicable
SW MH 13	29.880 28.690	Diameter / Length: 0.600	{1} Pipe (12) (1)	Pipe	28.690	Diam/Width:225	Manhole
E:506603.548 N:180135.956	1.190		{a} Pipe (13)	Pipe	28.690	Diam/Width:225	Not Applicable

Project:	Date:			
Horton Road Industrial Estate	01/05/2025			
	Designed by:	Checked by:	Approved By:	RIDGE
	EP	ACB		
Report Details:	Company Address:			
Type: Manhole Schedule Storm Phase: Phase	Ridge and Partners LLP Reading			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SW MH 14	29.830 28.630	Diameter / Length: 1.200	{1} Pipe (19)	Pipe	29.275	Diam/Width:150	Manhole
E:506607.128 N:180133.418	1.200		{a} Pipe (14)	Pipe	28.630	Diam/Width:225	Not Applicable
SW MH 19	30.170 28.490	Diameter / Length: 1.200	{1} Pipe (5)	Pipe	28.490	Diam/Width:150	Manhole
E:506583.199 N:180223.509	1.680		{a} Pipe (5) (1)	Pipe	28.490	Diam/Width:225	Not Applicable
SW MH 12	30.100 29.140	Diameter / Length: 0.600	{1} Pipe (12)	Pipe	29.140	Diam/Width:225	Manhole
E:506597.751 N:180162.111	0.960		{a} Pipe (12) (1)	Pipe	29.140	Diam/Width:225	Not Applicable
SW MH 10	30.140 29.390	Diameter / Length: 1.200					Manhole
E:506559.139 N:180181.855	0.750		{a} Pipe (17)	Pipe	29.390	Diam/Width:225	Not Applicable
SW MH 9	30.030 28.970	Diameter / Length: 1.200	{1} Pipe (17)	Pipe	28.970	Diam/Width:225	Manhole
E:506566.754 N:180145.987	1.060		{a} Pipe (18)	Pipe	28.970	Diam/Width:225	Not Applicable

Project:	Date:			
Horton Road Industrial Estate	01/05/2025			
	Designed by:	Checked by:	Approved By:	RIDGE
	EP	ACB		
Report Details:	Company Address:			
Type: Manhole Schedule Storm Phase: Phase	Ridge and Partners LLP Reading			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SW MH 1	29.970 28.145	Diameter / Length: 1.200	{1} Pipe (2)	Pipe	28.145	Diam/Width:300	Manhole
E:506570.127 N:180102.278	1.825		{a} Pipe (2) (1)	Pipe	28.145	Diam/Width:300	Not Applicable

Project:	Date:		
Horton Road Industrial Estate	01/05/2025		
	Designed by:	Checked by:	Approved By:
	EP	ACB	
Report Details:	Company Address:		
Type: Inflow Summary Storm Phase: Phase	Ridge and Partners LLP Reading		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	Porous Paving 1		Time of Concentration	0.025	100	0	100	0.025
Catchment Area (1)	SW MH 2		Time of Concentration	0.021	100	0	100	0.021
Catchment Area (1) (1)	SW MH 7		Time of Concentration	0.091	100	0	100	0.091
Catchment Area (1) (2)	Porous Paving 1		Time of Concentration	0.020	100	0	100	0.020
Catchment Area (2)	Porous Paving 2		Time of Concentration	0.010	100	0	100	0.010
Catchment Area (3)	SW MH 12		Time of Concentration	0.008	100	0	100	0.008
Catchment Area (4)	SW MH 15		Time of Concentration	0.005	100	0	100	0.005
Catchment Area (5)	SW MH 9		Time of Concentration	0.013	100	0	100	0.013
Catchment Area (6)	SW MH 15		Time of Concentration	0.051	100	0	100	0.051
Catchment Area (6) (1)	SW MH 20		Time of Concentration	0.040	100	0	100	0.040
Catchment Area (7)	Porous Paving 4		Time of Concentration	0.005	100	0	100	0.005
Catchment Area (8)	Porous Paving 3		Time of Concentration	0.004	100	0	100	0.004
Catchment Area (9)	SW MH 20		Time of Concentration	0.007	100	0	100	0.007
Catchment Area (10)	SW MH 19		Time of Concentration	0.028	100	0	100	0.028
Catchment Area (11)	SW MH 10		Time of Concentration	0.085	100	0	100	0.085
Catchment Area (11) (1)	SW MH 11		Time of Concentration	0.089	100	0	100	0.089
Catchment Area (12)	SW MH 17		Time of Concentration	0.050	100	0	100	0.050
Catchment Area (12) (1)	SW MH 18		Time of Concentration	0.050	100	0	100	0.050
Catchment Area (13)	SW MH 19		Time of Concentration	0.016	100	0	100	0.016
Catchment Area (14)	SW MH 18		Time of Concentration	0.006	100	0	100	0.006
Catchment Area (15)	SW MH 18		Time of Concentration	0.009	100	0	100	0.009
Catchment Area (16)	SW MH 18		Time of Concentration	0.007	100	0	100	0.007
Catchment Area (17)	Porous Paving 5		Time of Concentration	0.009	100	0	100	0.009
Catchment Area (17) (1)	Porous Paving 6		Time of Concentration	0.025	100	0	100	0.025
Catchment Area (18)	SW MH 4		Time of Concentration	0.058	100	0	100	0.058
Catchment Area (19)	Porous Paving 5		Time of Concentration	0.018	100	0	100	0.018
Catchment Area (19) (1)	Porous Paving 6		Time of Concentration	0.038	100	0	100	0.038
Catchment Area (20)	Porous Paving 6		Time of Concentration	0.010	100	0	100	0.010
Catchment Area (21)	SW MH 8		Time of Concentration	0.020	100	0	100	0.020
Catchment Area (22)	SW MH 16		Time of Concentration	0.007	100	0	100	0.007
TOTAL		**0.0**		**0.822**				**0.822**

Project:	Date:		
Horton Road Industrial Estate	01/05/2025		
	Designed by:	Checked by:	Approved By:
	EP	ACB	
Report Details:	Company Address:		
Type: Rainfall Analysis Criteria	Ridge and Partners LLP Reading		

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FEH

Type: FEH

Site Location	GB 506583 180163 TQ 06583 80163
Rainfall Version	2022
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	20.000
100.0	0.000
30.0	0.000
2.0	0.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Catchment Area	FEH: 100 years: +20 %: 15 mins: Summer	0.02	17.3	7.530
Catchment Area (1)	FEH: 100 years: +20 %: 15 mins: Summer	0.02	15.0	6.525
Catchment Area (2)	FEH: 100 years: +20 %: 15 mins: Summer	0.01	6.9	2.979
Catchment Area (3)	FEH: 100 years: +20 %: 15 mins: Summer	0.01	5.6	2.454
Catchment Area (4)	FEH: 100 years: +20 %: 15 mins: Summer	0.00	3.4	1.458
Catchment Area (5)	FEH: 100 years: +20 %: 15 mins: Summer	0.01	9.5	4.140
Catchment Area (6)	FEH: 100 years: +20 %: 15 mins: Summer	0.05	35.9	15.588
Catchment Area (7)	FEH: 100 years: +20 %: 15 mins: Summer	0.00	3.3	1.413
Catchment Area (8)	FEH: 100 years: +20 %: 15 mins: Summer	0.00	2.7	1.185
Catchment Area (9)	FEH: 100 years: +20 %: 15 mins: Summer	0.01	4.8	2.088
Catchment Area (10)	FEH: 100 years: +20 %: 15 mins: Summer	0.03	19.7	8.553
Catchment Area (11)	FEH: 100 years: +20 %: 15 mins: Summer	0.08	63.4	27.501
Catchment Area (12)	FEH: 100 years: +20 %: 15 mins: Summer	0.05	37.1	16.104
Catchment Area (13)	FEH: 100 years: +20 %: 15 mins: Summer	0.02	11.0	4.767
Catchment Area (14)	FEH: 100 years: +20 %: 15 mins: Summer	0.01	3.9	1.698

Catchment Area (15)	FEH: 100 years: +20 %: 15 mins: Summer	0.01	6.4	2.775
Catchment Area (16)	FEH: 100 years: +20 %: 15 mins: Summer	0.01	5.1	2.220
Catchment Area (17)	FEH: 100 years: +20 %: 15 mins: Summer	0.01	6.6	2.886
Catchment Area (18)	FEH: 100 years: +20 %: 15 mins: Summer	0.06	40.9	17.763
Catchment Area (19)	FEH: 100 years: +20 %: 15 mins: Summer	0.02	13.0	5.637
Catchment Area (20)	FEH: 100 years: +20 %: 15 mins: Summer	0.01	6.8	2.946
Catchment Area (17) (1)	FEH: 100 years: +20 %: 15 mins: Summer	0.03	17.7	7.689
Catchment Area (19) (1)	FEH: 100 years: +20 %: 15 mins: Summer	0.04	27.1	11.751
Catchment Area (11) (1)	FEH: 100 years: +20 %: 15 mins: Summer	0.09	66.5	28.869
Catchment Area (1) (1)	FEH: 100 years: +20 %: 15 mins: Summer	0.09	64.1	27.798
Catchment Area (21)	FEH: 100 years: +20 %: 15 mins: Summer	0.02	14.4	6.264
Catchment Area (12) (1)	FEH: 100 years: +20 %: 15 mins: Summer	0.05	37.1	16.104
Catchment Area (6) (1)	FEH: 100 years: +20 %: 15 mins: Summer	0.04	28.1	12.183
Catchment Area (1) (2)	FEH: 100 years: +20 %: 15 mins: Summer	0.02	13.8	5.991
Catchment Area (22)	FEH: 100 years: +20 %: 15 mins: Summer	0.01	5.1	2.208

FEH: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area	FEH: 100 years: +0 %: 15 mins: Summer	0.02	14.5	6.274
Catchment Area (1)	FEH: 100 years: +0 %: 15 mins: Summer	0.02	12.5	5.443
Catchment Area (2)	FEH: 100 years: +0 %: 15 mins: Summer	0.01	5.7	2.481
Catchment Area (3)	FEH: 100 years: +0 %: 15 mins: Summer	0.01	4.7	2.043
Catchment Area (4)	FEH: 100 years: +0 %: 15 mins: Summer	0.00	2.8	1.212
Catchment Area (5)	FEH: 100 years: +0 %: 15 mins: Summer	0.01	8.0	3.453
Catchment Area (6)	FEH: 100 years: +0 %: 15 mins: Summer	0.05	29.9	12.989
Catchment Area (7)	FEH: 100 years: +0 %: 15 mins: Summer	0.00	2.7	1.176
Catchment Area (8)	FEH: 100 years: +0 %: 15 mins: Summer	0.00	2.3	0.990
Catchment Area (9)	FEH: 100 years: +0 %: 15 mins: Summer	0.01	4.0	1.737
Catchment Area (10)	FEH: 100 years: +0 %: 15 mins: Summer	0.03	16.4	7.129
Catchment Area (11)	FEH: 100 years: +0 %: 15 mins: Summer	0.08	52.8	22.920
Catchment Area (12)	FEH: 100 years: +0 %: 15 mins: Summer	0.05	30.9	13.424
Catchment Area (13)	FEH: 100 years: +0 %: 15 mins: Summer	0.02	9.2	3.979
Catchment Area (14)	FEH: 100 years: +0 %: 15 mins: Summer	0.01	3.3	1.410

Catchment Area (15)	FEH: 100 years: +0 %: 15 mins: Summer	0.01	5.3	2.316
Catchment Area (16)	FEH: 100 years: +0 %: 15 mins: Summer	0.01	4.3	1.848
Catchment Area (17)	FEH: 100 years: +0 %: 15 mins: Summer	0.01	5.5	2.403
Catchment Area (18)	FEH: 100 years: +0 %: 15 mins: Summer	0.06	34.1	14.801
Catchment Area (19)	FEH: 100 years: +0 %: 15 mins: Summer	0.02	10.8	4.699
Catchment Area (20)	FEH: 100 years: +0 %: 15 mins: Summer	0.01	5.7	2.457
Catchment Area (17) (1)	FEH: 100 years: +0 %: 15 mins: Summer	0.03	14.8	6.409
Catchment Area (19) (1)	FEH: 100 years: +0 %: 15 mins: Summer	0.04	22.6	9.796
Catchment Area (11) (1)	FEH: 100 years: +0 %: 15 mins: Summer	0.09	55.5	24.066
Catchment Area (1) (1)	FEH: 100 years: +0 %: 15 mins: Summer	0.09	53.4	23.169
Catchment Area (21)	FEH: 100 years: +0 %: 15 mins: Summer	0.02	12.0	5.218
Catchment Area (12) (1)	FEH: 100 years: +0 %: 15 mins: Summer	0.05	30.9	13.424
Catchment Area (6) (1)	FEH: 100 years: +0 %: 15 mins: Summer	0.04	23.4	10.153
Catchment Area (1) (2)	FEH: 100 years: +0 %: 15 mins: Summer	0.02	11.5	4.993
Catchment Area (22)	FEH: 100 years: +0 %: 15 mins: Summer	0.01	4.2	1.839

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area	FEH: 30 years: +0 %: 15 mins: Summer	0.02	11.2	4.858
Catchment Area (1)	FEH: 30 years: +0 %: 15 mins: Summer	0.02	9.7	4.213
Catchment Area (2)	FEH: 30 years: +0 %: 15 mins: Summer	0.01	4.4	1.917
Catchment Area (3)	FEH: 30 years: +0 %: 15 mins: Summer	0.01	3.6	1.581
Catchment Area (4)	FEH: 30 years: +0 %: 15 mins: Summer	0.00	2.2	0.939
Catchment Area (5)	FEH: 30 years: +0 %: 15 mins: Summer	0.01	6.2	2.674
Catchment Area (6)	FEH: 30 years: +0 %: 15 mins: Summer	0.05	23.2	10.055
Catchment Area (7)	FEH: 30 years: +0 %: 15 mins: Summer	0.00	2.1	0.915
Catchment Area (8)	FEH: 30 years: +0 %: 15 mins: Summer	0.00	1.8	0.762
Catchment Area (9)	FEH: 30 years: +0 %: 15 mins: Summer	0.01	3.1	1.347
Catchment Area (10)	FEH: 30 years: +0 %: 15 mins: Summer	0.03	12.7	5.521
Catchment Area (11)	FEH: 30 years: +0 %: 15 mins: Summer	0.08	40.9	17.743
Catchment Area (12)	FEH: 30 years: +0 %: 15 mins: Summer	0.05	23.9	10.388
Catchment Area (13)	FEH: 30 years: +0 %: 15 mins: Summer	0.02	7.1	3.079
Catchment Area (14)	FEH: 30 years: +0 %: 15 mins: Summer	0.01	2.5	1.092

Catchment Area (15)	FEH: 30 years: +0 %: 15 mins: Summer	0.01	4.1	1.791
Catchment Area (16)	FEH: 30 years: +0 %: 15 mins: Summer	0.01	3.3	1.428
Catchment Area (17)	FEH: 30 years: +0 %: 15 mins: Summer	0.01	4.3	1.857
Catchment Area (18)	FEH: 30 years: +0 %: 15 mins: Summer	0.06	26.4	11.460
Catchment Area (19)	FEH: 30 years: +0 %: 15 mins: Summer	0.02	8.4	3.634
Catchment Area (20)	FEH: 30 years: +0 %: 15 mins: Summer	0.01	4.4	1.896
Catchment Area (17) (1)	FEH: 30 years: +0 %: 15 mins: Summer	0.03	11.4	4.960
Catchment Area (19) (1)	FEH: 30 years: +0 %: 15 mins: Summer	0.04	17.5	7.580
Catchment Area (11) (1)	FEH: 30 years: +0 %: 15 mins: Summer	0.09	42.9	18.625
Catchment Area (1) (1)	FEH: 30 years: +0 %: 15 mins: Summer	0.09	41.3	17.935
Catchment Area (21)	FEH: 30 years: +0 %: 15 mins: Summer	0.02	9.3	4.039
Catchment Area (12) (1)	FEH: 30 years: +0 %: 15 mins: Summer	0.05	23.9	10.388
Catchment Area (6) (1)	FEH: 30 years: +0 %: 15 mins: Summer	0.04	18.1	7.862
Catchment Area (1) (2)	FEH: 30 years: +0 %: 15 mins: Summer	0.02	8.9	3.865
Catchment Area (22)	FEH: 30 years: +0 %: 15 mins: Summer	0.01	3.3	1.425

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Catchment Area	FEH: 2 years: +0 %: 15 mins: Summer	0.02	4.5	1.947
Catchment Area (1)	FEH: 2 years: +0 %: 15 mins: Summer	0.02	3.9	1.683
Catchment Area (2)	FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.8	0.768
Catchment Area (3)	FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.5	0.630
Catchment Area (4)	FEH: 2 years: +0 %: 15 mins: Summer	0.00	0.9	0.375
Catchment Area (5)	FEH: 2 years: +0 %: 15 mins: Summer	0.01	2.5	1.071
Catchment Area (6)	FEH: 2 years: +0 %: 15 mins: Summer	0.05	9.3	4.026
Catchment Area (7)	FEH: 2 years: +0 %: 15 mins: Summer	0.00	0.8	0.366
Catchment Area (8)	FEH: 2 years: +0 %: 15 mins: Summer	0.00	0.7	0.309
Catchment Area (9)	FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.2	0.540
Catchment Area (10)	FEH: 2 years: +0 %: 15 mins: Summer	0.03	5.1	2.208
Catchment Area (11)	FEH: 2 years: +0 %: 15 mins: Summer	0.08	16.4	7.104
Catchment Area (12)	FEH: 2 years: +0 %: 15 mins: Summer	0.05	9.6	4.161
Catchment Area (13)	FEH: 2 years: +0 %: 15 mins: Summer	0.02	2.8	1.233
Catchment Area (14)	FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.0	0.435
Catchment Area (15)	FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.7	0.720
Catchment Area (16)	FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.3	0.570
Catchment Area (17)	FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.7	0.744
Catchment Area (18)	FEH: 2 years: +0 %: 15 mins: Summer	0.06	10.6	4.590
Catchment Area (19)	FEH: 2 years: +0 %: 15 mins: Summer	0.02	3.4	1.458

Catchment Area (20)	FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.8	0.762
Catchment Area (17) (1)	FEH: 2 years: +0 %: 15 mins: Summer	0.03	4.6	1.989
Catchment Area (19) (1)	FEH: 2 years: +0 %: 15 mins: Summer	0.04	7.0	3.039
Catchment Area (11) (1)	FEH: 2 years: +0 %: 15 mins: Summer	0.09	17.2	7.458
Catchment Area (1) (1)	FEH: 2 years: +0 %: 15 mins: Summer	0.09	16.5	7.182
Catchment Area (21)	FEH: 2 years: +0 %: 15 mins: Summer	0.02	3.7	1.620
Catchment Area (12) (1)	FEH: 2 years: +0 %: 15 mins: Summer	0.05	9.6	4.161
Catchment Area (6) (1)	FEH: 2 years: +0 %: 15 mins: Summer	0.04	7.3	3.147
Catchment Area (1) (2)	FEH: 2 years: +0 %: 15 mins: Summer	0.02	3.6	1.545
Catchment Area (22)	FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.3	0.570

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Resident Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW MH 2	FEH: 100 years: +20 %: 240 mins: Winter	30.060	28.220	28.753	0.533	10.2	0.603	0.000	9.2	56.854	Surcharged
SW MH 15	FEH: 100 years: +20 %: 1440 mins: Winter	30.130	28.760	28.942	0.182	6.0	0.206	0.000	6.0	207.697	OK
SW MH 18	FEH: 100 years: +20 %: 15 mins: Summer	30.080	28.750	30.080	1.330	52.5	1.892	0.388	37.9	22.830	Flood
SW MH 20	FEH: 100 years: +20 %: 1440 mins: Winter	30.310	28.320	28.942	0.622	4.7	0.704	0.000	4.6	158.610	Surcharged
SW MH 17	FEH: 100 years: +20 %: 15 mins: Summer	30.340	29.890	30.027	0.137	37.1	0.039	0.000	36.1	16.107	OK
SW MH 16	FEH: 100 years: +20 %: 15 mins: Summer	30.160	29.410	29.508	0.098	41.2	0.028	0.000	40.2	18.307	OK
SW MH 4	FEH: 100 years: +20 %: 15 mins: Summer	30.010	28.660	28.808	0.148	40.9	0.168	0.000	39.7	17.772	OK
SW MH 3	FEH: 100 years: +20 %: 240 mins: Winter	29.950	28.482	28.753	0.271	7.4	0.307	0.000	7.4	42.637	OK
SW MH 8	FEH: 100 years: +20 %: 15 mins: Summer	29.990	28.640	29.590	0.950	65.0	1.074	0.000	59.2	37.963	Surcharged
SW MH 7	FEH: 100 years: +20 %: 15 mins: Summer	29.850	28.461	29.197	0.736	174.0	0.833	0.000	169.2	98.950	Surcharged
SW MH 6	FEH: 100 years: +20 %: 240 mins: Winter	29.900	28.361	28.754	0.392	41.4	0.444	0.000	41.4	238.971	Surcharged
SW MH 11	FEH: 100 years: +20 %: 15 mins: Summer	30.350	29.600	30.100	0.500	66.5	0.142	0.000	57.6	28.798	Flood Risk
SW MH 13	FEH: 100 years: +20 %: 15 mins: Summer	29.880	28.690	29.365	0.675	56.0	0.191	0.000	50.7	31.265	Surcharged
SW MH 14	FEH: 100 years: +20 %: 15 mins: Summer	29.830	28.630	29.194	0.564	3.8	0.638	0.000	8.6	2.012	Surcharged
SW MH 19	FEH: 100 years: +20 %: 1440 mins: Winter	30.170	28.490	28.942	0.452	3.4	0.511	0.000	3.4	114.232	Surcharged
SW MH 12	FEH: 100 years: +20 %: 15 mins: Summer	30.100	29.140	29.722	0.582	63.2	0.165	0.000	56.0	31.234	Surcharged
SW MH 10	FEH: 100 years: +20 %: 15 mins: Summer	30.140	29.390	30.140	0.750	63.4	1.102	0.253	45.0	27.418	Flood
SW MH 9	FEH: 100 years: +20 %: 15 mins: Summer	30.030	28.970	29.879	0.909	54.6	1.028	0.000	50.6	31.652	Flood Risk
SW MH 1	FEH: 100 years: +20 %: 240 mins: Winter	29.970	28.145	28.753	0.608	9.2	0.688	0.000	8.9	55.976	Surcharged

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW MH 2	FEH: 100 years: +0 %: 180 mins: Winter	30.060	28.220	28.601	0.381	10.5	0.431	0.000	10.0	44.424	Surcharged
SW MH 15	FEH: 100 years: +0 %: 15 mins: Summer	30.130	28.760	28.853	0.093	66.2	0.105	0.000	65.6	42.013	OK
SW MH 18	FEH: 100 years: +0 %: 15 mins: Summer	30.080	28.750	29.886	1.136	43.8	1.285	0.000	35.6	19.002	Flood Risk
SW MH 20	FEH: 100 years: +0 %: 960 mins: Winter	30.310	28.320	28.763	0.443	5.6	0.502	0.000	5.6	125.767	Surcharged
SW MH 17	FEH: 100 years: +0 %: 15 mins: Summer	30.340	29.890	30.012	0.122	30.9	0.035	0.000	30.1	13.426	OK
SW MH 16	FEH: 100 years: +0 %: 15 mins: Summer	30.160	29.410	29.498	0.088	34.3	0.025	0.000	33.5	15.257	OK
SW MH 4	FEH: 100 years: +0 %: 15 mins: Summer	30.010	28.660	28.793	0.133	34.1	0.151	0.000	33.1	14.809	OK
SW MH 3	FEH: 100 years: +0 %: 180 mins: Winter	29.950	28.482	28.601	0.119	7.7	0.135	0.000	7.7	33.254	OK
SW MH 8	FEH: 100 years: +0 %: 15 mins: Summer	29.990	28.640	29.300	0.660	52.6	0.747	0.000	48.5	31.611	Surcharged
SW MH 7	FEH: 100 years: +0 %: 15 mins: Summer	29.850	28.461	29.024	0.563	145.5	0.637	0.000	144.1	82.401	Surcharged
SW MH 6	FEH: 100 years: +0 %: 180 mins: Winter	29.900	28.361	28.602	0.240	42.6	0.272	0.000	42.6	185.913	OK
SW MH 11	FEH: 100 years: +0 %: 15 mins: Summer	30.350	29.600	29.765	0.165	55.5	0.047	0.000	55.4	24.011	OK
SW MH 13	FEH: 100 years: +0 %: 15 mins: Summer	29.880	28.690	29.146	0.456	45.1	0.129	0.000	42.7	26.066	Surcharged
SW MH 14	FEH: 100 years: +0 %: 15 mins: Summer	29.830	28.630	29.020	0.390	2.5	0.441	0.000	5.9	1.635	Surcharged
SW MH 19	FEH: 100 years: +0 %: 15 mins: Summer	30.170	28.490	28.833	0.343	61.2	0.388	0.000	58.3	30.097	Surcharged
SW MH 12	FEH: 100 years: +0 %: 15 mins: Summer	30.100	29.140	29.385	0.245	60.1	0.069	0.000	45.1	26.038	Surcharged
SW MH 10	FEH: 100 years: +0 %: 15 mins: Summer	30.140	29.390	29.790	0.400	52.8	0.452	0.000	40.9	22.827	Surcharged
SW MH 9	FEH: 100 years: +0 %: 15 mins: Summer	30.030	28.970	29.511	0.541	48.8	0.611	0.000	40.6	26.352	Surcharged
SW MH 1	FEH: 100 years: +0 %: 180 mins: Winter	29.970	28.145	28.601	0.456	10.0	0.516	0.000	9.5	43.691	Surcharged

Project:	Date:		
Horton Road Industrial Estate	01/05/2025		
	Designed by:	Checked by:	Approved By:
	EP	ACB	
Report Details:	Company Address:		
Type: Junctions Summary Storm Phase: Phase	Ridge and Partners LLP Reading		

FEH: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW MH 2	FEH: 30 years: +0 %: 180 mins: Winter	30.060	28.220	28.435	0.216	8.1	0.244	0.000	8.3	35.094	OK
SW MH 15	FEH: 30 years: +0 %: 15 mins: Summer	30.130	28.760	28.841	0.081	51.2	0.091	0.000	50.7	32.186	OK
SW MH 18	FEH: 30 years: +0 %: 15 mins: Summer	30.080	28.750	29.426	0.676	33.9	0.764	0.000	29.0	14.702	Surcharged
SW MH 20	FEH: 30 years: +0 %: 960 mins: Winter	30.310	28.320	28.566	0.246	4.3	0.279	0.000	4.3	97.651	Surcharged
SW MH 17	FEH: 30 years: +0 %: 15 mins: Summer	30.340	29.890	29.995	0.105	23.9	0.030	0.000	23.2	10.390	OK
SW MH 16	FEH: 30 years: +0 %: 15 mins: Summer	30.160	29.410	29.485	0.075	26.5	0.021	0.000	25.8	11.808	OK
SW MH 4	FEH: 30 years: +0 %: 15 mins: Summer	30.010	28.660	28.775	0.115	26.4	0.130	0.000	25.5	11.466	OK
SW MH 3	FEH: 30 years: +0 %: 15 mins: Summer	29.950	28.482	28.580	0.099	25.5	0.112	0.000	24.2	11.449	OK
SW MH 8	FEH: 30 years: +0 %: 15 mins: Summer	29.990	28.640	29.005	0.365	45.0	0.413	0.000	43.7	24.447	Surcharged
SW MH 7	FEH: 30 years: +0 %: 15 mins: Summer	29.850	28.461	28.795	0.334	122.9	0.378	0.000	119.1	63.628	Surcharged
SW MH 6	FEH: 30 years: +0 %: 15 mins: Summer	29.900	28.361	28.530	0.168	119.1	0.190	0.000	117.7	63.485	OK
SW MH 11	FEH: 30 years: +0 %: 15 mins: Summer	30.350	29.600	29.736	0.136	42.9	0.039	0.000	42.1	18.626	OK
SW MH 13	FEH: 30 years: +0 %: 15 mins: Summer	29.880	28.690	28.866	0.176	44.4	0.050	0.000	35.3	20.192	OK
SW MH 14	FEH: 30 years: +0 %: 15 mins: Summer	29.830	28.630	28.801	0.171	1.9	0.193	0.000	2.6	1.116	OK
SW MH 19	FEH: 30 years: +0 %: 15 mins: Summer	30.170	28.490	28.687	0.197	48.8	0.222	0.000	47.2	23.284	OK
SW MH 12	FEH: 30 years: +0 %: 15 mins: Summer	30.100	29.140	29.282	0.142	45.7	0.040	0.000	44.4	20.192	OK
SW MH 10	FEH: 30 years: +0 %: 15 mins: Summer	30.140	29.390	29.538	0.148	40.9	0.168	0.000	39.5	17.720	OK
SW MH 9	FEH: 30 years: +0 %: 15 mins: Summer	30.030	28.970	29.146	0.176	45.7	0.200	0.000	35.7	20.386	OK
SW MH 1	FEH: 30 years: +0 %: 180 mins: Winter	29.970	28.145	28.436	0.291	8.3	0.329	0.000	7.9	34.829	OK

Project:	Date:		
Horton Road Industrial Estate	01/05/2025		
	Designed by:	Checked by:	Approved By:
	EP	ACB	
Report Details:	Company Address:		
Type: Junctions Summary Storm Phase: Phase	Ridge and Partners LLP Reading		

RIDGE

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW MH 2	FEH: 2 years: +0 %: 15 mins: Summer	30.060	28.220	28.293	0.074	13.3	0.083	0.000	12.7	6.256	OK
SW MH 15	FEH: 2 years: +0 %: 15 mins: Summer	30.130	28.760	28.811	0.051	20.4	0.058	0.000	20.2	10.461	OK
SW MH 18	FEH: 2 years: +0 %: 15 mins: Summer	30.080	28.750	28.851	0.101	13.6	0.114	0.000	13.0	5.884	OK
SW MH 20	FEH: 2 years: +0 %: 15 mins: Summer	30.310	28.320	28.409	0.089	28.5	0.101	0.000	28.0	13.002	OK
SW MH 17	FEH: 2 years: +0 %: 15 mins: Summer	30.340	29.890	29.954	0.064	9.6	0.018	0.000	9.2	4.162	OK
SW MH 16	FEH: 2 years: +0 %: 15 mins: Summer	30.160	29.410	29.455	0.045	10.6	0.013	0.000	10.2	4.726	OK
SW MH 4	FEH: 2 years: +0 %: 15 mins: Summer	30.010	28.660	28.731	0.071	10.6	0.080	0.000	10.1	4.594	OK
SW MH 3	FEH: 2 years: +0 %: 15 mins: Summer	29.950	28.482	28.541	0.059	10.1	0.067	0.000	9.5	4.579	OK
SW MH 8	FEH: 2 years: +0 %: 15 mins: Summer	29.990	28.640	28.746	0.106	20.7	0.120	0.000	19.3	9.761	OK
SW MH 7	FEH: 2 years: +0 %: 15 mins: Summer	29.850	28.461	28.627	0.166	53.4	0.188	0.000	50.7	25.355	OK
SW MH 6	FEH: 2 years: +0 %: 15 mins: Summer	29.900	28.361	28.465	0.103	50.7	0.117	0.000	50.1	25.353	OK
SW MH 11	FEH: 2 years: +0 %: 15 mins: Summer	30.350	29.600	29.678	0.078	17.2	0.022	0.000	16.8	7.459	OK
SW MH 13	FEH: 2 years: +0 %: 15 mins: Summer	29.880	28.690	28.766	0.076	17.5	0.022	0.000	17.0	8.079	OK
SW MH 14	FEH: 2 years: +0 %: 15 mins: Summer	29.830	28.630	28.645	0.015	0.6	0.017	0.000	0.6	0.364	OK
SW MH 19	FEH: 2 years: +0 %: 15 mins: Summer	30.170	28.490	28.598	0.108	20.9	0.122	0.000	20.0	9.313	OK
SW MH 12	FEH: 2 years: +0 %: 15 mins: Summer	30.100	29.140	29.222	0.082	18.3	0.023	0.000	17.5	8.085	OK
SW MH 10	FEH: 2 years: +0 %: 15 mins: Summer	30.140	29.390	29.474	0.084	16.4	0.095	0.000	15.7	7.107	OK
SW MH 9	FEH: 2 years: +0 %: 15 mins: Summer	30.030	28.970	29.057	0.087	18.2	0.099	0.000	17.0	8.165	OK
SW MH 1	FEH: 2 years: +0 %: 15 mins: Summer	29.970	28.145	28.205	0.060	12.7	0.068	0.000	12.5	6.257	OK

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. Avg. Level (m)	Max. Avg. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)	Status
Infiltration Tank 1	FEH: 100 years: +20 %: 240 mins: Winter	28.753	0.753	50.3	214.695	0.000	0.0	0.000	346	16.298	OK
Infiltration Tank 2	FEH: 100 years: +20 %: 1440 mins: Winter	28.942	0.942	10.6	315.066	0.000	0.0	0.000	4520	5.782	OK
Porous Paving 1	FEH: 100 years: +20 %: 60 mins: Winter	29.686	0.486	14.1	15.130	0.000	0.0	0.000	79	12.167	OK
Porous Paving 2	FEH: 100 years: +20 %: 240 mins: Summer	29.532	0.232	1.9	2.411	0.000	1.1	6.371	28	48.333	OK
Porous Paving 4	FEH: 100 years: +20 %: 240 mins: Winter	29.575	0.175	0.6	2.429	0.000	0.0	0.000	295	49.883	OK
Porous Paving 3	FEH: 100 years: +20 %: 240 mins: Winter	29.613	0.213	0.5	2.212	0.000	0.0	0.000	370	39.039	OK
Porous Paving 5	FEH: 100 years: +20 %: 180 mins: Summer	29.856	0.856	6.4	14.674	0.612	3.1	16.765	84	34.629	Flood
Porous Paving 6	FEH: 100 years: +20 %: 30 mins: Summer	29.337	0.287	33.7	20.659	0.000	16.1	25.351	23	59.508	OK

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. Avg. Level (m)	Max. Avg. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)	Status
Infiltration Tank 1	FEH: 100 years: +0 %: 180 mins: Winter	28.601	0.601	51.8	171.330	0.000	0.0	0.000	294	33.205	OK
Infiltration Tank 2	FEH: 100 years: +0 %: 960 mins: Winter	28.764	0.764	12.6	255.344	0.000	0.0	0.027	3776	23.641	OK
Porous Paving 1	FEH: 100 years: +0 %: 60 mins: Winter	29.579	0.379	11.7	11.785	0.000	0.0	0.000	64	31.584	OK
Porous Paving 2	FEH: 100 years: +0 %: 240 mins: Summer	29.501	0.201	1.5	2.083	0.000	0.9	5.223	24	55.351	OK
Porous Paving 4	FEH: 100 years: +0 %: 180 mins: Winter	29.538	0.138	0.6	1.918	0.000	0.0	0.000	242	60.438	OK
Porous Paving 3	FEH: 100 years: +0 %: 240 mins: Winter	29.569	0.169	0.4	1.751	0.000	0.0	0.000	295	51.757	OK
Porous Paving 5	FEH: 100 years: +0 %: 180 mins: Summer	29.850	0.850	5.3	12.368	0.024	1.7	13.489	130	44.903	Flood
Porous Paving 6	FEH: 100 years: +0 %: 30 mins: Summer	29.287	0.237	28.1	17.102	0.000	15.2	20.591	20	66.479	OK

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. Avg. Level (m)	Max. Avg. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)	Status
Infiltration Tank 1	FEH: 30 years: +0 %: 180 mins: Winter	28.436	0.436	41.0	124.206	0.000	0.0	0.000	223	51.577	OK
Infiltration Tank 2	FEH: 30 years: +0 %: 960 mins: Winter	28.566	0.566	10.0	189.391	0.000	0.0	0.000	2918	43.364	OK
Porous Paving 1	FEH: 30 years: +0 %: 60 mins: Winter	29.456	0.256	9.0	7.956	0.000	0.0	0.000	45	53.815	OK
Porous Paving 2	FEH: 30 years: +0 %: 240 mins: Summer	29.462	0.162	1.2	1.685	0.000	0.7	3.927	26	63.889	OK
Porous Paving 4	FEH: 30 years: +0 %: 120 mins: Winter	29.497	0.097	0.6	1.346	0.000	0.0	0.000	180	72.237	OK
Porous Paving 3	FEH: 30 years: +0 %: 180 mins: Winter	29.524	0.124	0.4	1.283	0.000	0.0	0.000	251	64.646	OK
Porous Paving 5	FEH: 30 years: +0 %: 180 mins: Summer	29.305	0.305	4.1	9.648	0.000	1.4	10.036	127	57.019	OK
Porous Paving 6	FEH: 30 years: +0 %: 30 mins: Summer	29.233	0.183	21.6	13.169	0.000	14.5	14.982	16	74.188	OK

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. Avg. Level (m)	Max. Avg. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)	Status
Infiltration Tank 1	FEH: 2 years: +0 %: 180 mins: Summer	28.145	0.145	28.2	41.431	0.000	0.0	0.000	88	83.848	OK
Infiltration Tank 2	FEH: 2 years: +0 %: 720 mins: Winter	28.255	0.255	6.3	85.367	0.000	0.0	0.000	1396	74.472	OK
Porous Paving 1	FEH: 2 years: +0 %: 30 mins: Summer	29.264	0.064	5.1	2.005	0.000	0.0	0.000	15	88.363	OK
Porous Paving 2	FEH: 2 years: +0 %: 480 mins: Summer	29.391	0.091	0.4	0.948	0.000	0.2	2.311	52	79.681	OK
Porous Paving 4	FEH: 2 years: +0 %: 180 mins: Summer	29.431	0.031	0.3	0.425	0.000	0.0	0.000	61	91.236	OK
Porous Paving 3	FEH: 2 years: +0 %: 240 mins: Winter	29.448	0.048	0.2	0.501	0.000	0.0	0.000	135	86.181	OK
Porous Paving 5	FEH: 2 years: +0 %: 360 mins: Summer	29.165	0.165	1.3	5.221	0.000	0.8	5.447	115	76.741	OK
Porous Paving 6	FEH: 2 years: +0 %: 120 mins: Summer	29.151	0.101	6.2	7.280	0.000	5.7	9.975	25	85.731	OK

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Velocity

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe (3)	FEH: 100 years: +20 %: 120 mins: Winter	Pipe	Porous Paving 5	SW MH 15	29.894	29.855	0.031	13.930	1.3	0.03	3.0	Flood
Pipe (3) (1)	FEH: 100 years: +20 %: 15 mins: Winter	Pipe	SW MH 15	Infiltration Tank 2	30.130	28.859	0.166	49.587	4.2	0.18	74.1	OK
Pipe (6)	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	SW MH 17	SW MH 16	30.340	30.027	0.117	16.107	1.7	0.61	36.1	OK
Pipe (7)	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	SW MH 16	SW MH 15	30.160	29.508	0.100	18.307	2.3	0.34	40.2	OK
Pipe (8)	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	SW MH 4	SW MH 3	30.010	28.808	0.139	17.772	1.2	0.44	39.7	OK
Pipe (10)	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	SW MH 8	SW MH 7	29.990	29.590	0.225	37.963	1.5	1.4	59.2	Surcharged
Pipe (11)	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	SW MH 7	SW MH 6	29.850	29.197	0.300	98.486	2.4	1.87	169.2	Surcharged
Pipe (13)	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	SW MH 13	SW MH 7	29.880	29.365	0.225	31.265	1.3	0.75	50.7	Surcharged
Pipe (14)	FEH: 100 years: +20 %: 960 mins: Winter	Pipe	SW MH 14	SW MH 7	29.830	28.641	0.046	8.785	0.2	0.01	0.3	OK
Pipe (15)	FEH: 100 years: +20 %: 15 mins: Winter	Pipe	SW MH 20	Infiltration Tank 2	30.310	28.518	0.171	50.393	3.8	0.8	95.6	OK
Pipe (16)	FEH: 100 years: +20 %: 15 mins: Winter	Pipe	SW MH 6	Infiltration Tank 1	29.900	28.572	0.267	98.413	4.7	0.55	160.6	OK
Pipe (5)	FEH: 100 years: +20 %: 15 mins: Winter	Pipe	SW MH 18	SW MH 19	30.080	30.080	0.150	22.819	2.2	2.16	38.3	Flood
Pipe (5) (1)	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	SW MH 19	SW MH 20	30.170	28.932	0.225	36.136	1.7	1.4	67.5	Surcharged
Pipe (12)	FEH: 100 years: +20 %: 30 mins: Summer	Pipe	SW MH 11	SW MH 12	30.350	29.737	0.202	37.684	1.6	0.64	43.5	OK

Pipe (12) (1)	FEH: 100 years: +20 %: 60 mins: Summer	Pipe	SW MH 12	SW MH 13	30.100	29.271	0.225	50.644	1.7	0.6	40.5	OK
Pipe (17)	FEH: 100 years: +20 %: 60 mins: Summer	Pipe	SW MH 10	SW MH 9	30.140	29.528	0.225	44.453	1.4	0.62	34.7	OK
Pipe (18)	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	SW MH 9	SW MH 8	30.030	29.879	0.225	31.652	1.3	0.91	50.6	Flood Risk
Pipe	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	SW MH 3	SW MH 2	29.950	28.610	0.145	17.782	1.1	0.34	37.7	OK
Pipe (2)	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	SW MH 2	SW MH 1	30.060	28.400	0.218	23.406	1.5	0.46	50.8	OK
Pipe (2) (1)	FEH: 100 years: +20 %: 15 mins: Winter	Pipe	SW MH 1	Infiltration Tank 1	29.970	28.400	0.300	22.731	2.2	0.26	46.9	OK
Pipe (19)	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	Porous Paving 2	SW MH 14	29.907	29.446	0.044	1.560	0.7	0.17	3.0	OK
Pipe (4)	FEH: 100 years: +20 %: 15 mins: Summer	Pipe	Porous Paving 6	SW MH 15	30.400	29.326	0.053	14.219	2.3	0.15	15.8	Surcharged

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Velocity

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe (3)	FEH: 100 years: +0 %: 180 mins: Winter	Pipe	Porous Paving 5	SW MH 15	29.894	29.374	0.028	13.509	1.2	0.02	2.3	Surcharged
Pipe (3) (1)	FEH: 100 years: +0 %: 15 mins: Winter	Pipe	SW MH 15	Infiltration Tank 2	30.130	28.849	0.137	42.067	4.2	0.15	61.7	OK
Pipe (6)	FEH: 100 years: +0 %: 15 mins: Summer	Pipe	SW MH 17	SW MH 16	30.340	30.012	0.105	13.426	1.7	0.5	30.1	OK
Pipe (7)	FEH: 100 years: +0 %: 15 mins: Summer	Pipe	SW MH 16	SW MH 15	30.160	29.498	0.090	15.257	2.3	0.29	33.5	OK
Pipe (8)	FEH: 100 years: +0 %: 15 mins: Summer	Pipe	SW MH 4	SW MH 3	30.010	28.793	0.124	14.809	1.2	0.36	33.1	OK
Pipe (10)	FEH: 100 years: +0 %: 15 mins: Summer	Pipe	SW MH 8	SW MH 7	29.990	29.300	0.225	31.611	1.2	1.15	48.5	Surcharged
Pipe (11)	FEH: 100 years: +0 %: 15 mins: Summer	Pipe	SW MH 7	SW MH 6	29.850	29.024	0.300	82.038	2.0	1.59	144.1	Surcharged
Pipe (13)	FEH: 100 years: +0 %: 15 mins: Winter	Pipe	SW MH 13	SW MH 7	29.880	29.110	0.225	26.069	1.1	0.64	43.8	Surcharged
Pipe (14)	FEH: 100 years: +0 %: 60 mins: Winter	Pipe	SW MH 14	SW MH 7	29.830	28.692	0.146	2.630	0.3	0.02	1.3	OK
Pipe (15)	FEH: 100 years: +0 %: 15 mins: Winter	Pipe	SW MH 20	Infiltration Tank 2	30.310	28.487	0.142	41.978	3.7	0.66	79.4	OK
Pipe (16)	FEH: 100 years: +0 %: 15 mins: Winter	Pipe	SW MH 6	Infiltration Tank 1	29.900	28.547	0.221	82.042	4.6	0.46	134.4	OK
Pipe (5)	FEH: 100 years: +0 %: 15 mins: Summer	Pipe	SW MH 18	SW MH 19	30.080	29.886	0.150	19.002	2.0	2.01	35.6	Flood Risk
Pipe (5) (1)	FEH: 100 years: +0 %: 15 mins: Summer	Pipe	SW MH 19	SW MH 20	30.170	28.833	0.225	30.097	1.5	1.21	58.3	Surcharged
Pipe (12)	FEH: 100 years: +0 %: 15 mins: Winter	Pipe	SW MH 11	SW MH 12	30.350	29.757	0.165	24.029	1.6	0.75	51.2	OK

Pipe (12) (1)	FEH: 100 years: +0 %: 30 mins: Summer	Pipe	SW MH 12	SW MH 13	30.100	29.268	0.169	34.084	1.7	0.59	39.6	OK
Pipe (17)	FEH: 100 years: +0 %: 30 mins: Summer	Pipe	SW MH 10	SW MH 9	30.140	29.522	0.198	29.918	1.4	0.62	34.5	OK
Pipe (18)	FEH: 100 years: +0 %: 60 mins: Summer	Pipe	SW MH 9	SW MH 8	30.030	29.098	0.205	42.649	1.1	0.61	34.1	OK
Pipe	FEH: 100 years: +0 %: 15 mins: Summer	Pipe	SW MH 3	SW MH 2	29.950	28.597	0.129	14.808	1.1	0.28	31.3	OK
Pipe (2)	FEH: 100 years: +0 %: 15 mins: Summer	Pipe	SW MH 2	SW MH 1	30.060	28.363	0.149	19.766	1.4	0.38	42.3	OK
Pipe (2) (1)	FEH: 100 years: +0 %: 15 mins: Winter	Pipe	SW MH 1	Infiltration Tank 1	29.970	28.331	0.259	19.276	2.2	0.22	39.1	OK
Pipe (19)	FEH: 100 years: +0 %: 15 mins: Summer	Pipe	Porous Paving 2	SW MH 14	29.907	29.423	0.040	1.283	0.7	0.14	2.5	OK
Pipe (4)	FEH: 100 years: +0 %: 15 mins: Summer	Pipe	Porous Paving 6	SW MH 15	30.400	29.283	0.051	12.616	2.2	0.14	14.8	Surcharged

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Velocity

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe (3)	FEH: 30 years: +0 %: 60 mins: Winter	Pipe	Porous Paving 5	SW MH 15	29.894	29.270	0.029	4.272	1.1	0.02	1.6	OK
Pipe (3) (1)	FEH: 30 years: +0 %: 15 mins: Winter	Pipe	SW MH 15	Infiltration Tank 2	30.130	28.837	0.108	32.198	4.0	0.11	47.7	OK
Pipe (6)	FEH: 30 years: +0 %: 15 mins: Summer	Pipe	SW MH 17	SW MH 16	30.340	29.995	0.090	10.390	1.6	0.39	23.2	OK
Pipe (7)	FEH: 30 years: +0 %: 15 mins: Summer	Pipe	SW MH 16	SW MH 15	30.160	29.485	0.078	11.808	2.1	0.22	25.8	OK
Pipe (8)	FEH: 30 years: +0 %: 15 mins: Summer	Pipe	SW MH 4	SW MH 3	30.010	28.775	0.107	11.466	1.1	0.28	25.5	OK
Pipe (10)	FEH: 30 years: +0 %: 15 mins: Summer	Pipe	SW MH 8	SW MH 7	29.990	29.005	0.225	24.447	1.1	1.03	43.7	Surcharged
Pipe (11)	FEH: 30 years: +0 %: 30 mins: Summer	Pipe	SW MH 7	SW MH 6	29.850	28.707	0.198	82.265	1.9	1.05	94.7	OK
Pipe (13)	FEH: 30 years: +0 %: 30 mins: Summer	Pipe	SW MH 13	SW MH 7	29.880	28.794	0.175	26.121	0.9	0.44	30.2	OK
Pipe (14)	FEH: 30 years: +0 %: 120 mins: Winter	Pipe	SW MH 14	SW MH 7	29.830	28.646	0.084	2.856	0.3	0.01	0.7	OK
Pipe (15)	FEH: 30 years: +0 %: 15 mins: Winter	Pipe	SW MH 20	Infiltration Tank 2	30.310	28.463	0.110	32.486	3.5	0.53	63.9	OK
Pipe (16)	FEH: 30 years: +0 %: 15 mins: Winter	Pipe	SW MH 6	Infiltration Tank 1	29.900	28.525	0.166	63.479	4.5	0.38	112.9	OK
Pipe (5)	FEH: 30 years: +0 %: 15 mins: Summer	Pipe	SW MH 18	SW MH 19	30.080	29.426	0.150	14.702	1.6	1.64	29.0	Surcharged
Pipe (5) (1)	FEH: 30 years: +0 %: 15 mins: Summer	Pipe	SW MH 19	SW MH 20	30.170	28.687	0.173	23.284	1.4	0.98	47.2	OK
Pipe (12)	FEH: 30 years: +0 %: 15 mins: Summer	Pipe	SW MH 11	SW MH 12	30.350	29.736	0.139	18.626	1.6	0.62	42.1	OK

Pipe (12) (1)	FEH: 30 years: +0 %: 15 mins: Winter	Pipe	SW MH 12	SW MH 13	30.100	29.277	0.138	20.194	1.6	0.62	41.6	OK
Pipe (17)	FEH: 30 years: +0 %: 15 mins: Winter	Pipe	SW MH 10	SW MH 9	30.140	29.532	0.147	17.740	1.3	0.67	37.1	OK
Pipe (18)	FEH: 30 years: +0 %: 30 mins: Summer	Pipe	SW MH 9	SW MH 8	30.030	29.089	0.169	26.391	1.1	0.55	30.5	OK
Pipe	FEH: 30 years: +0 %: 15 mins: Summer	Pipe	SW MH 3	SW MH 2	29.950	28.580	0.111	11.449	1.0	0.22	24.2	OK
Pipe (2)	FEH: 30 years: +0 %: 15 mins: Summer	Pipe	SW MH 2	SW MH 1	30.060	28.343	0.111	15.581	1.4	0.29	32.6	OK
Pipe (2) (1)	FEH: 30 years: +0 %: 15 mins: Winter	Pipe	SW MH 1	Infiltration Tank 1	29.970	28.254	0.181	15.329	2.1	0.17	30.2	OK
Pipe (19)	FEH: 30 years: +0 %: 15 mins: Summer	Pipe	Porous Paving 2	SW MH 14	29.907	29.397	0.034	0.975	0.6	0.11	1.9	OK
Pipe (4)	FEH: 30 years: +0 %: 15 mins: Summer	Pipe	Porous Paving 6	SW MH 15	30.400	29.233	0.050	9.417	2.1	0.14	14.0	OK

Project: Horton Road Industrial Estate	Date: 01/05/2025		
	Designed by: EP	Checked by: ACB	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: Ridge and Partners LLP Reading		

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Velocity

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe (3)	FEH: 2 years: +0 %: 120 mins: Winter	Pipe	Porous Paving 5	SW MH 15	29.894	29.145	0.016	2.602	0.8	0.01	0.6	OK
Pipe (3) (1)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 15	Infiltration Tank 2	30.130	28.811	0.041	10.461	3.7	0.05	20.2	OK
Pipe (6)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 17	SW MH 16	30.340	29.954	0.055	4.162	1.2	0.16	9.2	OK
Pipe (7)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 16	SW MH 15	30.160	29.455	0.048	4.726	1.6	0.09	10.2	OK
Pipe (8)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 4	SW MH 3	30.010	28.731	0.065	4.594	0.9	0.11	10.1	OK
Pipe (10)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 8	SW MH 7	29.990	28.746	0.136	9.761	0.8	0.46	19.3	OK
Pipe (11)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 7	SW MH 6	29.850	28.627	0.135	25.355	1.6	0.56	50.7	OK
Pipe (13)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 13	SW MH 7	29.880	28.766	0.121	8.079	0.8	0.25	17.0	OK
Pipe (14)	FEH: 2 years: +0 %: 360 mins: Winter	Pipe	SW MH 14	SW MH 7	29.830	28.638	0.039	2.072	0.2	0	0.2	OK
Pipe (15)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 20	Infiltration Tank 2	30.310	28.409	0.058	13.002	3.4	0.23	28.0	OK
Pipe (16)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 6	Infiltration Tank 1	29.900	28.465	0.071	25.353	4.3	0.17	50.1	OK
Pipe (5)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 18	SW MH 19	30.080	28.851	0.104	5.884	1.0	0.73	13.0	OK
Pipe (5) (1)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 19	SW MH 20	30.170	28.598	0.098	9.313	1.2	0.42	20.0	OK
Pipe (12)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 11	SW MH 12	30.350	29.678	0.080	7.459	1.3	0.25	16.8	OK
Pipe (12) (1)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 12	SW MH 13	30.100	29.222	0.079	8.085	1.4	0.26	17.5	OK
Pipe (17)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 10	SW MH 9	30.140	29.474	0.086	7.107	1.1	0.28	15.7	OK
Pipe (18)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 9	SW MH 8	30.030	29.057	0.097	8.165	1.0	0.3	17.0	OK
Pipe	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 3	SW MH 2	29.950	28.541	0.066	4.579	0.8	0.09	9.5	OK
Pipe (2)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 2	SW MH 1	30.060	28.293	0.067	6.256	1.1	0.11	12.7	OK

Pipe (2) (1)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	SW MH 1	Infiltration Tank 1	29.970	28.205	0.059	6.257	1.9	0.07	12.5	OK
Pipe (19)	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	Porous Paving 2	SW MH 14	29.907	29.342	0.020	0.372	0.5	0.04	0.6	OK
Pipe (4)	FEH: 2 years: +0 %: 60 mins: Summer	Pipe	Porous Paving 6	SW MH 15	30.400	29.148	0.032	5.837	1.4	0.05	4.8	OK

APPENDIX F – GROUND CONDITION ASSESSMENT

RIDGE

GROUND CONDITION ASSESSMENT
INDUSTRIAL DEVELOPMENT, WEST DRAYTON

LE MASURIER

April 2025

GROUND CONDITION ASSESSMENT
INDUSTRIAL DEVELOPMENT, WEST DRAYTON

LE MASURIER

April 2025

Prepared for

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VERSION CONTROL

VERSION	DATE	DESCRIPTION	REPORT REFERENCE	CREATED	REVIEWED
01	03/04/25	GCA – First issue	5027861-RDG-XX-ST-DOC-C-00GCA01	TL	ME

RIDGE

CONTENTS

1. INTRODUCTION

1.1. Commissioning

Ridge and Partners LLP (Ridge) was commissioned by Le Masurier Limited to undertake an intrusive Ground Investigation and compile a Ground Condition Assessment (GCA) Report for a site comprising Orbital Industrial Estate, West Drayton UB7 8JL (hereafter referred to as 'the site'). A location plan is included as Figure 1.

1.2. Objectives

The brief was to undertake a combined Contamination and Geotechnical Ground Investigation to a) refine the contamination conceptual site model and risk assessment, and b) provide additional assessment of the materials present beneath the site and present characteristic parameters that should be used in design of all geotechnical facets of the proposed development.

A Desk Top Study (Ref: 5027861-RDG-XX-ST-DOC-C-00DTS01) was issued by Ridge in March 2025 and should be read in conjunction with this report for completeness. The Desk Top Study summarises previous investigations completed on site or in the vicinity.

1.3. Scope of Works

The scope of this assessment has been developed in accordance with relevant British Standards and authoritative technical guidance as referenced through the report. The contamination assessment/ screening is in line with the technical approach presented in *Land Contamination Risk Management* (LCRM) [Environment Agency 2020], which supersedes CLR11 Model Procedures for Land Contamination, and in general accordance with BS10175:2011+A2:2017 *Investigation of Potentially Contaminated Sites: Code of Practice*. It is also compliant with relevant planning policy and guidance.

The scope of the intrusive investigation has been designed in line with the recommendations of BS5930:2015+A1:2020 *Code of Practice for Ground Investigations.* It has also been developed in general accordance with BS10175:2011+A2:2017.

The Ridge Ground Investigation comprised the following:

- Three days windowless sample borehole drilling (7no.) with a tracked dynamic sampling rig. Three boreholes were installed with a 50mm diameter standpipe to allow groundwater gauging and gas monitoring. Due to constraints on site, a planned eighth borehole was not drilled, this is discussed further in Section 5.
- One day TRL DCP testing adjacent to internal boreholes for coverage to allow conversion to CBR (%).
- Geotechnical and contamination laboratory analysis.
- Subsequent monitoring of groundwater levels and gas monitoring in installed wells.

This phase of works has been scoped as a preliminary ground investigation, as the site was in active use at the time of the investigation. The intrusive locations were chosen for minimal disruption, utilising untenanted units and empty parking spaces on site. Further ground investigation works are anticipated at a later date when access to other areas of site are accessible to refine the findings of this report.

1.4. Proposals

Long-term proposals for the site include the demolition of existing units and the construction of two new commercial units located centrally within the north and south of the site. Each proposed unit will have ancillary offices supported by car parking, service yards with loading docks, and landscaping. Access to the proposed units will be via roadways from Horton Road. Proposed site plans are included within Figure 2.

1.5. Investigation Area

The **investigation boundary** is defined within Image 1 below.

Image 1: Investigation Area

1.6. Legal Context and Methodology

Part IIA of the Environmental Protection Act provides a risk-based approach to the identification and remediation of land where contamination poses an unacceptable risk to human health or the environment, but the regime does not take into account future uses. New developments are therefore controlled by the planning regime, with reference to the National Planning Policy Framework (NPPF, 2024), rather than directly by Part IIA of the Environmental Protection Act.

This report has been prepared in accordance with published Environment Agency guidance – Land Contamination Risk Management (LCRM, 2020), which supersedes CLR 11. CLR 11 adopted and refined the well-recognised methodology and terminology that has been used in contaminated land risk assessment for a number of years.

LCRM advocates a tiered approach to risk assessment, as necessary. This document constitutes a **Tier 2: Quantitative Risk Assessment** under that guidance**.**

1.7. Report Scope and Limitation

This report is based upon a review of readily available information and the recent Ground Investigation data detailed herein. The report presents an interpretation of the borehole and laboratory data provided by the Ridge Ground Investigation undertaken 25 to 27 February 2025. In addition, this report outlines the basic ground conditions encountered in the exploratory holes and the results of monitoring of installed wells.

This information has been collated, processed and used to provide an interpretation of the ground conditions, with recommendations on any contamination issues and geotechnical-related design.

The recommendations and opinions expressed in this report are based on the strata observed in the exploratory holes, the results of the site and laboratory tests, and information obtained as part of the desk study or provided by others. Ridge takes no responsibility for conditions that have not been revealed by the exploratory holes, or which occur between them or for features which may be more widespread to those found.

Whilst efforts have been made to interpret the conditions between investigation locations, such information is only indicative and liability cannot be accepted for its accuracy. Information provided from other sources is taken in good faith and Ridge cannot guarantee its accuracy.

The information contained in this report is intended for the use of **Le Masurier Limited** and Ridge can take no responsibility for the use of this information by any other party or for uses other than that described in this report.

2. SITE SETTING

2.1. Site Description

The site is centred on easting 506582 and northing 180178 to the north of West Drayton. The centre of the site is situated at approximately 30m AOD (Above Ordnance Datum). The site is of an irregular broadly rectangular shape with some smaller areas extending out of the eastern boundary, with a total area of 1.2ha.

The topography of the site is generally flat with the majority of the site being approximately 30mAOD. The south and west of the site is at a slightly lower elevation of approximately 29.9mAOD, whilst the highest point is found on the eastern boundary at 30.53mAOD.

The site is currently composed of light industrial use with no soft landscaping. Uses include a butcher, food production, a joinery, and car repairs. The units are single storey composed of brickwork and sheet metal, some having mezzanine levels. The buildings are generally in good condition, with internal concrete slab flooring.

The hard standing on the site is slightly worn, likely due to heavy vehicle traffic. The site is only accessible by vehicles and pedestrians from Horton Road to the north.

The site is mainly adjacent to other industrial areas, however there are residential flats to the north on the opposite site of Horton Road. The Grand Union Canal is immediately to the south of the site, with a railway located immediately beyond the canal.

2.2. Site History

Historical maps dating back to 1866 record the site as open space until 1913, whereupon allotment gardens are marked on site. From 1935, buildings are present on site, including several marked as a works in 1960, with a large factory recorded throughout maps from the 1970s and 1980s. The site appears to be congruent with its current layout from 2003. Numerous off-site industrial land uses are recorded in the surrounding area throughout the 19th and 20th centuries.

A full site history is featured within the Ridge Desk Top Study.

3. PHYSICAL SETTING

3.1. Geology and Hydrogeology

The following observations are taken from the British Geological Survey (BGS) GeoIndex[1] (2025). The GeoIndex indicates that the site is likely underlain by the Lynch Hill Gravel Member over Bedrock Geology of the London Clay Formation. The table below identifies the expected composition of the published strata and associated aquifer classification.

SUPERFICIAL DEPOSITS	
Unit Name	Lynch Hill Gravel Member
Geology Description	Sand and gravel, locally with lenses of silt, clay or peat.
Aquifer Classification	Principal
Aquifer Description	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers.
BEDROCK GEOLOGY	
Unit Name	London Clay Formation
Geology Description	The London Clay mainly comprises bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay. It commonly contains thin courses of carbonate concretions and disseminated pyrite. It also includes a few thin beds of shells and fine sand partings or pockets of sand, which commonly increase towards the base and towards the top of the formation.
Aquifer Classification	Unproductive
Aquifer Description	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

Table 3.1: Geology and Hydrogeology

3.1.1. Artificial Ground, Landslips and Faults

The site is entirely covered by worked ground.

3.1.2. Radon

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level. No Radon Protective Measures are considered necessary for new properties or extensions to existing ones.

[1] BGS Geology Viewer. https://geologyviewer.bgs.ac.uk. Accessed 15 March 2025.

3.1.3. Natural Ground Subsidence

The BGS has provided the following information as summarised in the table below.

PROCESS	RISK LEVEL
Collapsible Deposits	Very Low
Landslides	Very Low
Running Sands	Very Low
Shrink Swell Clay	Negligible
Compressible Deposits	Negligible
Ground Dissolution of Soluble Rocks	Negligible

Table 3.2: Ground Subsidence

3.2. Hydrology

3.2.1. Surface Water Features

The Grand Union Canal is present 7m south of the site.

3.2.2. Flooding

There are no Environment Agency floodplain zones present within 50m of the site boundary. There is a moderate risk of groundwater flooding across the site and surrounding area.

3.3. Controlled Waters

3.3.1. Abstraction Licenses

There are no abstractions within 500m of the site, inclusive of potable abstractions.

3.3.2. Source Protection Zones

There are no Source Protection Zones within 500m of the site boundary.

3.3.3. Nitrate Vulnerable Zones

There are no Nitrate Vulnerable Zones within 2000m of the site.

4. PREVIOUS REPORTS

Ridge have issued a Desk Top Study (Ref: 5027861-RDG-XX-ST-DOC-C-00DTS01) in March 2025, which has been summarised below.

4.1. Ridge Desk Top Study (2025)

4.1.1. Contamination

Following site reconnaissance and a review of available records, it was considered that the following contamination sources are potentially present:

- Heavy metals, solvents, polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons (TPHs), and asbestos originating from the historical works & factory (1965-2004) and other historical on-site industrial land use.
- Asbestos, heavy metals, solvents, PAHs and TPHs originating from current on-site industrial land use.
- Soil vapour and ground gas generated by Made Ground beneath the site.
- PAHs and TPHs potentially originating from the on-site hopper.
- Heavy metals, solvents, PAHs and TPHs originating from the historical factory 1m west of the site.

Risk levels were considered to be **Moderate** as a worst case. A moderate risk is defined as 'It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.'

4.1.2. Geotechnical

The desk-based information reviewed within the report indicated that a veneer of Made Ground is likely to be present over superficial deposits of the Lynch Hill Gravel Member, which are in turn underlain by bedrock geology of the London Clay. It was considered likely that traditional foundations could be utilised for the proposed development.

Based on the expected geology, traditional soakaways were thought likely to be viable due to the superficial geology on-site. Given the suspected presence of Made Ground and cohesive strata at shallow depth it was considered likely that a suspended floor slab will be required. It was also recommended that consideration is given to the presence of residual structures on site and that previous foundations would need to be grubbed out.

4.1.3. Recommendations

Based on the information gathered for the Desk Top Study, it was recommended that a combined contamination and geotechnical investigation be carried out on site, with subsequent ground gas and groundwater monitoring undertaken.

5. FIELDWORK SUMMARY OF SCOPE AND RATIONALE

5.1. Introduction

Suitably experienced Ridge staff supervised the intrusive investigation, which was undertaken 25 to 27 February 2025.

5.2. Site Management and Preparation

Methods employed during the investigation were carried out in general accordance with statutory guidance including BS5930:2015+A1:2020 *Code of Practice for Ground Investigations* and BS10175:2011+A2:2017 *Investigation of Potentially Contaminated Sites: Code of Practice*.

A photographic log is included as Appendix 2.

5.3. Rationale and Summary of Scope

The Site Investigation scope was devised by Ridge, based on information collated to date, and comprised the following:

- Three days windowless sample borehole drilling (WS01 to WS05 and WS06 to WS08) to a maximum depth of 5.0mbgl using a tracked dynamic sampling rig. Three boreholes (WS01, WS03 and WS07) were installed with a 50mm diameter standpipe to allow groundwater gauging and gas monitoring.
- One day falling head testing within installed boreholes (WS01, WS03 and WS07) to provide indicative infiltration rates of underlying natural soils.
- One day TRL DCP testing adjacent to internal boreholes (WS04, WS07 and WS08) to allow conversion to CBR (%). Tests were advanced to circa 1.0mbgl.
- Geotechnical and contamination laboratory analysis.
- Three rounds of subsequent monitoring of groundwater levels and gas monitoring in installed wells.

5.3.1. Windowless Sample Boreholes

Seven windowless sample boreholes (WS01 to WS03 and WS05 to WS08) were drilled on site as per Figure 3. The primary objective was to assess typical ground conditions across the site, and, in areas proposed as buildings. As the site was in active use at the time of the investigation, the locations of the boreholes were chosen for minimal disruption, utilising untenanted units and empty parking spaces on site.

One proposed location (WS04 within Unit 6) encountered an obstruction in the form of a layer of concrete boulders at the base of the hand pit, between 0.78m and 0.98m, meaning the borehole was unable to be drilled. A second pit within Unit 6 (WS04A) was excavated but met the same obstruction. Due to the constraints on site, this borehole was abandoned as no suitable alternative location was identified.

The boreholes allowed the production of detailed engineers logs, recovery of samples for laboratory testing, and additionally allowed in situ Standard Penetration Testing to provide geotechnical parameters for future use.

Three of the boreholes (WS01, WS03 and WS07) were installed with 50mm diameter standpipe to allow for falling head testing, groundwater gauging and gas monitoring. The installations were designed to target natural soils to provide indicative infiltration rates.

5.3.2. Dynamic Cone Penetrometer

Three Dynamic Cone Penetrometer tests were completed to depths ~1.0mbgl, by means of a TRL DCP, for subsequent conversion into California Bearing Ratio (CBR). These tests were completed adjacent to boreholes WS04, WS07 and WS08).

5.3.3. Test Location Rationale

Rationale for each test location completed is detailed in the table below.

HOLE ID	RATIONALE	MAX DEPTH (MBGL)
WS01	Targeting the north of the site, adjacent to Horton Road, around the empty Unit 1.	4.45
WS02	Targeting the north of the site, adjacent to Horton Road, around the empty Unit 1.	5.00
WS03	Targeting the area near to the substation adjacent to the east of the site, where buried services would allow.	3.27
WS04/ WS04A	Within empty Unit 6, targeting the centre and west of site	0.98
WS05	Located within the centre of the site, where buried services would allow.	2.84
WS06	Located within the centre of the site, where buried services would allow.	3.45
WS07	Within the empty Unit 10, targeting the southern end of the site.	3.41
WS08	Within the empty Unit 10, targeting the southern end of the site.	3.45

Table 5.1: Test Location Rationale

The layout of the exploratory positions is presented in Figure 3. Engineering Logs are presented in Appendix 3.

5.4. Soil Sampling

All intrusive locations were logged, and visual or olfactory evidence of contamination noted in accordance with best practice.

Soil sampling of the near surface materials was undertaken to assess the contamination risks to human health and controlled waters. Samples were also removed at varying depth for geotechnical testing.

Samples were handled using a fresh pair of nitrile gloves. Equipment was cleaned between use at different test locations and different sampling depths to prevent cross-contamination. Selected samples were placed in sealable bags, sealed glass jars or plastic tubs (dependent on the exact laboratory requirement and analysis to be undertaken) and stored in a temperature-controlled environment before transit.

5.5. Ground Gas Monitoring

Ground gas monitoring was conducted on the following dates: 20, 24, and 31 March 2025.

Gas monitoring was conducted in accordance with BS8576:2013 *Guidance on investigations for ground gas – permanent gases and volatile organic compounds.* Atmospheric pressure was noted to be decreasing during monitoring round one, stable in round two and increasing in round three – further details are provided in Section 7.5.

All newly installed monitoring wells (WS01, WS03 and WS07) were monitored for the presence of soil gases including methane, carbon dioxide, oxygen, carbon monoxide and hydrogen sulphide. In addition, gas flow rates, downhole pressure were also measured using a GA5000 Geotech Gas Analyser.

Gas monitoring was conducted for at least three minutes, with readings taken at 30 second intervals.

5.6. Groundwater Gauging

All newly installed monitoring wells (WS01, WS03 and WS07) were gauged on three occasions during the ground gas monitoring to enable assessment of groundwater levels and the presence of any visual/ olfactory evidence of contamination of groundwater.

6. GROUND CONDITIONS ENCOUNTERED

6.1. Soil Conditions

6.1.1. Surface Covering

All test locations were surfaced with hard standing comprising either Macadam (WS02, WS03, WS05, WS06) or Concrete (WS01, WS04/WS04A, WS07, WS08).

6.1.2. Made Ground

Made Ground was identified at all locations to an average depth of 1.25mbgl and a maximum depth of 1.58mbgl. Made Ground composition was variable across site but predominantly comprised either a dark grey sandy gravelly ash and clinker fill, or gravelly and cobbly fill of brick and concrete. Various anthropogenic materials were encountered within the Made Ground, including brick, concrete, ash, glass, metal and macadam.

In WS06 and WS07, towards the south of the site, particularly dense brick fill may be indicative of former building foundations.

6.1.3. Lynch Hill Gravel Member

Soils interpreted as belonging to the Lynch Hill Gravel Member were identified in all test locations below surface covering and Made Ground.

The Lynch Hill Gravel Member was initially encountered as a cohesive layer underlying the Made Ground on site in all locations from depths between 0.96mbgl and 1.58mbgl to a maximum depth of 2.25mbgl, with an average thickness of 0.69m. This cohesive layer typically comprised a soft slightly gravelly silty Clay or clayey Silt, with gravels of flint and rare ash.

This cohesive layer was underlain by granular strata comprising slightly silty sandy Gravels of flint, with occasional cobbles of flint noted. These soils were all dense or very dense, with all windowless sample boreholes refusing within the gravels.

Granular soils of the Lynch Hill Gravel Member were encountered from depths between 1.64mbgl and 2.25mbgl, with the base of the unit not encountered during the investigation.

6.1.4. Summary

The above natural soils are consistent with the published geology and site history, with Made Ground underlain by both cohesive and granular soils of the Lynch Hill Gravel Member. It is interpreted that the recorded bedrock geology of the London Clay Formation lies at a depth >5.0mbgl across the entire site, although the investigation did not encounter prove the depth to the London Clay in any location.

6.2. Groundwater Conditions

6.2.1. Groundwater Strikes during Drilling

A summary of groundwater strikes noted during drilling is presented in the table below.

LOCATION	INITIAL STRIKE (MBGL)	RISING TO (MBGL)
WS01	3.90	3.70 (in 30 minutes)
WS02	3.80	3.53 (in 60 minutes)

Table 6.1: Groundwater Strikes

No further water strikes were observed during the ground investigation works.

6.2.2. Groundwater Levels during Monitoring

Results of the three rounds of groundwater level monitoring are detailed in the table below.

LOCATION	20/03/2025 (MBGL)	24/03/2025 (MBGL)	31/03/2025 (MBGL)
WS01	Damp	Dry	Damp
WS03	Dry	Dry	Dry
WS07	Dry	Dry	Dry

Table 6.2: Groundwater Levels

6.3. Visual/ Olfactory Evidence of Contamination

6.3.1. Soils

There was no further visual/ olfactory evidence of contamination noted other than anthropogenic materials discussed in sections above.

6.3.2. Groundwater

There was no evidence of contamination noted during groundwater gauging.

6.4. In Situ Testing

6.4.1. Infiltration Testing

Falling head testing was conducted in WS01, WS03, and WS07 targeting the underlying natural soils to provide indicative infiltration rates. The tests comprised the rapid filling of the installed monitoring wells with water. The fall in water level was monitored over a nominal period.

HOLE ID	TEST	RESPONSE ZONE (MBGL)	STRATA TESTED	TOTAL TEST TIME (MINS)	INFILTRATION RATE (M/S)
WS01	1	1.60 – 3.60	Lynch Hill Gravel	15	1.00×10^{-5}
WS01	2	1.60 – 3.60	Lynch Hill Gravel	15	8.57×10^{-6}
WS01	3	1.60 – 3.60	Lynch Hill Gravel	15	6.40×10^{-6}

HOLE ID	TEST	RESPONSE ZONE (MBGL)	STRATA TESTED	TOTAL TEST TIME (MINS)	INFILTRATION RATE (M/S)
WS03	1	1.27 – 2.27	Lynch Hill Gravel	15	5.81×10^{-6}
WS03	2	1.27 – 2.27	Lynch Hill Gravel	16	6.55×10^{-6}
WS03	3	1.27 – 2.27	Lynch Hill Gravel	15	4.32×10^{-6}
WS07	1	2.00 – 3.00	Lynch Hill Gravel	2	1.17×10^{-4}
WS07	2	2.00 – 3.00	Lynch Hill Gravel	2.50	9.66×10^{-5}
WS07	3	2.00 – 3.00	Lynch Hill Gravel	5.50	4.76×10^{-5}

Table 6.2: Infiltration Testing Results

Infiltration testing within the shallow granular soils of the Lynch Hill Gravel member returned infiltration rates between 1.17×10^{-4}m/s and 4.32×10^{-6}m/s, indicative of 'Good' to 'Moderate' drainage conditions[2].

6.4.2. Dynamic Cone Penetrometer (DCP) Testing

Testing was completed to determine an equivalent in-situ CBR value using a TRL DCP to a maximum depth of circa 1.00mbgl adjacent to the interior boreholes. Results are summarised in the table below.

LOCATION	DEPTH TO LAYER BOTTOM (M)	CBR %	LOCATION	DEPTH TO LAYER BOTTOM (M)	CBR %	LOCATION	DEPTH TO LAYER BOTTOM (M)	CBR %
WS04	0.372	38	**WS07**	0.262	14	**WS08**	0.255	10
	0.463	11		0.365	39		0.495	31
	0.605	22		0.420	93		0.630	19
	0.720	13		0.500	34		0.688	13
	0.902	4		0.557	263		0.880	8

Table 6.3: DCP Testing Results

DCP testing returned results between 10 – 38% at 0.25mbgl, 19 – 34% at 0.50mbgl, and 4 – 8% at 0.75mbgl. Average CBR values across the site at were 20% at 0.25mbgl, 25% at 0.50mbgl and 6% at 0.75mbgl.

DCP testing results can be found in full in Appendix 4.

[2] Soil Mechanics in Engineering Practice (1996). 3rd Edition. Terzaghi, K., Peck, R.B., Mesri, G. Table 14.1 Permeability and drainage characteristics of soils.

7. CONTAMINATION ASSESSMENT

7.1. Relevant Industry Profile

Based on our review of historical site use, we have referred to Department of Environment Industry Profiles: General Works, and Road Vehicle Fuelling, Service and Repair – Garages and Filling Stations.

7.2. Selection of Contaminants of Concern for Analysis

Further to the above a screen of industry related contaminants was carried out. Determinand groups were chosen based on outcomes of desk-based research and site history as well as those contaminants more commonly present. Testing included asbestos, heavy metals, Polycyclic Aromatic Hydrocarbons (PAH), Total Petroleum Hydrocarbons (TPH CWG), Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Methyl tert-butyl ether (MTBE).

Primary contaminant source areas relating to the study area include the electrical substation, historical unspecified works and factories, and the current site use of a garage towards the south of the site.

7.3. Soil Assessment Methodology

Specific soil sample location and depth was chosen based on site coverage, where anthropogenic materials were identified, and where desk-based research has shown contaminants are more likely to present.

7.3.1. Generic Assessment Criteria

Ridge have undertaken a screen of the soil laboratory results using generic assessment criteria. Generic Assessment Criteria (GAC) are conservative contaminant concentration values used for comparison purposes to assess the risk associated with contaminant concentrations found on site and are derived using non-site-specific information.

In order to assess the soil analysis results with regard to potential human health risks, Ridge has adopted published guidance criteria widely referred to by professionals within the industry, which include the following:

- Suitable 4 Use Levels (S4ULs) Generic Assessment Criteria (GAC) developed by the Chartered Institute of Environmental Health (CIEH) in partnership with Land Quality Management Ltd. (LQM); and,

- Category 4 Screening Levels (C4SL) for lead, produced by CL:AIRE (2014).

Proposals indicate a commercial use of the site, with light industrial units and ancillary offices. Therefore, we have utilised the 'Commercial' land use setting as the most appropriate. This land use setting is defined as:

- Occupants will not be on the site for prolonged periods
- Interaction with soils is less likely to occur

Results were compared to the conservative 1.00% soil organic matter value unless otherwise stated.

With regard to human health, the CLEA model states that, 'the contamination is assumed to be at or within 1.00m of the surface' (CLR10 pg10). It is considered that at depths greater than 1m, the probability of human exposure via the direct contact pathways are significantly reduced, leaving inhalation of volatile compounds as the dominant pathway with regard to human health risks. Typically, volatile compounds only significantly

affect the indoor inhalation pathway. Therefore, for the purposes of statistical analysis, data from the top 1.0m to 1.5m is used for assessment of risks to human health via direct contact pathways in accordance with the CLEA model, dependant on proposed future site levels.

7.4. Soil Assessment

7.4.1. General

Eight soil samples collected during the Ridge site investigation from Made Ground and shallow natural soils at various depths and locations were submitted to a UKAS accredited laboratory for analysis for a suite of asbestos, heavy metals, PAHs, TPH CWG, BTEX and MTBE.

Laboratory analysis certificates are included as Appendix 5.

The range of potentially hazardous contaminants present on the site can be wide and varied and the suite has been chosen to reflect commonly found contaminants and others indicated by review of the previous report to have a chance of being present.

Samples were obtained from worst case Made Ground, where anthropogenic constituents were at their most prevalent, or where higher risk constituents such as brick were encountered. Further sample rationale is provided in the table below.

SAMPLE	ANALYSIS	RATIONALE	POTENTIAL CONTAMINANT SOURCE
WS01 0.20m	Full suite	Brick, clinker and ash identified within Made Ground.	Fill material associated with former and current structures on site.
WS02 0.75m	Full suite	Brick, concrete, macadam, clinker and ash identified within Made Ground.	
WS03 0.50m	Full suite	Brick, concrete, macadam and ash identified within Made Ground.	
WS04 0.50m	Full suite	Clinker and ash identified within Made Ground.	
WS05 0.30m	Full suite	Brick, concrete, glass, metal, macadam, clinker and ash identified within Made Ground.	
WS06 0.25m	Full suite	Brick, concrete and ash identified within Made Ground.	
WS07 1.00m	Full suite	Brick and concrete identified within Made Ground.	
WS08 0.25m	Full suite	Clinker and ash identified within Made Ground.	

Table 7.1: Sample Rationale

7.4.2. Organic Matter

Organic matter ranged from 4.2 to 50.2% in Made Ground.

7.4.3. Asbestos

Two samples tested positive for the presence of asbestos, WS07 – 1.0mbgl and WS08 – 0.15mgl, both within Unit 10. Both samples had bundles of chrysotile fibres and were quantified as <0.001% of the sample.

7.4.4. Heavy Metals and Phenols

A summary of results is presented in the table below.

DETERMINAND	COMMERCIAL			
	Max. Conc. (mg/kg)	GAC (mg/kg)	Source	Exceedances of Screening Value
Arsenic	26	640	S4UL	None
Cadmium	0.5	190	S4UL	None
Chromium	23	8600	S4UL	None
Chromium VI	2	33	S4UL	None
Copper	154	68000	S4UL	None
Lead	434	1100	C4SL	None
Mercury	1.4	1100	S4UL	None
Nickel	47	980	S4UL	None
Selenium	2	12000	S4UL	None
Zinc	234	730000	S4UL	None
Total Phenols	6.8	760	S4UL	None

Table 7.2: Heavy Metal Results

All results were below the GAC, with many below the laboratory limit of detection (LOD). All results for chromium VI and selenium were below the LOD.

7.4.5. Polycyclic Aromatic Hydrocarbons (PAHs)

A summary of results is presented in the table below.

DETERMINAND	COMMERCIAL			
	Max. Conc. (mg/kg)	GAC (mg/kg)	Source	Exceedances of Screening Value
Naphthalene	16.5	190	S4UL	None
Acenaphthylene	0.89	83000	S4UL	None
Acenaphthene	31.5	84000	S4UL	None
Fluorene	32.7	63000	S4UL	None
Phenanthrene	139	22000	S4UL	None
Anthracene	39.7	520000	S4UL	None
Fluoranthene	118	23000	S4UL	None
Pyrene	93.6	54000	S4UL	None
Benzo(a)anthracene	47.9	170	S4UL	None
Chrysene	36.1	350	S4UL	None
Benzo(b)fluoranthene	37.7	44	S4UL	None
Benzo(k)fluoranthene	14.2	1200	S4UL	None
Benzo(a)pyrene	37.7	35	S4UL	WS06 – 0.25m
Indeno(1,2,3-cd)pyrene	19.2	500	S4UL	None
Dibenz(a,h)anthracene	3.65	3.5	S4UL	WS06 – 0.25m
Benzo(ghi)perylene	15.1	3900	S4UL	None

Table 7.3: PAH Results

There were two minor exceedances of PAHs in the tested samples, relating to Benzo(a)pyrene and Dibenz(a,h)anthracene, both from WS06 at 0.25m.

Mean Benzo(a)pyrene concentration within Made Ground soils was 7.2mg/kg, the sample from WS06 was concluded to be a significant outlier when compared to the remaining dataset and therefore is indicative of an isolated hotspot of contamination.

Mean Dibenz(a,h)anthracene concentration within Made Ground soils was 0.79mg/kg, the sample from WS06 was concluded to be a significant outlier when compared to the remaining dataset and therefore is also indicative of an isolated hotspot of contamination.

It is likely that the source of these PAHs within this sample is related to the ash observed within these soils.

7.4.6. Total Petroleum Hydrocarbons (TPH)

A summary of results is presented in the table below.

DETERMINAND	COMMERCIAL			
	Max. Conc. (mg/kg)	GAC (mg/kg)	Source	Exceedances of Screening Value
Ali >C5-C6	0.01	3200	S4UL	None
Ali >C6-C8	0.05	7800	S4UL	None
Ali >C8-C10	3	2000	S4UL	None
Ali >C10-C12	14	9700	S4UL	None
Ali >C12-C16	250	59000	S4UL	None
Ali >C16-C21	438	65000	S4UL	None
Ali >C21-C34	133	65000	S4UL	None
Aro >C5-C7	837	26000	S4UL	None
Aro >C7-C8	0.05	56000	S4UL	None
Aro >C8-C10	2	3500	S4UL	None
Aro >C10-C12	27	16000	S4UL	None
Aro >C12-C16	297	36000	S4UL	None
Aro >C16-C21	785	28000	S4UL	None
Aro >C21-C35	615	28000	S4UL	None

Table 7.4: TPH Results

There were no exceedances of the GAC, and most determinands from most samples returned results below LOD.

7.4.7. BTEX and MTBE

A summary of results is presented in the table below.

DETERMINAND	COMMERCAIL			
	Max. Conc. (mg/kg)	GAC (mg/kg)	Source	Exceedances of Screening Value
Benzene	0.002	27	S4UL	None
Toluene	0.005	56000	S4UL	None
Ethylbenzene	0.002	5700	S4UL	None
Xylenes	0.002	5900	S4UL	None
MTBE	0.005	7900	S4UL	None

Table 7.5: BTEX/ MTBE Results

There were no exceedances of GAC, and furthermore all results were below LOD.

7.4.8. Discussion of Results

Results across the site appear to reflect observations made in the field i.e., there were no obvious signs of contamination over and above fill material and Made Ground noted in shallow soils. No gross contamination was observed.

Two exceedances of the adopted GAC were identified in shallow Made Ground soils of WS06, within the south-eastern portion of the site, relating to benzo(a)pyrene and dibenz(a,h)anthracene. Following statistical analysis, both these contaminant concentrations were considered to be statistical outliers and therefore indicative of an isolated hotspot of contamination.

No further exceedances of the commercial GAC were noted. TPH, BTEX and MTBE results were generally low across the site.

Small amounts of asbestos fibres were encountered within WS07 and WS08, in fill material beneath Unit 10. Based on the low quantity (<0.001%) and lack of asbestos encountered elsewhere, it is not expected that asbestos containing soils will be widespread across the site and are likely isolated below the footprint of Unit 10.

7.5. Controlled Waters Risk Assessment

Throughout the ground investigation and subsequent monitoring rounds, groundwater was observed from a minimum depth of 3.53mbgl. Made Ground soils were observed to a maximum depth of 1.58mbgl. Therefore, it is concluded that groundwater bodies are unlikely to come into contact with Made Ground soils.

Two exceedances of the adopted assessment criteria was observed within laboratory testing results (Benzo(a)pyrene and Dibenz(a,h)anthracene, both from WS06 at 0.25m), therefore it is not considered likely that any potential elevated contaminant concentrations will be able to migrate to groundwater bodies.

As a result, potential risks to controlled waters are considered to be very low. Based on the findings of this ground investigation, no further controlled waters risk assessment is considered to be necessary.

7.6. Ground Gas Assessment

7.6.1. Ground Gas Risk Potential

In accordance with BS8576:2013 *Guidance on investigations for ground gas – permanent gases and volatile organic compounds*, the extent of monitoring deemed necessary to assess the ground gas and vapour regime is determined by the generation potential of the source, i.e. what is the risk that large volumes of gas can be generated and can plausibly migrate to pose a credible hazard to the identified receptors. This is known as a multiple-lines-of-evidence approach.

7.6.2. Design of Monitoring Programme

Factors detailed in the table below were pertinent in the design of the gas monitoring programme. Information detailed in the table has either been taken from the Desk Top Study or interpreted from the intrusive investigation conducted.

FACTOR	MORE MONITORING REQUIRED	LESS MONITORING REQUIRED
Made Ground Organic Content/ degradable material	Generally elevated Total Organic Carbon (TOC) observed within Made Ground. Laboratory analysis returned results between 2.43% and 29.11%.	High TOC recorded from clinker/ash backfill, which has limited potential for Degradable Organic Content.
Natural Soils Organic Content/ degradable material	-	There was no evidence of degradable organic material in logged soils.
Nature of fill material/ Made Ground	Up to 1.58m of Made Ground present, average Made Ground thickness 1.25m. Typically granular.	Generally inert materials observed during investigation. Likely to be >20 years old.
Landfills and waste sites	-	No records of any active or historical landfill or waste sites recorded within 250m of the site.
Ground workings and artificial ground	Site covered by worked ground. Recorded surface workings related to the canal immediately to the south.	-
Preferential pathways	Made Ground typically granular.	Hardstanding across all of the site.
Volatiles	-	Very limited evidence of petroleum hydrocarbons in soils. Maximum of 1.9ppm observed during soil vapour monitoring from installed wells.

Table 7.6: Factors influencing design of Gas Monitoring Programme

7.6.3. Generation Potential of Source

Based on the information within Table 7.9, the generation potential is considered to be **Low** and guidance recommends short-term gas monitoring for a period of up to two months.

Based on this, we programmed in three rounds of monitoring, to confirm low levels of risk as assessed above.

7.6.4. Monitoring Programme

Gas monitoring was conducted by Ridge on four occasions between 20 and 31 March 2025, in accordance with BS8576:2013 *Guidance on investigations for ground gas – permanent gases and volatile organic compounds.* Boreholes (WS01, WS03 and WS07) were monitored for the presence of soil gases including methane, carbon dioxide, oxygen, carbon monoxide and hydrogen sulphide. In addition, gas flow rates and downhole pressure were also measured using a GA5000 Geotech Gas Analyser. Gas monitoring was conducted for at least three minutes, with readings taken at 30 second intervals.

7.6.5. Monitoring Results

The results from the three monitoring rounds are summarised in the table below. Atmospheric pressure was noted to be falling during round one, stable in round two, and rising in round three. Monitoring sheets are included in Appendix 6.

Following the three rounds of monitoring the following 'worst-case conditions' were encountered: a maximum flow of 0.1L/hr, a maximum CO_2 concentration of 6.7%, and a maximum CH_4 concentration of 0.3%.

	MONITORING ROUND 1	MONITORING ROUND 2	MONITORING ROUND 3
Max. Flow Rate (L/hr)	0.1	0.1	0.1
Peak CH_4 (%)	0.3	0.3	0.3
Peak CO_2 (%)	6.7	5.6	3.3
Min. O_2 (%)	13.3	14.7	16.9
Max. H_sS (ppm)	0	0	0
Max. CO (ppm)	0	0	0
Max. PID (ppm)	-	1.1	1.9

Table 7.7: Monitoring Summary

7.6.6. Gas Screening Value

Worst case gas levels and flow rates identified across the entire programme can be used to calculate a conservative Gas Screening Value (GSV) as defined in CIRIA C665 *Assessing Risks Posed by Hazardous Ground Gases to Buildings* (2002).

GSV = (worst case CO_2 or CH_4 concentration/ 100) x worst case flow rate
GSV = (6.7%/ 100) x 0.1L/hr
GSV = 0.0067

According to the guidance, the GSV equates to Characteristic Situation (CS) 1 as it is below the upper threshold of 0.07.

7.6.7. Characteristic Situation Check

A check can be performed to allow assessment of the likelihood that the upper CS threshold could be met:

- Either the flow or the ground gas % would need to increase by circa 11 times to reach the next threshold. This seems extremely unlikely given consistency of results to date.

7.6.8. Gas Protection

Guidance indicates that consideration should be given to raising the site to CS2 in response to carbon dioxide levels greater than 5%. In this scenario, low flow rate (maximum 0.1L/hr) was observed throughout the three monitoring rounds and therefore the rating of CS1 is considered to still be appropriate.

Having classified the site as CS1, no gas protective measures are required in the proposed development.

8. WASTE ASSESSMENT

8.1. Waste Material

The following section provides classification of typical soil materials identified on site during the recent Ground Investigation.

Waste classification should be based on analyses that are representative of the particular waste load, so it is normally not possible to classify the soils at the investigation stage, since the materials that will become waste have generally not been defined yet. Ground investigation data can however provide a useful guide to the likely waste classification and can indicate the scale of the classification analyses that will be required after the waste has been defined and before it is generated.

8.1.1. Identification of Hazardous Properties

Results from all soil samples that underwent the full contamination suite were input into a Soils Characterisation Assessment Tool (HazWaste Online) to identify whether soils on site had hazardous properties.

One of the samples returned Hazardous properties, WS06 at 0.25m, due to having carcinogenic and mutagenic hazard properties (HP7 and HP11). These properties are related to the presence of TPH within the soil at this location.

All other samples were classified as having Non-Hazardous properties.

The Haz-Waste Online output sheet is included as Appendix 5.

8.1.2. Waste Acceptance Criteria

The second part of the assessment process is a review of Waste Acceptance Classification (WAC) testing, which was carried out on two samples, WS01 at 0.2m and WS06 at 0.25m, both representative of shallow Made Ground across the site.

Made Ground soils from WS01 was classified as suitable for disposal at Non-Hazardous landfill due to mineral oil and total PAH concentrations above the threshold for disposal at Inert landfill.

Made Ground soils from WS06 were classified as suitable for disposal at Hazardous landfill due to TOC % above the threshold for Inert or Non-Hazardous landfill.

It is recommended that further WAC testing is undertaken during groundworks to target specific waste being removed from site. Waste classification should be based on analyses that are representative of the particular waste load.

WAC testing certificates are included within Appendix 5.

9. GEOTECHNICAL TESTING AND ASSESSMENT

9.1. Introduction

This geotechnical assessment and the subsequent foundation design recommendations will use the findings of the investigation, and the results of the in-situ and laboratory geotechnical testing carried out in the boreholes, and on representative samples of the materials encountered across the site.

This section discusses the key geotechnical characteristics of each encountered stratum as determined from field observations, in-situ and laboratory geotechnical testing.

The stratigraphy revealed during the ground investigation comprised Made Ground over cohesive Lynch Hill Gravel Member to an average depth of 1.93mbgl, underlain by granular Lynch Hill Gravel Member soils.

Please refer to Section 6 for further discussion on each stratum.

9.2. In – Situ Testing

9.2.1. Standard Penetration Testing (SPT)

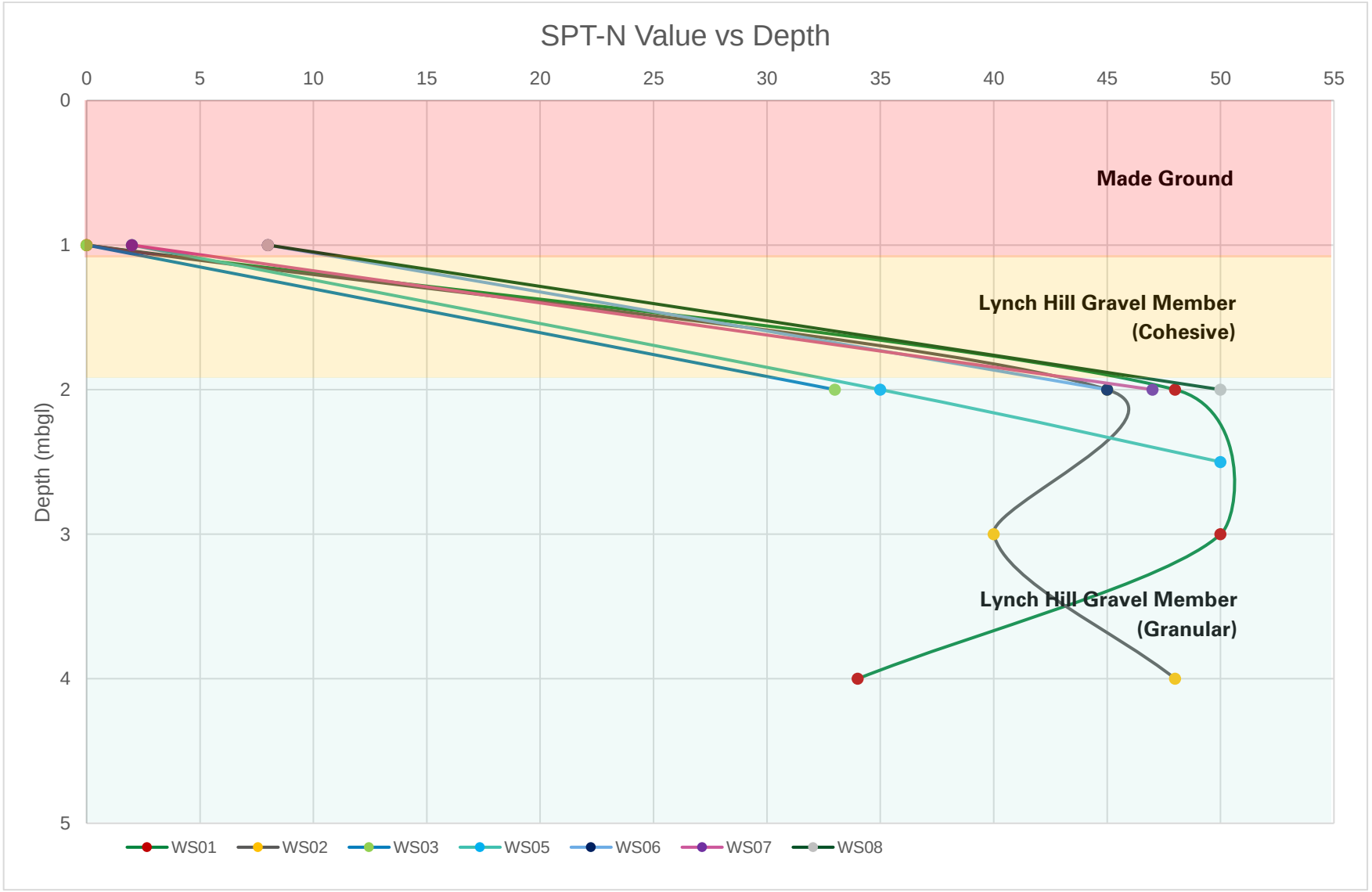
SPTs were completed throughout the drilling of all boreholes generally at 1.0m centres. SPTs were undertaken in accordance with BS EN ISO 22476-3:2005+A1:2011: The Standard for Geotechnical Investigation and Testing. Field testing - Standard Penetration Test.

The graph overleaf shows SPT results.

SPT 'N' values within Made Ground and cohesive natural soils were typically low, with results ranging from 0 to 8, with a significant increase in density observed within the natural granular soils below. SPT 'N' values within the sands and gravels of the Lynch Hill Gravel Member range from 33 to >50. Note that the tests stop at N=50 to avoid damage to the test equipment and the actual result will be higher.

Although there were a number of refusals within natural granular soils, there was still some variety in results, possibly due to the variable nature of the soils. Average SPT 'N' results were 43 at 2.0m, 49 at 3.0m, and 41 at 4.0m.

Engineering logs showing the full test results are included in Appendix 3.



Graph 8.1: Standard Penetration Testing Result

9.3. Laboratory Testing

Details of the specific procedure used in each case are shown below in the table below and the geotechnical test certificates are presented in Appendix 7.

TEST	STANDARD (BS1377:1990) UNLESS OTHERWISE INDICATED	SCHEDULED
Moisture Content	Part 2: 3.2	3
Atterberg Limit Test	Part 2: 4.3 & 5.3	3
PSD Wet Sieve/ Pipette Method	Part 2: 9.2/ 9.4	4
pH	Part 3: 9.5	8
Sulphate Testing	Part 3: 5.3	8
Compressive Strength Concrete	BS EN 12504-1	1

Table 9.1: Summary of Geotechnical Testing

9.3.1. Moisture Content & Atterberg tests

Three samples underwent Moisture Content & Atterberg limits testing to determine the consistency limits. The results are shown in Table 9.2 below.

Location	Depth (mbgl)	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron sieve (%)	Modified Plasticity Index (%)	Casagrande Classification (Plasticity)	Volume Change Potential
WS01	1.0	21.7	41	19	22	91	20.02	CI Intermediate	Medium
WS05	1.5	21.3	35	20	15	90	13.5	CL/I Low/Inter	Low
WS07	1.75	19.8	37	18	19	89	16.91	CI Intermediate	Low

Table 9.2: Consistency Limits

Following analysis, testing returned plasticity index values ranging from 15% to 22%, with liquid limits reported as 35% to 41%. These values correspond to a Casagrande classification of CL/I Low/Inter to CI Intermediate Plasticity soils.

Tested samples returned values ranging from 89% to 91% for fines passing a 425µm sieve, thus the modified plasticity index values are calculated to range 13.5% to 20.02%. In accordance with NHBC the underlying soils are considered to have a Low to Medium Volume Change Potential.

Of the three samples tested two samples returned results of Low volume change potential, and one returned a result of Medium volume change potential.

9.3.2. pH/ Water Soluble Sulphate 2:1 extract

Eight representative samples of the exploratory holes underwent pH/ Water Soluble Sulphate 2:1 extract testing to determine the pH level and sulphate content of the material. The results are shown in Table 9.3 below.

LOCATION	DEPTH (MBGL)	PH VALUE	2:1 SULPHATE EXTRACT (MG/L)	CONCRETE CLASSIFICATION DESIGN CLASS	AGGRESSIVE CHEMICAL ENVIRONMENT FOR CONCRETE CLASS
WS01	1.0	8.5	21	DS-1	AC-1
WS02	0.3	8.4	170	DS-1	AC-1
WS03	2.4	8.1	13	DS-1	AC-1
WS05	1.0	8.5	82	DS-1	AC-1
WS05	2.3	8.6	25	DS-1	AC-1
WS06	0.8	9.3	223	DS-1	AC-1
WS07	2.5	8.5	24	DS-1	AC-1
WS08	0.75	7.9	499	DS-1	AC-1

Table 9.3: pH/Sulphate Results

9.3.3. PSD Wet Sieve/ Pipette Method

Four samples of the underlying granular material from depths of 2.0mbgl to 4.0mbgl were submitted for determination of their composition of the material. The results are presented in Table 9.4.

SAMPLE ID	CLAY & SILT	SAND %	GRAVEL %	COBBLES %	SUBSEQUENT CHARACTERISATION
WS01 2.5 - 3.0m	4	10	86	0	Slightly silty/clayey sandy GRAVEL
WS02 3.0 - 4.0m	5	24	71	0	Slightly silty/clayey sandy GRAVEL
WS06 2.0 - 3.0m	6	37	57	0	Slightly silty/clayey sandy GRAVEL
WS08 2.5 - 3.0m	5	25	70	0	Slightly silty/clayey sandy GRAVEL

Table 9.4: PSD Analysis

9.3.4. Compressive Strength of Concrete

One 100mm diameter concrete core sample, taken from the floor slab of Unit 6, underwent testing to measure compressive strength. Results are presented below.

SAMPLE	LENGTH (MM)	LENGTH/DIAMETER RATIO	COMPRESSIVE STRENGTH (N/MM^2)
WS04	170	1.00	47.1

Table 9.5: Compressive Strength of Concrete

9.4. Characteristic Geotechnical Parameters

Based on the laboratory test results, in-situ testing and subsequent analysis a range of characteristic geotechnical parameters, which should be used in the subsequent geotechnical and foundation design calculations are presented in Table 9.6.

STRATUM	PARAMETER		SOURCE	VALUE
Made Ground	Not used in foundation design			
Lynch Hill Gravel Member (Cohesive)	Unit Weight (kN/m^3)		BS8002	12kN/m^3
	Undrained Shear Strength	c_{uk} (kN/m^2)	Relationship with SPT	0kN/m^2
		φ_{uk}(°)		0°
	Drained Shear Strength	c'_k (kN/m^2)	Relationship with Ip	0kN/m^2
		φ'_{uk}(°)		0°
Lynch Hill Gravel Member (Granular)	Unit Weight (kN/m^3)		BS8002	18.5kN/m^3
	Angle of Shearing Resistance φ	°	Peck, Hanson & Thorburn	36-40°

Table 9.6: Characteristic Geotechnical Parameters

9.5. Foundations

The ground investigation proved the expected general strata sequence comprising Made Ground, underlain by granular and cohesive soils of the Lynch Hill Gravel Member. Made Ground was observed to a maximum depth of 1.58mbgl, with a typical thickness of 1.25m. The Made Ground was underlain by a cohesive layer of natural soils, observed at depths between 0.96mbgl and 2.25mbgl across site, with an average thickness of 0.69m. Granular soils of the Lynch Hill Gravel Member were observed from depths between 1.64mbgl and 2.25mbgl, to a proven depth of 5.0mbgl.

The selection and design of foundations is beyond the scope of current instructions and is the responsibility of the designers of the proposed building. The following recommendations, deriving from observations made during the investigation and testing are provided to assist the design process.

9.5.1. Traditional foundations

Based on the medium to high SPT-N values recorded in the granular natural materials and lack of groundwater at shallow depth (<3.0mbgl), it is considered that the ground conditions identified are generally suitable for

traditional foundations for low rise buildings. The medium dense to very dense granular Lynch Hill Gravel Member (sandy Gravel) is the recommended founding stratum.

Based on SPT results an estimated safe bearing pressure of 250kPa is considered appropriate for traditional strip or trench-fill foundations up to 1m wide and pad foundations up to an approximate size of 2x2m. The depth to the top of the founding stratum is variable in the range 1.8mbgl and 2.4mbgl.

In all cases foundations should extend through Made Ground and natural cohesive soils to penetrate at least 150mm into the indigenous medium dense to dense sandy Gravel at a minimum depth of 1.0m, below existing levels. Where cohesive soils are identified, foundations should be deepened into granular soils.

It should be acknowledged that the depth to undisturbed natural ground will be deeper in parts of the site where there are existing foundations or buried structures, following demolition and grubbing out.

9.6. Foundations – General

Other foundation solutions are available, and it will be necessary for a suitable risk assessment to be carried out by the foundation's designers at the appropriate time.

The above recommendations are based on interpolation of ground conditions between exploratory hole locations and interpretation should take the access restrictions at the time of investigation into account.

9.7. Floor Slabs

Based on the proposed nature of the development, a ground bearing floor slab will be required. Due to the thickness of Made Ground and soft shallow cohesive soils observed during the ground investigation, it is anticipated that ground improvement solutions will need to be investigated, or an engineered subbase will need to be installed to facilitate this.

9.8. Roadway/Pavement Design

DCP testing returned results between 10 – 38% at 0.25mbgl, 19 – 34% at 0.50mbgl, and 4 – 8% at 0.75mbgl. Average CBR values across the site at were 20% at 0.25mbgl, 25% at 0.50mbgl and 6% at 0.75mbgl. The variability is considered to be due to the heterogenous nature of the underlying Made Ground. These values should be used for preliminary pavement design, supported by CBR testing at formation at the appropriate time.

9.9. Earthworks

The site is relatively level and not much re-grading is expected to prepare the site for the proposed development. Ground levels are typically circa 30m AOD.

Consideration should be given to the use of crushed demolition materials for piling mats, raising levels etc. where this is required.

9.10. Buried Concrete

Buried concrete should be specified to comply with the findings of the testing carried out, as summarised in Table 9.3. Results returned a Design Sulphate Class of DS-1, with ACEC class of AC-1.

9.11. Infiltration Drainage

Indicative falling head infiltration testing within the shallow granular soils of the Lynch Hill Gravel member returned infiltration rates between $1.17x10^{-4}$m/s and $4.32x10^{-6}$m/s, indicative of 'Good' to 'Moderate' drainage conditions.

Soakaways are likely to be viable within granular soils of the Lynch Hill Gravel Member, and further testing of this unit in line with *BRE Digest 365 'Soakaway* Design' is recommended.

The current site layout incorporates buildings and many areas of hardstanding that are understood to satisfactorily drain surface water. It is recommended that the existing surface water drainage network is investigated as it may be possible to re-use parts of this within the developed site, subject to the necessary permissions.

9.12. Further Geotechnical Investigation

Infiltration testing in accordance with *BRE Digest 365 'Soakaway* Design' is recommended once site demolition and clearance has been undertaken. Additional CBR testing at proposed formation level is also recommended once the site has been cleared.

10. CONCEPTUAL SITE MODEL/ RISK ASSESSMENT

10.1. Sources

Following investigations conducted to date and screening of chemical analysis results, the following contaminant sources have been identified:

- PAH contamination within Made Ground soils specifically located at WS06 at 0.25m.
- Asbestos (<0.001% Chrysotile fibres) in WS07 at 1.00m and WS08 at 0.15m, within the area underlying Unit 10.

It is possible that areas yet be investigated, such as those underlying the tenanted units, may be underlain by Made Ground and therefore subsequently there may be other areas with elevated contaminants.

10.2. Receptors

Receptors that may be affected by the identified contaminant sources are considered to be:

10.2.1. Human

- Future end users
- Offsite land users
- Any future maintenance workers
- Construction workers

10.2.2. Environmental

- Underlying principal superficial aquifer
- Canal adjacent to the south of the site

The canal adjacent to the south of the site is assumed to be lined with an impermeable barrier and therefore the potential for contaminants to migrate from site to this water body is considered to be reduced.

10.2.3. Structural

- Buildings
- Potable water pipes

10.3. Pathways

The key environmental pathways and exposure routes by which potentially toxic substances may possibly reach the identified potential receptors are considered to be:

10.3.1. Indirect

- Vertical and lateral migration of organic and inorganic compounds through underlying geology
- Windblown dust and fibres to adjacent receptors
- Surface runoff

10.3.2. Direct

- Inhalation of contaminated dust
- Dermal contact
- Direct contact with services (potable water)

10.4. Uncertainties and Implications

In accordance with good practice, data gaps and uncertainties in the refined CSM should be identified at this stage. These are summarised in the table below, along with the likely implications.

DATA GAP/ UNCERTAINTY	DETAILS	IMPLICATIONS
The full extent of Made Ground source has not been established.	It was not possible to investigate all areas of the site due to tenanted buildings being present.	The source may extend into the area not investigated and therefore it could alter the report conclusions. However, there is considered to be sufficient data for the purposes of the current assessment.

Table 10.1: Data gaps and uncertainties - CSM

11. CONTAMINATION RISK ASSESSMENT

11.1. Risk Assessment Procedure

By considering the sources, pathways and receptors (pollutant linkages), an assessment of the human health/ environmental risks is made with reference to the significance and degree of the risk. This assessment is based on consideration of whether the source contamination can reach a receptor and hence whether it is of major or minor significance.

The risk assessment has been undertaken with reference to BS 10175:2011+A1:2013 and CIRIA Document C552: Contaminated Land Risk assessment 'A Guide to Good Practice'. The risk assessment has been carried out by assessing the severity of the potential consequence, taking into account both the potential magnitude of the hazard and the sensitivity of the target, based on the categories provided below.

CATEGORY	EXAMPLES
High	Residential with gardens/Groundwater Source Protection Zone
Medium	Residential without gardens/Principal (Major) Aquifer/sensitive watercourse
Low	Commercial and industrial use/Secondary (Minor) Aquifer
Very Low	Construction and maintenance workers/non-sensitive watercourse

Table 11.1: Sensitivity of receptor

CATEGORY	EXAMPLES
Gross Impact	Heavily contaminated gasworks or industrial Site, hazardous waste landfill
Moderate Impact	Major leaks and spills from fuel infrastructure (e.g. petrol stations), domestic waste landfills
Slight Impact	Minor leaks and spills from fuel infrastructure, 'inert' waste landfills

Table 11.2: Magnitude of impact

MAGNITUDE OF IMPACT	SENSITIVITY OF RECEPTOR			
	High	Medium	Low	Very Low
Gross Impact	Severe	Medium	Mild	Minor
Moderate Impact	Medium	Mild	Minor	Minor
Slight Impact	Mild	Minor	Minor	Minor

Table 11.3: Level of severity of potential hazard

The likelihood of an event (probability) takes into account both the presence of the hazard and target and the integrity of the pathway and has been assessed based on the categories given below.

CATEGORY	EXAMPLES
High likelihood	Pollutant linkage may be present, and risk is almost certain to occur in long term, or there is evidence of harm to the receptor
Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term
Low likelihood	Pollutant linkage may be present, and there is a possibility of the risk occurring, although there is no certainty that it will do so
Unlikely	Pollutant linkage may be present, but the circumstances under which harm would occur are improbable

Table 11.4: Probability of risk definition

The potential severity of the risk and the probability of the risk occurring have been combined in accordance with the following matrix in order to give a level of risk for each potential hazard.

	SENSITIVITY OF RECEPTOR			
PROBABILITY OF RISK	Severe/ High	Medium	Mild/ Low	Minor/ V. Low
High likelihood	Very High	High	Moderate	Low/Moderate
Likely	High	Moderate	Low/Moderate	Low
Low likelihood	Moderate	Low/Moderate	Low	Very Low
Unlikely	Low/Moderate	Low	Very Low	Very Low

Table 11.5: Level of risk for potential hazard definition

The assessment is discussed below in terms of plausible pollutant linkages. A complete assessment of the pollutant linkages is presented in Table 10.6.

A description of these risk classifications and likely action required are given in CIRIA 552 as:

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

High risk – Harm is likely to arise to a designated receptor from an identified hazard. This risk, if realised, is likely to result in substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the long term.

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

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

Very low risk – It is a low possibility that harm could arise to a designated receptor. In the event of such harm being realised it is not likely to be severe.

11.2. Pollutant Linkage Discussion

11.2.1. Development and associated Human Receptors

Proposals indicate a commercial use of the site. Therefore, a 'Commercial' land use setting was deemed the most appropriate in terms of the risk assessment.

Much of the site is likely to be occupied by hardstanding or roadways/ pavements and building footprint thus preventing contaminant migration to surface. Soft landscaped areas will be maintained by professionals on an infrequent basis, as opposed to on a frequent basis by workers.

11.2.2. Contaminants in Soil

PAH contamination has been identified within Made Ground soils in WS06 at 0.25mbgl, with two exceedances of the GAC identified (Benzo(a)pyrene and Dibenz(a,h)anthracene). Statistical analysis concluded that this is representative of an isolated hotspot of contamination.

Small quantities of asbestos were also identified within a limited area beneath Unit 10 (WS07 at 1.0m and WS08 at 0.15m). In both cases this was quantified below 0.001%.

Based on the current proposed development plans, WS06 is located beneath an area of proposed soft landscaping and WS07 and WS08 are located beneath the proposed service yard in the south of the site. As a result, it is anticipated that the shallow Made Ground soils in WS06 will be capped with clean, imported topsoil as part of the development works. WS07 and WS08 will be capped by the hard standing of the proposed service yard. In all three locations, it is considered unlikely that end users or maintenance workers will be in contact with Made Ground soils, limiting potential direct pathways for exposure to PAH or asbestos contamination.

There may be a short-term risk to construction and groundworkers although suitable health and safety measures will reduce this risk rating significantly.

11.3. Pollutant Linkage Assessment

The Pollutant Linkage Assessment below relates to perceived current worst-case conditions on site, prior to the application of mitigation or remedial measures.

SOURCE	PATHWAY	RECEPTOR	SEVERITY	LIKELIHOOD	RISK LEVEL
Elevated PAH concentrations within Made Ground soils	Dermal contact Ingestion	Future site users (workers)	Minor	Low Likelihood	Very Low
		Maintenance workers such as gardeners/ landscapers/ caretakers etc.	Minor	Low Likelihood	Very Low
		Construction/ groundworkers (during development)	Minor	Likely	Low
	Vertical and lateral migration of organic and inorganic compounds through the underlying geology.	Principal superficial aquifer.	Minor	Low Likelihood	Very Low
		Canal 7m south of site.	Minor	Low Likelihood	Very Low
	Windblown dust Surface Runoff	Offsite receptors (during development)	Minor	Low Likelihood	Very Low
	Direct contact	Potable water	Medium	Low Likelihood	Low/ Moderate
Asbestos within Made Ground soils	Inhalation	Future site users (workers)	Minor	Unlikely	Very Low
		Maintenance workers such as gardeners/ landscapers/ caretakers etc.	Minor	Unlikely	Very Low
		Construction/ groundworkers (during development)	Minor	Likely	Low
	Windblown dust	Offsite receptors (during development)	Minor	Low Likelihood	Very Low

Table 11.6: Pollutant Linkage Assessment

12. CONCLUSIONS AND RECOMMENDATIONS

12.1. Contamination

The design of the Site Investigation incorporated information from the previously issued reports, with contamination source areas investigated as far as practicable.

Very Low or **Low** risk levels have been applied to most site receptors. This risk level is defined as – 'it is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild'.

A worst-case **Moderate** risk level has been applied to any potable water services laid within Made Ground soils. This risk level is defined as – 'it is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation is normally required to clarify risks and to determine potential liability. Some remedial works may be required in the long term.'

Whilst contaminants are present on site, their low mobility and the lack of potential pathways to the surface in the proposed development mean that that there is a possibility that a pollutant linkage will be formed.

The use of barrier water supply pipe at the site is recommended given the brownfield nature, to be confirmed with the water supply provider.

Having classified the site as CS1, no gas protective measures are required in the proposed development.

12.1.1. Soft-Landscaping

It is anticipated that topsoil will be imported to site as a growing medium for soft-landscaped areas in the proposed development. It is recommended that any imported soils are a minimum of 100mm thickness.

If soils are imported to site these should be from a certified source. Imported topsoil and subsoil should ensure they do not have levels of common contaminants (such as heavy metals, PAHs and TPHs) that exceed the applicable screening criteria.

12.1.2. Asbestos Mitigation During Construction Works

It is recommended that a pre-demolition asbestos survey is undertaken to firstly identify the presence of asbestos within the existing structures and subsequently quantify this. This survey should be undertaken by a suitably qualified person in accordance with good practice. Following this survey, depending on the presence, type and quantity of asbestos, it may be necessary to remove this material in accordance with best practice. Recommendations should be made in the pre-demolition asbestos survey as to the requirement of these works.

Investigation into Asbestos Containing Soils (ACSs) may be required following demolition works.

12.1.3. Waste Removal

Interpretation of results has provided an indication of the variability of Made Ground soils on site – which was to be expected due to historical development and re-development, and thickness of Made Ground observed during the Ground Investigation.

Made Ground soils from WS01 were classified as suitable for disposal at Non-Hazardous landfill due to mineral oil and total PAH concentrations above the threshold for disposal at Inert landfill.

Made Ground soils from WS06 were classified as suitable for disposal at Hazardous landfill due to TOC % above the threshold for Inert or Non-Hazardous landfill.

We recommend further testing when removing portions of material from the site to allow appropriate classification – this will allow significant cost savings associated with waste disposal.

12.1.4. Further Works

This phase of works was scoped as a preliminary ground investigation, as the site was in active use at the time of the investigation.

It is recommended that further contamination investigation be undertaken following the demolition of the existing buildings on site. This is considered necessary to determine the composition of any Made Ground soils underlying the existing building footprints and to facilitate laboratory testing to identify any potential contaminants that may be harmful to future site users. This will be required to refine the findings of this report.

A Remediation Method Statement will be required to satisfy the anticipated planning conditions associated with the proposed development.

12.2. Geotechnical

12.2.1. Foundations

Traditional foundations founded in medium dense to very dense natural granular soils may be used for low-rise buildings. Foundations should be extended through Made Ground and natural cohesive soils to a minimum of 150mm into indigenous undisturbed sandy Gravel. An estimated safe bearing pressure of 250kPa is considered appropriate traditional strip or trench-fill foundations up to 1m wide and pad foundations up to an approximate size of 2x2m. Foundation depths are anticipated to be up to 2.4mbgl.

Foundations will need to be deepened where they clash with existing site features, foundations, soakaways, pits etc. should these be encountered.

12.2.2. Groundwater

Groundwater was encountered at depths between 3.80mbgl and 3.90mbgl during drilling, with monitoring at depths to 3.70mbgl not encountering any groundwater.

12.2.3. Buried Concrete

Laboratory testing indicated a Design Sulphate Class of DS-1, with ACEC class of AC-1 will be suitable on site. Specification of buried concrete should take into account the full set of results included in Table 9.3.

12.2.4. Earthworks

Given the relatively level nature of the site, excessive earthworks are not considered necessary to prepare the site for the proposed development. Arisings from foundations or drainage excavations which comprise clean indigenous sandy gravel may be used for general filling, subject to the appropriate compaction.

Crushed demolition materials can be used for general fill material, subject to the necessary testing and placement.

12.2.5. Roadways and Pavements

DCP testing returned results between 10 – 38% at 0.25mbgl, 19 – 34% at 0.50mbgl, and 4 – 8% at 0.75mbgl. Average CBR values across the site at were 20% at 0.25mbgl, 25% at 0.50mbgl and 6% at 0.75mbgl. The variability is considered to be due to the heterogenous nature of the underlying Made Ground. These values should be used for preliminary pavement design, supported by CBR testing at formation at the appropriate time.

12.2.6. Soakaways

Indicative falling head infiltration testing within the shallow granular soils of the Lynch Hill Gravel member returned infiltration rates between $1.17x10^{-4}$m/s and $4.32x10^{-6}$m/s, indicative of 'Good' to 'Moderate' drainage conditions.

Soakaways are likely to be viable within granular soils of the Lynch Hill Gravel Member.
The current site layout incorporates buildings and many areas of hardstanding that are understood to satisfactorily drain surface water. It is recommended that the existing surface water drainage network is investigated as it may be possible to re-use parts of this within the developed site, subject to the necessary permissions.

12.2.7. Floor Slabs

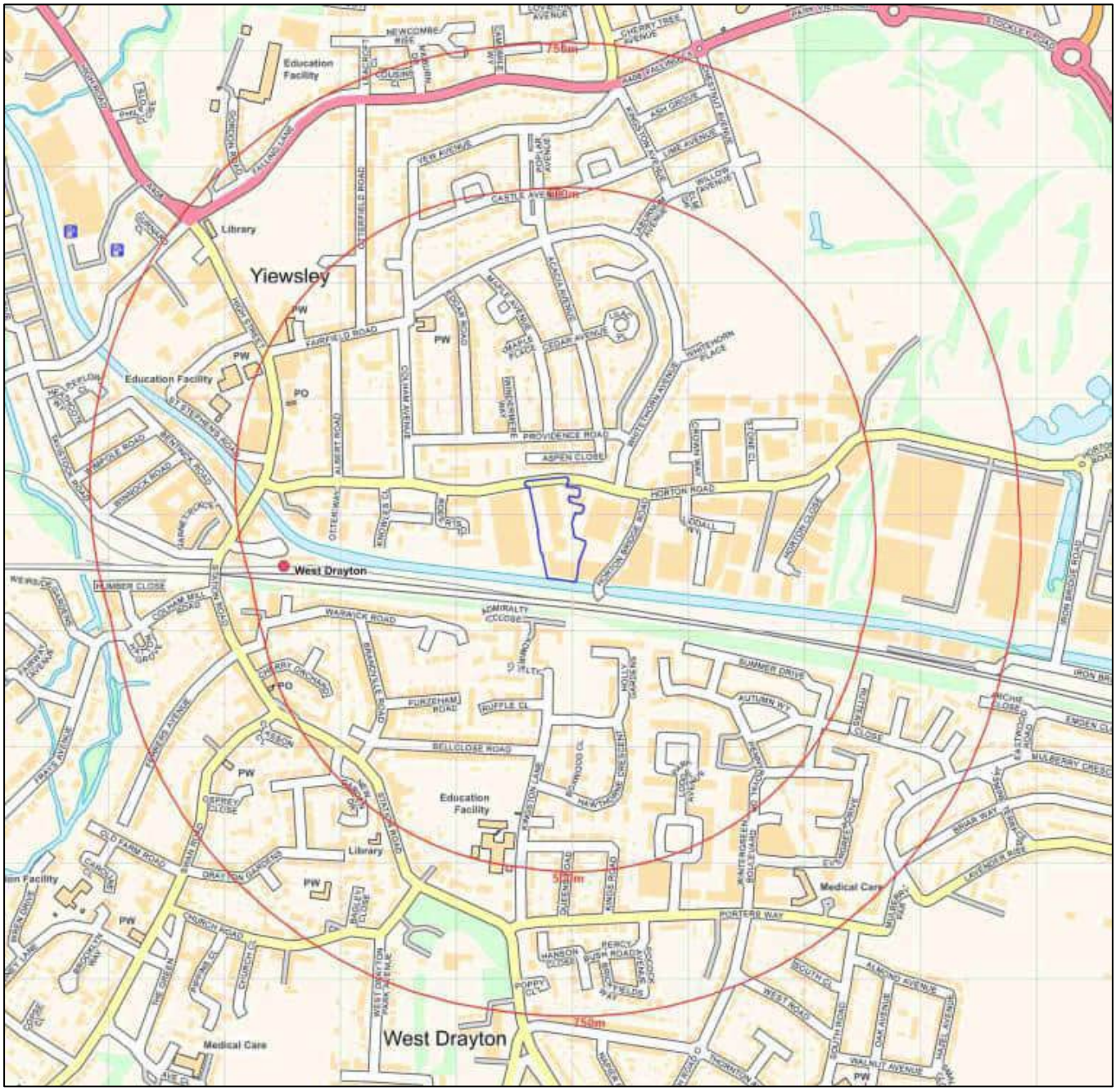
Based on the proposed nature of the development, a ground bearing floor slab will be required. Due to the thickness of Made Ground and soft shallow cohesive soils observed during the ground investigation, it is anticipated that ground improvement solutions will need to be investigated, or an engineered subbase will need to be installed to facilitate this.

12.2.8. Further Geotechnical Investigation

This phase of works was scoped as a preliminary ground investigation, as the site was in active use at the time of the investigation. Additional ground investigation works will be required to refine the findings of this report and establish the extent and thickness of Made Ground soils across the site.

Infiltration testing in accordance with *BRE Digest 365 'Soakaway* Design' is recommended once site demolition and clearance has been undertaken. Additional CBR testing at proposed formation level is also recommended once the site has been cleared.

FIGURE 1 - SITE LOCATION PLAN



Project	Horton Road, West Drayton			**Title**	Site Location Plan
Job Number	5027861	**Client**	Le Masurier	RIDGE PROPERTY & CONSTRUCTION CONSULTANTS	1 Royal Court Kings Worthy Winchester SO23 7TW
Drawing	5027861-Fig1	**Revision**	-		
Drawn	OS	**Date**	March 2025		
Checked by	MS	**Scale**	NTS	Ridge and Partners LLP www.ridge.co.uk	TEL: 01962 834400

FIGURE 2 - DEVELOPMENT PLANS

01
013

SITE LAYOUT PLAN

1:500

NOTES:

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TITLE
HORTON ROAD, WEST DRAYTON

DRAWING
COLOURED SITE LAYOUT PLAN

CLIENT
LE MASURIER

DATE	SCALE	DRAWN
AUGUST 2024	1:500@A1	sd
	STATUS: FEASIBILITY	CHECKED: mt

DRAWING NUMBER
31906 / FE / 013

FIGURE 3 - TEST LOCATION PLAN

Project	Horton Road, West Drayton			**Title**	Exploratory Hole Location Plan
Job Number	5027861	**Client**	Le Masurier	RIDGE PROPERTY & CONSTRUCTION CONSULTANTS	1 Royal Court Kings Worthy Winchester SO23 7TW
Drawing	5027861-Fig3	**Revision**	-		
Drawn	TL	**Date**	March 2025		
Checked by	ME	**Scale**	NTS	Ridge and Partners LLP www.ridge.co.uk	TEL: 01962 834400

APPENDIX 1 - REPORT CONDITIONS

Report Conditions

This report is produced solely for the benefit of **Le Masurier Limited** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the Site.

This report is based on a visual Site inspection, study of readily accessible referenced historical records, information supplied by those parties noted in the text and preliminary discussions with local and Statutory Authorities. Some of the opinions are based on unconfirmed data and information and are presented in good faith without exhaustive clarification. Where ground contamination is suspected but no physical Site test results are available to confirm this, the report must be regarded as initial advice only, and further assessment should be undertaken prior to detailed activities related to the Site. Where test results undertaken by others have been made available these can only be regarded as a limited sample. The possibility of the presence of contaminants, not revealed by this research cannot be discounted.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categoric assurances that they will be accepted by Authorities or Funds etc. without question, as such bodies may have unpublished, often more stringent objectives. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Ridge and Partners LLP. In time improved practices or amended legislation may necessitate a re-assessment.

The report is necessarily limited to those aspects of land contamination specifically reported on and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents that may occur. The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous use and abuse of the Site and adjacent Sites. The report concentrates on the Site as defined in the report and provides an opinion on surrounding Sites. If migrating pollution or contamination (past or present) exists this can only practically be better assessed following extensive on and off Site intrusive investigations and monitoring.

APPENDIX 2 – SITE PHOTOGRAPHS

PHOTOGRAPHIC LOG

SITE: HORTON ROAD, WEST DRAYTON
PROJECT NUMBER: 5027861

RIDGE

Photo No.	Date
01	25/02/25

View of the site taken from the entrance, looking south.

Photo No.	Date
02	25/02/25

View of the site taken from the south, looking north.

PHOTOGRAPHIC LOG

SITE: HORTON ROAD, WEST DRAYTON
PROJECT NUMBER: 5027861

Photo No.	Date
03	25/02/25

View of the site taken from the south, looking west towards Unit 10.

Photo No.	Date
04	25/02/25

Photo Title
View of the eastern section in the south of the site, where WS06 was located.

PHOTOGRAPHIC LOG

SITE: HORTON ROAD, WEST DRAYTON
PROJECT NUMBER: 5027861

RIDGE

Photo No.	Date
05	25/02/25

Typical ground profile from boreholes in the south of the site, as revealed by WS07.

Photo No.	Date
06	25/02/25

Typical ground profile from boreholes in the north of the site, as revealed by WS02.

PHOTOGRAPHIC LOG

SITE: HORTON ROAD, WEST DRAYTON
PROJECT NUMBER: 5027861

RIDGE

Photo No.	Date
07	25/02/25

In-situ view of shallow Made Ground, including brick fill.

Photo No.	Date
08	25/02/25

Typical ash and clinker fill encountered across site.

PHOTOGRAPHIC LOG

SITE: HORTON ROAD, WEST DRAYTON
PROJECT NUMBER: 5027861

RIDGE

Photo No.	Date
09	25/02/25

Typical Made Ground encountered on site, including brick fill and clinker.

Photo No.	Date
10	25/02/25

Concrete cores from Unit 6.

APPENDIX 3 – BOREHOLE LOGS

RIDGE	Ridge and Partners LLP www.ridge.co.uk	**WLS Borehole Log**	Borehole No. **WS01** Sheet 1 of 1
Project Name: Industrial Development, West Drayton		Client: Le Masurier	Contractor: Impact Geotechnical	Logged By: TL
Location: Orbital Industrial Estate, Horton Road, West Drayton, UB7 9JL		Equipment: Archway Dart Tracked Rig	Depth: 4.45m	Hole Type: WS
Project ID: 5027861	Date: 26/02/2025	Co-cords: E506559.00 N180253.00	Level: 30.36m AoD	Scale: 1:30

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.14	30.22		Light grey unreinforced CONCRETE with aggregate of flint to 30mm diameter.
								[Loose] Dark grey silty sandy GRAVEL with occasional cobbles of brick. Gravel is angular to subangular fine to coarse clinker and ash. (MADE GROUND)
		1.00	D		0.96	29.40		
		1.00	SPT	N=0 (0,0/0,0,0,0)				Soft to firm dark brown silty slightly gravelly CLAY. Gravel is subangular fine to medium flint and ash. (LYNCH HILL GRAVEL MEMBER)
								...becoming very gravelly between 1.00mbgl and 1.20mbgl.
		1.75	D					
		2.00	SPT	N=48 (5,8/12,13,12,11)				
					2.20	28.16		Very dense light brown slightly silty sandy GRAVEL of angular to subrounded fine to coarse flint. (LYNCH HILL GRAVEL MEMBER)
		2.50 - 3.00	B					
		3.00	SPT	N=50 (12,12/50 for 260mm)				
		4.00	SPT	N=34 (7,9/10,8,8,8)				
					4.45	25.91		End of Borehole at 4.450m

1 2 3 4 5 6

Groundwater Information				Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter
26/02/2025 00:00:00	3.90	30	3.70				

Remarks:

Location cleared of services and hand excavated to 1.00mbgl before being advanced to refusal at 4.45mbgl using a dynamic sampling rig. Groundwater encountered at 3.90mbgl. Partial collapse of borehole to 3.70mbgl.

Logged in general accordance with BS 5930: Code of practice for ground investigations.

AGS

RIDGE	Ridge and Partners LLP www.ridge.co.uk	**WLS Borehole Log**	Borehole No. **WS02** Sheet 1 of 1
Project Name: Industrial Development, West Drayton		Client: Le Masurier	Contractor: Impact Geotechnical	Logged By: TL
Location: Orbital Industrial Estate, Horton Road, West Drayton, UB7 9JL		Equipment: Archway Dart Tracked Rig	Depth: 5.00m	Hole Type: WS
Project ID: 5027861	Date: 26/02/2025	Co-cords: E506575.00 N180245.00	Level: 30.20m AoD	Scale: 1:30

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.14	30.06		MACADAM.
		0.30	D					[Dense] Dark grey and orange slightly silty gravelly very sandy COBBLES of brick. Gravel is angular to subrounded fine to coarse brick, macadam, ash, clinker, concrete and flint. (MADE GROUND)
		0.75	ES					
					0.83	29.37		*...240mm diameter boulder of concrete present at 0.80mbgl.*
		1.00	SPT	N=0 (0,0/0,0,0,0)	1.05	29.15		[Loose] Dark grey slightly silty slightly gravelly fine to medium SAND. Gravel is angular to subrounded fine to medium brick and flint. (MADE GROUND)
		1.20	D					Very soft dark brown clayey SILT with rare gravels of angular to subrounded fine to medium flint and ash. (LYNCH HILL GRAVEL MEMBER)
		2.00	SPT	N=45 (12,15/12,12,8,13)	1.93	28.27		Very dense light brown slightly silty sandy GRAVEL of angular to subrounded fine to coarse flint. (LYNCH HILL GRAVEL MEMBER)
		2.20 - 2.60	B					
		3.00 - 4.00	B					
		3.00	SPT	N=40 (9,12/10,9,10,11)				
		4.00	SPT	N=48 (7,8/10,10,13,15)				
					5.00	25.20		End of Borehole at 5.000m

Groundwater Information				Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter
26/02/2025 00:00:00	3.80	60	3.53				

Remarks:

Location cleared of services and hand excavated to 1.00mbgl before being advanced to refusal at 5.00mbgl using a dynamic sampling rig. Groundwater encountered at 3.80mbgl.

Logged in general accordance with BS 5930: Code of practice for ground investigations.

AGS

RIDGE	Ridge and Partners LLP www.ridge.co.uk	**WLS Borehole Log**	Borehole No. **WS03** Sheet 1 of 1
Project Name: Industrial Development, West Drayton		Client: Le Masurier	Contractor: Impact Geotechnical	Logged By: TL
Location: Orbital Industrial Estate, Horton Road, West Drayton, UB7 9JL		Equipment: Archway Dart Tracked Rig	Depth: 3.27m	Hole Type: WS
Project ID: 5027861	Date: 26/02/2025	Co-cords: E506590.00 N180218.00	Level: 30.13m AoD	Scale: 1:30

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	30.03		MACADAM.
					0.20	29.93		TYPE 1 FILL: Light grey sandy GRAVEL of angular to subangular fine to coarse crushed aggregate. (MADE GROUND)
					0.30	29.83		Light grey unreinforced CONCRETE with aggregate of flint to 30mm diameter.
		0.50	ES					[Soft]Grey and brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse brick, concrete, ash, flint and macadam. (MADE GROUND)
					0.75	29.38		
		1.00	SPT	N=0 (1,0/0,0,0,0)				[Loose] Dark grey sandy GRAVEL of angular to subangular fine to coarse ash and clinker. (MADE GROUND)
					1.20	28.93		Soft dark brown slightly gravelly silty CLAY. Gravel is angular to subangular fine to medium flint. (LYNCH HILL GRAVEL MEMBER)
		1.60	D					
					1.80	28.33		Dense to very dense light brown slightly clayey very sandy GRAVEL of angular to subrounded fine to coarse flint. (LYNCH HILL GRAVEL MEMBER)
		2.00	SPT	N=33 (2,3/6,10,10,7)				
		2.40 - 2.70	B					
		3.00	SPT	50 (25 for 125mm/50 for 145mm)				
					3.27	26.86		End of Borehole at 3.270m

1 2 3 4 5 6

Groundwater Information				Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter

Remarks:

Location cleared of services and hand excavated to 1.00mbgl before being advanced to refusal at 3.27mbgl using a dynamic sampling rig. No groundwater encountered. Partial collapse of borehole to 2.30mbgl.

Logged in general accordance with BS 5930: Code of practice for ground investigations.

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RIDGE	Ridge and Partners LLP www.ridge.co.uk	**WLS Borehole Log**	Borehole No. **WS04** Sheet 1 of 1

Project Name: Industrial Development, West Drayton	Client: Le Masurier	Contractor: Impact Geotechnical	Logged By: TL
Location: Orbital Industrial Estate, Horton Road, West Drayton, UB7 9JL	Equipment: Hand Tools	Depth: 0.98m	Hole Type: WS
Project ID: 5027861 / Date: 25/02/2025	Co-cords: E506574.00 N180205.00	Level: 30.15m AoD	Scale: 1:30

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.17	C		0.17	29.98		Light grey unreinforced CONCRETE with aggregate of flint to 50mm diameter.
		0.50	ES					[Loose] Dark grey sandy GRAVEL of angular to subangular fine to coarse ash and clinker. (MADE GROUND)
								...layer of concrete boulders to 300mm diameter encountered from 0.78mbgl.
					0.98	29.17		End of Borehole at 0.980m

1 2 3 4 5 6

Groundwater Information				Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter

Remarks:

Location cleared of services and hand excavated to 0.98mbgl before encountering obstruction. No groundwater encountered.

Logged in general accordance with BS 5930: Code of practice for ground investigations.

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RIDGE	Ridge and Partners LLP www.ridge.co.uk	**WLS Borehole Log**	Borehole No. **WS04A** Sheet 1 of 1

Project Name: Industrial Development, West Drayton	Client: Le Masurier	Contractor: Impact Geotechnical	Logged By: TL
Location: Orbital Industrial Estate, Horton Road, West Drayton, UB7 9JL	Equipment: Hand Tools	Depth: 0.95m	Hole Type: WS
Project ID: 5027861 / Date: 26/02/2025	Co-cords: E506575.00 N180198.00	Level: 30.15m AoD	Scale: 1:30

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.19	29.96		Light grey unreinforced CONCRETE with aggregate of flint to 50mm diameter.
								[Loose] Dark grey sandy GRAVEL of angular to subangular fine to coarse ash and clinker. (MADE GROUND)
								...layer of concrete boulders to 300mm diameter encountered from 0.75mbgl.
					0.95	29.20		End of Borehole at 0.950m

1 2 3 4 5 6

Groundwater Information				Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter

Remarks:

Location cleared of services and hand excavated to 0.95mbgl before encountering obstruction. No groundwater encountered.

Logged in general accordance with BS 5930: Code of practice for ground investigations.

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RIDGE	Ridge and Partners LLP www.ridge.co.uk	**WLS Borehole Log**	Borehole No. **WS05** Sheet 1 of 1
Project Name: Industrial Development, West Drayton		Client: Le Masurier	Contractor: Impact Geotechnical	Logged By: TL
Location: Orbital Industrial Estate, Horton Road, West Drayton, UB7 9JL		Equipment: Archway Dart Tracked Rig	Depth: 2.84m	Hole Type: WS
Project ID: 5027861	Date: 26/02/2025	Co-cords: E506595.00 N180187.00	Level: 30.39m AoD	Scale: 1:30

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	30.29		MACADAM.
					0.20	30.19		TYPE 1 FILL: Light grey sandy GRAVEL of angular to subangular fine to coarse crushed aggregate. (MADE GROUND)
		0.30	ES		0.27	30.12		Light grey unreinforced CONCRETE with aggregate of flint to 30mm diameter.
					0.63	29.76		Dark grey slightly sandy very gravelly CLAY with occasional cobbles of brick and flint. Gravel is angular to rounded fine to coarse brick, concrete, flint, macadam, clinker, glass and metal. (MADE GROUND)
		1.00	D					Very soft dark brown slightly sandy very gravelly CLAY. Gravel is angular to rounded fine to coarse brick, concrete, flint, glass and ash. (MADE GROUND)
		1.00	SPT	N=2 (0,0/0,0,1,1)				
		1.50	D		1.45	28.94		Firm dark brown clayey slightly gravelly SILT. Gravel is subangular to subrounded fine flint and ash. (LYNCH HILL GRAVEL MEMBER)
		2.00	SPT	N=35 (2,8/5,7,11,12)	2.05	28.34		Very dense light brown slightly clayey sandy GRAVEL of angular to subrounded fine to coarse flint. (LYNCH HILL GRAVEL MEMBER)
		2.30	D					
		2.50	SPT	50 (25 for 140mm/50 for 200mm)				
					2.84	27.55		End of Borehole at 2.840m

Groundwater Information				Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter

Remarks:

Location cleared of services and hand excavated to 1.00mbgl before being advanced to refusal at 2.84mbgl using a dynamic sampling rig. No groundwater encountered.

Logged in general accordance with BS 5930: Code of practice for ground investigations.

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RIDGE	Ridge and Partners LLP www.ridge.co.uk	**WLS Borehole Log**	Borehole No. **WS06** Sheet 1 of 1
Project Name: Industrial Development, West Drayton		Client: Le Masurier	Contractor: Impact Geotechnical	Logged By: TL
Location: Orbital Industrial Estate, Horton Road, West Drayton, UB7 9JL		Equipment: Archway Dart Tracked Rig	Depth: 3.45m	Hole Type: WS
Project ID: 5027861	Date: 27/02/2025	Co-cords: E506608.00 N180153.00	Level: 30.04m AoD	Scale: 1:30

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	29.89		MACADAM.
		0.25	ES					[Dense] Dark grey slightly silty sandy GRAVEL of angular to subangular fine to coarse concrete, brick, flint and ash. (MADE GROUND)
					0.43	29.61		[Dense] Orangish brown and grey slightly sandy GRAVEL AND COBBLES of angular to subangular brick, concrete and flint. (MADE GROUND)
		0.80	D					
		1.00	SPT	N=8 (2,3/2,2,2,2)	1.05	28.99		Soft dark brown slightly clayey slightly gravelly SILT. Gravel is subangular to rounded fine to medium flint and ash. (LYNCH HILL GRAVEL MEMBER)
		1.30	D					
		1.70	D		1.64	28.40		Very dense light brown slightly silty sandy GRAVEL of angular to subrounded fine to coarse flint. (LYNCH HILL GRAVEL MEMBER)
		2.00 - 3.00	B					
		2.00	SPT	N=45 (6,7/7,8,15,15)				
		3.00	SPT	N=54 (6,13/13,13,13,15)				
					3.45	26.59		End of Borehole at 3.450m

1 2 3 4 5 6

Groundwater Information				Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter

Remarks:

Location cleared of services and hand excavated to 1.00mbgl before being advanced to refusal at 3.45mbgl using a dynamic sampling rig. No groundwater encountered.

Logged in general accordance with BS 5930: Code of practice for ground investigations.

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RIDGE	Ridge and Partners LLP www.ridge.co.uk	**WLS Borehole Log**	Borehole No. **WS07** Sheet 1 of 1
Project Name: Industrial Development, West Drayton		Client: Le Masurier	Contractor: Impact Geotechnical	Logged By: TL
Location: Orbital Industrial Estate, Horton Road, West Drayton, UB7 9JL		Equipment: Archway Dart Tracked Rig	Depth: 3.41m	Hole Type: WS
Project ID: 5027861	Date: 25/02/2025	Co-cords: E506563.00 N180132.00	Level: 29.94m AoD	Scale: 1:30

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	29.79		Light grey unreinforced CONCRETE with aggregate of flint to 30mm diameter.
					0.19	29.75		Dark grey sandy GRAVEL of angular to subangular fine to coarse ash and clinker. (MADE GROUND)
								[Loose] Light brown slightly clayey sandy GRAVEL AND COBBLES of angular to rounded fine to coarse brick, concrete and flint. (MADE GROUND)
		1.00 1.00	ES SPT	N=2 (0,0/0,0,1,1)	1.10	28.84		Very soft dark brown slightly gravelly slightly sandy CLAY. Gravel is angular to rounded fine to medium flint, brick, ash and sandstone. (MADE GROUND)
		1.75	D		1.58	28.36		Soft dark brown silty CLAY. (LYNCH HILL GRAVEL MEMBER)
		2.00	SPT	N=47 (2,8/9,12,13,13)				
		2.50	D		2.25	27.69		Very dense light brown slightly silty sandy GRAVEL of angular to subrounded fine to coarse flint. (LYNCH HILL GRAVEL MEMBER)
		3.00 - 3.50 3.00	B SPT	N=51 (4,9/51 for 265mm)				
					3.41	26.53		End of Borehole at 3.410m

Groundwater Information				Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter

Remarks:

Location cleared of services and hand excavated to 1.00mbgl before being advanced to refusal at 3.41mbgl using a dynamic sampling rig. No groundwater encountered.

Logged in general accordance with BS 5930: Code of practice for ground investigations.

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RIDGE	Ridge and Partners LLP www.ridge.co.uk	**WLS Borehole Log**	Borehole No. **WS08** Sheet 1 of 1
Project Name: Industrial Development, West Drayton		Client: Le Masurier	Contractor: Impact Geotechnical	Logged By: TL
Location: Orbital Industrial Estate, Horton Road, West Drayton, UB7 9JL		Equipment: Archway Dart Tracked Rig	Depth: 3.45m	Hole Type: WS
Project ID: 5027861	Date: 25/02/2025	Co-cords: E506567.00 N180111.00	Level: 29.94m AoD	Scale: 1:30

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.09	C		0.09	29.85		Light grey unreinforced CONCRETE with aggregate of flint to 30mm diameter.
		0.15	ES		0.24	29.70		Dark grey sandy GRAVEL of angular to subangular fine to coarse ash and clinker. (MADE GROUND)
		0.75	D		0.68	29.26		Orangish brown silty sandy GRAVEL with frequent cobbles of brick. Gravel is angular to subrounded fine to coarse brick. (MADE GROUND)
		1.00	SPT	N=8 (1,1/1,2,2,3)				Soft dark brown slightly sandy very gravelly CLAY. Gravel is angular to subrounded fine to coarse brick, flint and tile. (MADE GROUND)
		1.50	D		1.45	28.49		Stiff brown silty slightly gravelly CLAY. Gravel is angular to subangular medium to coarse flint. (LYNCH HILL GRAVEL MEMBER)
		2.00	SPT	50 (7,13/50 for 210mm)	1.67	28.27		Very dense light brown slightly silty sandy GRAVEL of angular to subrounded fine to coarse flint. (LYNCH HILL GRAVEL MEMBER)
		2.50 - 3.00	B					
		3.00	SPT	50 (25 for 120mm/50 for 150mm)				
					3.45	26.49		End of Borehole at 3.450m

Groundwater Information				Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter

Remarks:

Location cleared of services and hand excavated to 1.00mbgl before being advanced to refusal at 3.45mbgl using a dynamic sampling rig. No groundwater encountered.

Logged in general accordance with BS 5930: Code of practice for ground investigations.

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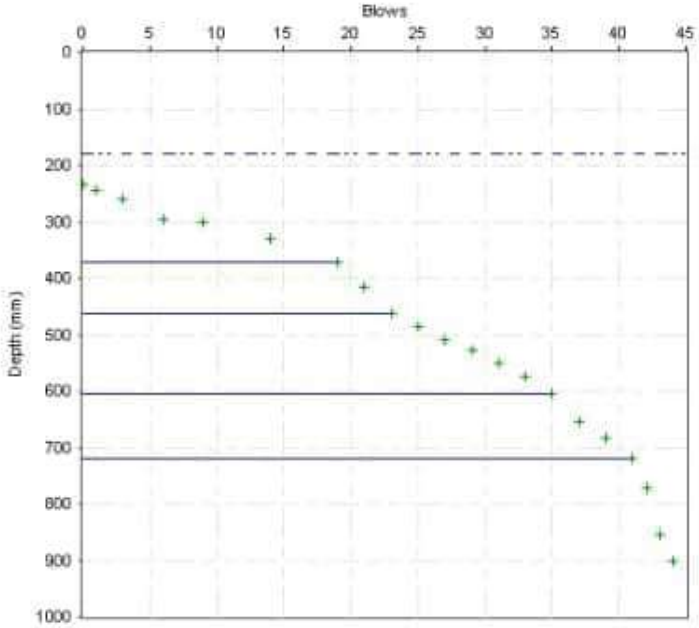
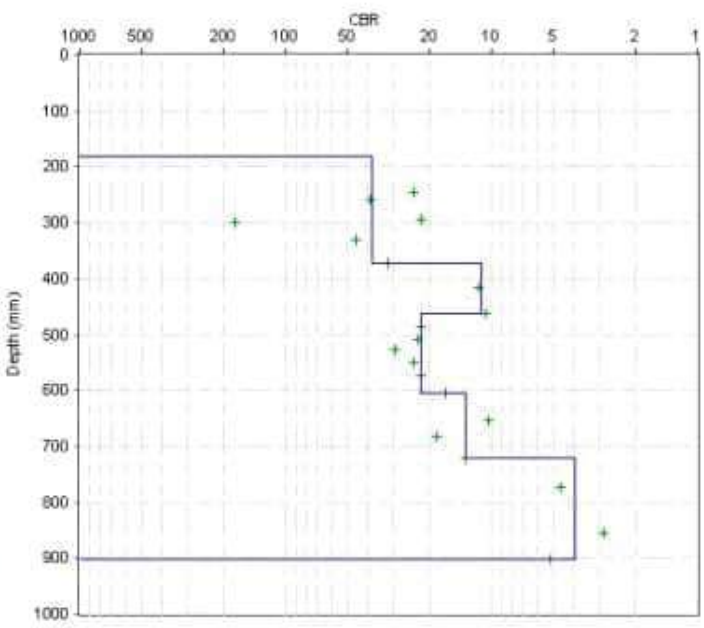
APPENDIX 4 – IN SITU TESTING



Layer Boundaries Chart

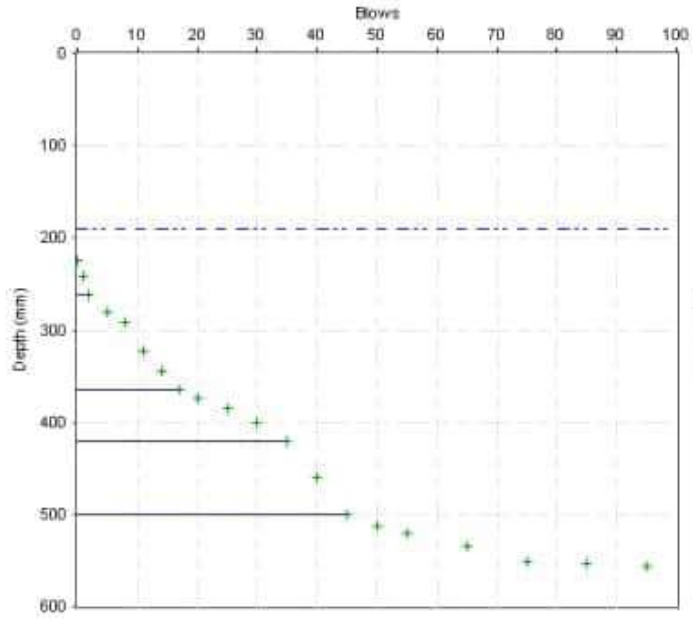


CBR Chart

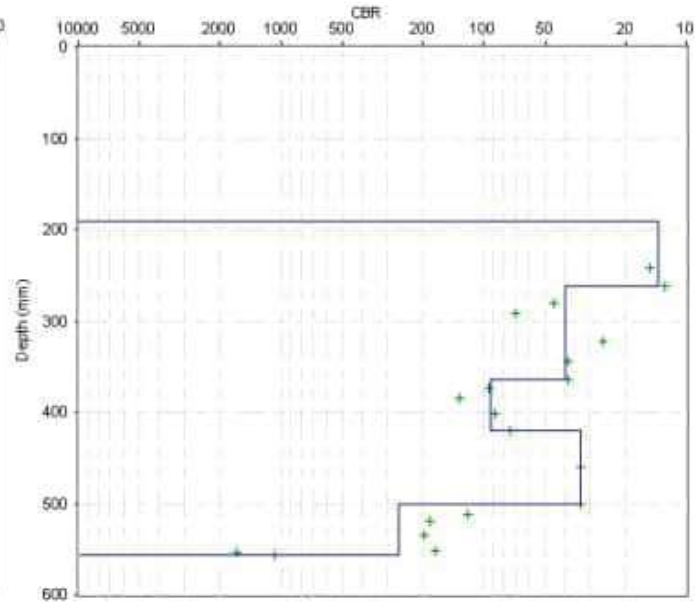
Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	7.06	38	192	372	Subgrade	--	--	--	--
2	22.75	11	91	463	Subgrade	--	--	--	--
3	11.83	22	142	605	Subgrade	--	--	--	--
4	19.17	13	115	720	Subgrade	--	--	--	--
5	60.67	4	182	902	Subgrade	--	--	--	--

Project:	Industrial Development, West Drayton			**Software:**	UK DCP 3.1 (TRL/ DFID 2006)
Job Number:	5027861	**Client:**	Le Masurier	Ridge and Partners LLP TEL: 01962 834400 www.ridge.co.uk	1 Royal Court Kings Worthy Winchester SO23 7TW
Test:	WS04	**Revision:**	-		
Created:	TL	**Date:**	March 2025		
Checked by:	ME	**Scale:**	NTS		



Layer Boundaries Chart

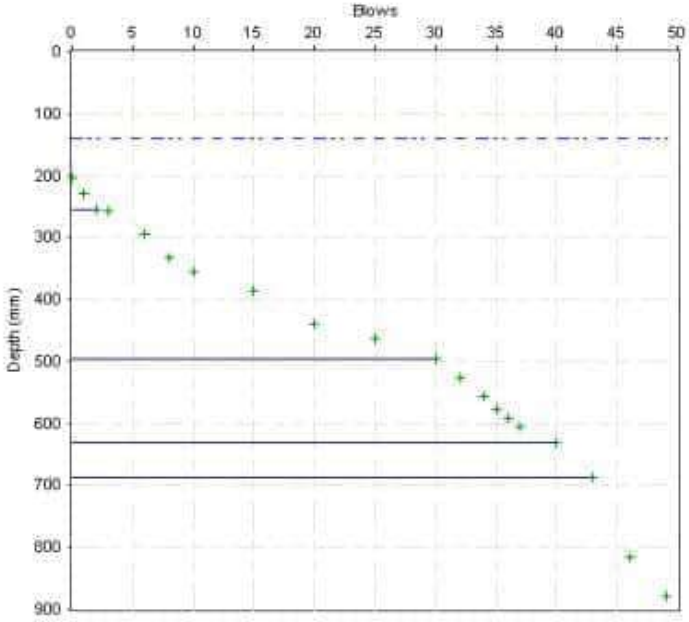


CBR Chart

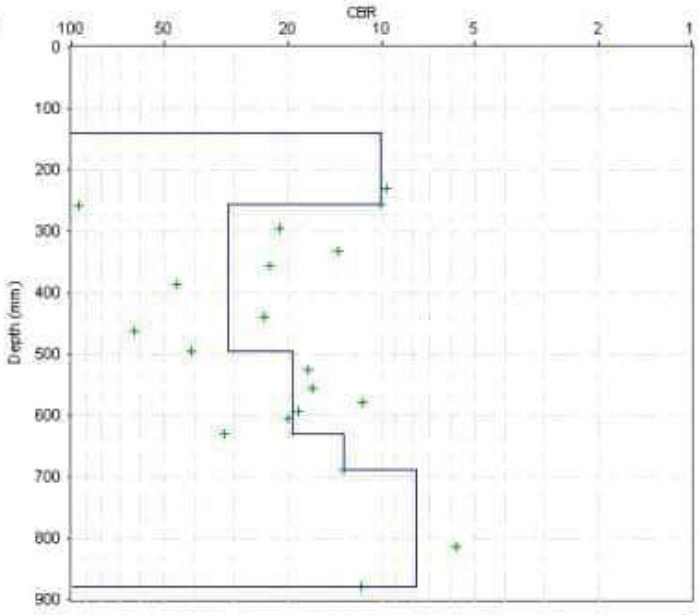
Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	18.50	14	72	262	Subgrade	--	--	--	--
2	6.87	39	103	365	Subgrade	--	--	--	--
3	3.06	93	55	420	Subgrade	--	--	--	--
4	8.00	34	80	500	Subgrade	--	--	--	--
5	1.14	263	57	557	Subgrade	--	--	--	--

Project:	Industrial Development, West Drayton			**Software:**	UK DCP 3.1 (TRL/ DFID 2006)
Job Number:	5027861	**Client:**	Le Masurier	Ridge and Partners LLP TEL: 01962 834400 www.ridge.co.uk	1 Royal Court Kings Worthy Winchester SO23 7TW
Test:	WS07	**Revision:**	-		
Created:	TL	**Date:**	March 2025		
Checked by:	ME	**Scale:**	NTS		



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	25.00	10	115	255	Subgrade	--	--	--	--
2	8.57	31	240	495	Subgrade	--	--	--	--
3	13.50	19	135	630	Subgrade	--	--	--	--
4	19.33	13	58	688	Subgrade	--	--	--	--
5	32.00	8	192	880	Subgrade	--	--	--	--

Project:	Industrial Development, West Drayton			**Software:**	UK DCP 3.1 (TRL/ DFID 2006)
Job Number:	5027861	**Client:**	Le Masurier	Ridge and Partners LLP TEL: 01962 834400 www.ridge.co.uk	1 Royal Court Kings Worthy Winchester SO23 7TW
Test:	WS08	**Revision:**	-		
Created:	TL	**Date:**	March 2025		
Checked by:	ME	**Scale:**	NTS		

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PROPERTY & CONSTRUCTION CONSULTANTS

APPENDIX 5 – CONTAMINATION LABORATORY RESULTS

Tom Lockwood
Ridge
Partnership House
Moorside Road
Winchester
SO23 7RX

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 25-02312

Site Reference:	West Drayton
Project / Job Ref:	5027861
Order No:	633327
Sample Receipt Date:	03/03/2025
Sample Scheduled Date:	03/03/2025
Report Issue Number:	1
Reporting Date:	10/03/2025

Authorised by:

Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 25-02312	**~Date Sampled**	26/02/25	26/02/25	26/02/25	26/02/25	26/02/25
Ridge	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: West Drayton	**~TP / BH No**	WS01	WS02	WS03	WS04	WS05
~Project / Job Ref: 5027861	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 633327	**~Depth (m)**	0.20	0.75	0.50	0.50	0.30
Reporting Date: 10/03/2025	**DETS Sample No**	766699	766700	766701	766702	766703

Determinand	**Unit**	**RL**	**Accreditation**					
Asbestos Screen [S]	N/a	N/a	**ISO17025**	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sample Matrix [S]	Material Type	N/a	NONE					
Asbestos Type [S]	PLM Result	N/a	**ISO17025**					
Asbestos Quantification [S]	%	< 0.001	**ISO17025**					
pH	pH Units	N/a	**MCERTS**	8.1	8.4	8.5	6.9	8.5
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	17
Organic Matter (SOM)	%	< 0.1	**MCERTS**	32	50.2	2.7	32.4	11.5
Arsenic (As)	mg/kg	< 2	**MCERTS**	26	17	18	11	19
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**	0.5	0.5	0.3	0.2	0.5
Chromium (Cr)	mg/kg	< 2	**MCERTS**	11	19	22	12	23
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	**MCERTS**	37	102	40	59	154
Lead (Pb)	mg/kg	< 3	**MCERTS**	39	89	242	24	297
Mercury (Hg)	mg/kg	< 1	**MCERTS**	< 1	< 1	< 1	< 1	1.4
Nickel (Ni)	mg/kg	< 3	**MCERTS**	24	47	24	39	31
Selenium (Se)	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
Zinc (Zn)	mg/kg	< 3	**MCERTS**	38	111	75	31	234
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	3.6	< 2

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Soil Analysis Certificate						
DETS Report No: 25-02312	**~Date Sampled**	26/02/25	26/02/25	26/02/25		
Ridge	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: West Drayton	**~TP / BH No**	WS06	WS07	WS08		
~Project / Job Ref: 5027861	**~Additional Refs**	None Supplied	None Supplied	None Supplied		
~Order No: 633327	**~Depth (m)**	0.25	1.00	0.15		
Reporting Date: 10/03/2025	**DETS Sample No**	766704	766705	766706		

Determinand	**Unit**	**RL**	**Accreditation**			(n)		
Asbestos Screen [S]	N/a	N/a	**ISO17025**	Not Detected	Detected	Detected		
Sample Matrix [S]	Material Type	N/a	NONE		Bundle of Chrysotile fibres	Bundle of Chrysotile fibres		
Asbestos Type [S]	PLM Result	N/a	**ISO17025**		Chrysotile	Chrysotile		
Asbestos Quantification [S]	%	< 0.001	**ISO17025**		< 0.001	< 0.001		
pH	pH Units	N/a	**MCERTS**	8.0	8.1	10.7		
Total Cyanide	mg/kg	< 1	NONE	22	< 1	< 1		
Organic Matter (SOM)	%	< 0.1	**MCERTS**	18.9	4.2	19.5		
Arsenic (As)	mg/kg	< 2	**MCERTS**	21	18	8		
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**	0.5	0.5	< 0.2		
Chromium (Cr)	mg/kg	< 2	**MCERTS**	19	19	10		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2		
Copper (Cu)	mg/kg	< 4	**MCERTS**	89	89	36		
Lead (Pb)	mg/kg	< 3	**MCERTS**	414	434	19		
Mercury (Hg)	mg/kg	< 1	**MCERTS**	< 1	1.4	< 1		
Nickel (Ni)	mg/kg	< 3	**MCERTS**	26	19	19		
Selenium (Se)	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2		
Zinc (Zn)	mg/kg	< 3	**MCERTS**	212	203	33		
Total Phenols (monohydric)	mg/kg	< 2	NONE	6.8	< 2	< 2		

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 25-02312	**~Date Sampled**	26/02/25	26/02/25	26/02/25	26/02/25	26/02/25
Ridge	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: West Drayton	**~TP / BH No**	WS01	WS02	WS03	WS04	WS05
~Project / Job Ref: 5027861	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 633327	**~Depth (m)**	0.20	0.75	0.50	0.50	0.30
Reporting Date: 10/03/2025	**DETS Sample No**	766699	766700	766701	766702	766703

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	0.48	< 0.1	< 0.1	0.24
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	0.32	< 0.1	< 0.1	0.31
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	3.46	< 0.1	< 0.1	0.44
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	3.16	< 0.1	< 0.1	0.85
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	18.40	< 0.1	0.16	9.93
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	4.66	< 0.1	< 0.1	3.13
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	20.90	0.14	0.16	27.20
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	17.20	0.14	0.12	24
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	8.35	< 0.1	< 0.1	14.80
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	6.69	< 0.1	< 0.1	13.50
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	8.02	< 0.1	< 0.1	10.80
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	3.60	< 0.1	< 0.1	5.72
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	6.82	< 0.1	< 0.1	11.70
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	3.52	< 0.1	< 0.1	5.50
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.80	< 0.1	< 0.1	1.39
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	2.91	< 0.1	< 0.1	4.78
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	109	< 1.6	< 1.6	134

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 25-02312	**~Date Sampled**	26/02/25	26/02/25	26/02/25		
Ridge	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: West Drayton	**~TP / BH No**	WS06	WS07	WS08		
~Project / Job Ref: 5027861	**~Additional Refs**	None Supplied	None Supplied	None Supplied		
~Order No: 633327	**~Depth (m)**	0.25	1.00	0.15		
Reporting Date: 10/03/2025	**DETS Sample No**	766704	766705	766706		

Determinand	Unit	RL	Accreditation			(n)		
Naphthalene	mg/kg	< 0.1	MCERTS	16.50	< 0.1	< 0.1		
Acenaphthylene	mg/kg	< 0.1	MCERTS	0.89	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	31.50	< 0.1	< 0.1		
Fluorene	mg/kg	< 0.1	MCERTS	32.70	< 0.1	< 0.1		
Phenanthrene	mg/kg	< 0.1	MCERTS	139	0.55	0.24		
Anthracene	mg/kg	< 0.1	MCERTS	39.70	0.14	< 0.1		
Fluoranthene	mg/kg	< 0.1	MCERTS	118	1.19	0.38		
Pyrene	mg/kg	< 0.1	MCERTS	93.60	1.03	0.47		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	47.90	0.54	0.38		
Chrysene	mg/kg	< 0.1	MCERTS	36.10	0.61	0.42		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	37.70	0.60	0.57		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	14.20	0.25	0.24		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	37.70	0.56	0.61		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	19.20	0.34	0.47		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	3.65	< 0.1	< 0.1		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	15.10	0.32	0.42		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	684	6.1	4.2		

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 25-02312	**~Date Sampled**	26/02/25	26/02/25	26/02/25	26/02/25	26/02/25
Ridge	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: West Drayton	**~TP / BH No**	WS01	WS02	WS03	WS04	WS05
~Project / Job Ref: 5027861	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 633327	**~Depth (m)**	0.20	0.75	0.50	0.50	0.30
Reporting Date: 10/03/2025	**DETS Sample No**	766699	766700	766701	766702	766703

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	23	< 2	< 2	4
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3	82	< 3	< 3	60
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10	82	< 10	< 10	112
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	187	< 21	< 21	177
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	< 42	187	< 42	< 42	177

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 25-02312	**~Date Sampled**	26/02/25	26/02/25	26/02/25		
Ridge	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: West Drayton	**~TP / BH No**	WS06	WS07	WS08		
~Project / Job Ref: 5027861	**~Additional Refs**	None Supplied	None Supplied	None Supplied		
~Order No: 633327	**~Depth (m)**	0.25	1.00	0.15		
Reporting Date: 10/03/2025	**DETS Sample No**	766704	766705	766706		

Determinand	Unit	RL	Accreditation	(n)				
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	3	< 2	< 2		
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	14	< 2	< 2		
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	250	< 3	< 3		
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	438	< 3	5		
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	133	< 10	29		
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	837	< 21	35		
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	27	< 2	< 2		
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	297	< 2	< 2		
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	785	4	< 3		
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	615	< 10	< 10		
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	1724	< 21	< 21		
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	2560	< 42	< 42		

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 25-02312	**~Date Sampled**	26/02/25	26/02/25	26/02/25	26/02/25	26/02/25
Ridge	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: West Drayton	**~TP / BH No**	WS01	WS02	WS03	WS04	WS05
~Project / Job Ref: 5027861	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 633327	**~Depth (m)**	0.20	0.75	0.50	0.50	0.30
Reporting Date: 10/03/2025	**DETS Sample No**	766699	766700	766701	766702	766703

Determinand	Unit	RL	Accreditation					
Benzene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene : HS_1D_MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
o-xylene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE : HS_1D_MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 25-02312	**~Date Sampled**	26/02/25	26/02/25	26/02/25		
Ridge	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: West Drayton	**~TP / BH No**	WS06	WS07	WS08		
~Project / Job Ref: 5027861	**~Additional Refs**	None Supplied	None Supplied	None Supplied		
~Order No: 633327	**~Depth (m)**	0.25	1.00	0.15		
Reporting Date: 10/03/2025	**DETS Sample No**	766704	766705	766706		

Determinand	Unit	RL	Accreditation			(n)		
Benzene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2		
Toluene : HS_1D_MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5		
Ethylbenzene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2		
p & m-xylene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2		
o-xylene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2		
MTBE : HS_1D_MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5		

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Waste Acceptance Criteria Analytical Certificate

DETS Report No: 25-02312		**~Date Sampled**	26/02/25				**Landfill Waste Acceptance Criteria Limits**	
Ridge		**~Time Sampled**	None Supplied				**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
~Site Reference: West Drayton		**~TP / BH No**	WS01						
~Project / Job Ref: 5027861		**~Additional Refs**	None Supplied						
~Order No: 633327		**~Depth (m)**	0.20						
Reporting Date: 10/03/2025		**DETS Sample No**	766699						
Determinand	**Unit**	**MDL**							
TOC[MU]	%	< 0.1	18.6				3%	5%	**6%**
Loss on Ignition[MU]	%	< 0.01	15.30				--	--	**10%**
BTEX[MU]	mg/kg	< 0.05	< 0.05				6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1				1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10				500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7				100	--	--
pH[MU]	pH Units	N/a	8.1				--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1				--	To be evaluated	To be evaluated
Eluate Analysis			**10:1 mg/l**			**Cumulative 10:1 * mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]			0.0160			0.160	0.5	2	25
Barium[U]			0.0060			0.060	20	100	300
Cadmium[U]			< 0.0002			< 0.002	0.04	1	5
Chromium[U]			0.0007			0.007	0.5	10	70
Copper[U]			0.0026			0.026	2	50	100
Mercury[U]			0.00010			0.0010	0.01	0.2	2
Molybdenum[U]			0.0013			0.013	0.5	10	30
Nickel[U]			0.0004			0.004	0.4	10	40
Lead[U]			0.0007			0.007	0.5	10	50
Antimony[U]			< 0.0002			< 0.002	0.06	0.7	5
Selenium[U]			0.0002			0.002	0.1	0.5	7
Zinc[U]			0.022			0.22	4	50	200
Chloride[U]			4.4			44	800	15000	25000
Fluoride[U]			< 0.5			< 5	10	150	500
Sulphate[U]			2.0			20	1000	20000	50000
TDS			41			410	4000	60000	100000
Phenol Index[U]			< 0.01			< 0.1	1	-	-
DOC[U]			3			29.9	500	800	1000
Leach Test Information									
Sample Mass (kg)			0.10						
Dry Matter (%)			86.9						
Moisture (%)			15.2						
Stage 1									
Volume Eluate L10 (litres)			0.89						

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and Normec DETS Limited cannot be held responsible for any discrepencies with current legislation
* Normec DETS are accredited for the testing of leachate and not the leachate preparation stage which is unaccredited

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Waste Acceptance Criteria Analytical Certificate

				Landfill Waste Acceptance Criteria Limits		
DETS Report No: 25-02312	**~Date Sampled**	26/02/25		**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Ridge	**~Time Sampled**	None Supplied				
~Site Reference: West Drayton	**~TP / BH No**	WS06				
~Project / Job Ref: 5027861	**~Additional Refs**	None Supplied				
~Order No: 633327	**~Depth (m)**	0.25				
Reporting Date: 10/03/2025	**DETS Sample No**	766704				

Determinand	**Unit**	**MDL**						
TOC[MU]	%	< 0.1	11				3%	5%	**6%**
Loss on Ignition[MU]	%	< 0.01	7.10				--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05				6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1				1	--	--
Mineral Oil[MU]	mg/kg	< 10	834				**500**	--	--
Total PAH[MU]	mg/kg	< 1.7	687				**100**	--	--
pH[MU]	pH Units	N/a	8.0				--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	1.2				--	To be evaluated	To be evaluated

Eluate Analysis	**10:1 mg/l**			**Cumulative 10:1 * mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic[U]	0.0011			0.011	0.5	2	25
Barium[U]	0.0503			0.503	20	100	300
Cadmium[U]	< 0.0002			< 0.002	0.04	1	5
Chromium[U]	< 0.0002			< 0.002	0.5	10	70
Copper[U]	0.0029			0.029	2	50	100
Mercury[U]	0.00007			0.0007	0.01	0.2	2
Molybdenum[U]	0.0071			0.071	0.5	10	30
Nickel[U]	0.0006			0.006	0.4	10	40
Lead[U]	0.0004			0.004	0.5	10	50
Antimony[U]	< 0.0002			< 0.002	0.06	0.7	5
Selenium[U]	0.0005			0.005	0.1	0.5	7
Zinc[U]	0.025			0.25	4	50	200
Chloride[U]	1.1			11	800	15000	25000
Fluoride[U]	0.6			6	10	150	500
Sulphate[U]	21.9			219	1000	20000	50000
TDS	90			900	4000	60000	100000
Phenol Index[U]	< 0.01			< 0.1	1	-	-
DOC[U]	8.5			85.3	500	800	1000

Leach Test Information				
Sample Mass (kg)	0.10			
Dry Matter (%)	94.4			
Moisture (%)	6			
Stage 1				
Volume Eluate L10 (litres)	0.89			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and Normec DETS Limited cannot be held responsible for any discrepencies with current legislation
* Normec DETS are accredited for the testing of leachate and not the leachate preparation stage which is unaccredited

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 25-02312	
Ridge	
~Site Reference: West Drayton	
~Project / Job Ref: 5027861	
~Order No: 633327	
Reporting Date: 10/03/2025	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
766699	WS01	None Supplied	0.20	13.1	Black loamy sand with stones and concrete
766700	WS02	None Supplied	0.75	15.3	Black loamy sand with stones and concrete
766701	WS03	None Supplied	0.50	16.6	Brown sandy clay with stones
766702	WS04	None Supplied	0.50	11.3	Black loamy sand with stones and concrete
766703	WS05	None Supplied	0.30	20.1	Brown sandy clay with stones
766704	WS06	None Supplied	0.25	5.6	Black loamy sand with stones and concrete
766705	WS07	None Supplied	1.00	12.7	Brown sandy clay with stones
766706	WS08	None Supplied	0.15	4	Black sandy gravel with stones and concrete

Moisture content is part of procedure E003 & is not an accredited test

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 25-02312
Ridge
~Site Reference: West Drayton
~Project / Job Ref: 5027861
~Order No: 633327
Reporting Date: 10/03/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

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UKAS TESTING 4480

Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 25-02312
Ridge
~Site Reference: West Drayton
~Project / Job Ref: 5027861
~Order No: 633327
Reporting Date: 10/03/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	F	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (BOD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	F	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	F	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E115
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichlorometha	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Acidification, followed by high-temperature oxidation and IR detection.	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

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List of HWOL Acronyms and Operators
DETS Report No: 25-02312
Ridge
~Site Reference: West Drayton
~Project / Job Ref: 5027861
~Order No: 633327
Reporting Date: 10/03/2025

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by customer and can affect the validity of results

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
Mineral Oil (C10 - C40) (BS EN 12457-2) - EH_CU_1D_AL
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aliphatic C5 - C34 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C35 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C35 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
Total BTEX (BS EN 12457-2) - HS_1D_MS_Total
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Parameter	Matrix Type	Expanded Uncertainity Measurement	Unit
TOC	Soil	11	%
Loss on Ignition	Soil	24	%
BTEX	Soil	11	%
Sum of PCBs	Soil	30	%
Mineral Oil	Soil	9	%
Total PAH	Soil	17	%
pH	Soil	0.2	Units
Acid Neutralisation Capacity	Soil	18	%
Clay Content	Soil	15	%
Silt Content	Soil	14	%
Sand Content	Soil	13	%
Loss on Ignition	Soil	24	%
pH	Soil	0.2	Units
Carbonate	Soil	12	%
Total Nitrogen	Soil	12	%
Phosphorus (Extractable)	Soil	24	%
Potassium (Extractable)	Soil	20	%
Magnesium (Extractable)	Soil	26	%
Zinc	Soil	26	%
Copper	Soil	24	%
Nickel	Soil	29	%
Available Sodium	Soil	23	%
Available Calcium	Soil	23	%
Electrical Conductivity	Soil	10	%

Certificate Key

Symbol	Description
F	Filtered sample
UF	Unfiltered sample
D	Dried sample
AR	As received sample
RL	Reporting limit
~	Sample details provided by customer and can affect the validity of results
M/S	Missing Sample
n	Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation
S	Subcontracted analysis
M	MCERTS accredited test
U	UKAS accredited test

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

8Q323-2BSAS-MT7O3

Report is invalid if pages are removed.

Job name

5027861 - West Drayton

Description/Comments

The following report provides classification of typical soil materials identified on site during the recent Ground Investigation.

Waste classification should be based on analyses that are representative of the particular waste load, so it is normally not possible to classify the soils at the investigation stage, since the materials that will become waste have generally not been defined yet.

Ground investigation data can however provide a useful guide to the likely waste classification and can indicate the scale of the classification analyses that will be required after the waste has been defined and before it is generated.

Lab Files: 25-02312.1

Project

5027861

Site

West Drayton

Classified by

Name:
Max Smeeth
Date:
12 Mar 2025 15:24 GMT
Telephone:
07824692661

Company:
Ridge & Partners LLP
Ridge and Partners LLP
1 Royal Court
Kings Worthy
SO23 7TW

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	09 Feb 2023

Next 3 year Refresher due by Feb 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Orbital Industrial Estate, Horton Road, West Drayton **Post Code** UB7 8JL

SIC for the process giving rise to the waste

43999 Other specialised construction activities n.e.c.

Description of industry/producer giving rise to the waste

Demolition of multiple small existing commercial/industrial units to replace with two larger commercial units with associated office space and service yards.

Description of the specific process, sub-process and/or activity that created the waste

Possible earthworks, foundation excavations.

Description of the waste

All samples shallow Made Ground. Typically a sandy Gravel, with concrete, brick, clinker, macadam and various anthropogenic materials.

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	WAC Results			Page
					Inert	SNRHW	Hazardous	
1	WS01-0.20-26/02/2025	0.20	Non Hazardous		N/A	Fail	Fail	3
2	WS02-0.75-26/02/2025	0.75	Non Hazardous		N/A	-	-	6
3	WS03-0.50-26/02/2025	0.50	Non Hazardous		N/A	-	-	10
4	WS04-0.50-26/02/2025	0.50	Non Hazardous		N/A	-	-	13
5	WS05-0.30-26/02/2025	0.30	Non Hazardous		N/A	-	-	16
6	WS06-0.25-26/02/2025	0.25	Hazardous	HP 7, HP 11	N/A	Fail	Fail	20
7	WS07-1.00-26/02/2025	1.00	Non Hazardous		N/A	-	-	24
8	WS08-0.15-26/02/2025	0.15	Non Hazardous		N/A	-	-	28

Related documents

#	Name	Description
1	25-02312.1.hwol	DETS South .hwol file used to populate the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

WAC results

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate the samples in this Job: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

Report

Created by: Max Smeeth

Created date: 12 Mar 2025 15:24 GMT

Classification of sample: WS01-0.20-26/02/2025

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS01-0.20-26/02/2025
Sample Depth:
0.20 m
Moisture content:
13.1%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13.1% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		26 mg/kg	1.32	29.831 mg/kg	0.00298 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5 mg/kg	1.142	0.496 mg/kg	0.0000496 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		11 mg/kg	1.462	13.971 mg/kg	0.0014 %	✓	
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		37 mg/kg	1.126	36.201 mg/kg	0.00362 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	39 mg/kg	1.56	52.864 mg/kg	0.00339 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		24 mg/kg	2.976	62.073 mg/kg	0.00621 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		38 mg/kg	2.774	91.608 mg/kg	0.00916 %	✓	
11	TPH (C6 to C40) petroleum group			TPH		<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
13	benzene	601-020-00-8	200-753-7	71-43-2		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
14	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		xylene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
18		pH				8.1	pH		8.1	pH	8.1 pH		
				PH									
19		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
21		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
22		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
23		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
24		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
25		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
26		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
35		monohydric phenols				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
				P1186									
										Total:	0.0327 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS01-0.20-26/02/2025

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample FAILS the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria.

The sample FAILS the Hazardous (Hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	18.6	3	5	6
2	LOI (loss on ignition)	%	15.3	-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.05	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.1	1	-	-
5	Mineral oil (C10 to C40)	mg/kg	<10	500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<1.7	100	-	-
7	pH	pH	8.1	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg	<1	-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg	0.16	0.5	2	25
10	barium	mg/kg	0.06	20	100	300
11	cadmium	mg/kg	<0.002	0.04	1	5
12	chromium	mg/kg	0.007	0.5	10	70
13	copper	mg/kg	0.026	2	50	100
14	mercury	mg/kg	0.001	0.01	0.2	2
15	molybdenum	mg/kg	0.013	0.5	10	30
16	nickel	mg/kg	0.004	0.4	10	40
17	lead	mg/kg	0.007	0.5	10	50
18	antimony	mg/kg	<0.002	0.06	0.7	5
19	selenium	mg/kg	0.002	0.1	0.5	7
20	zinc	mg/kg	0.22	4	50	200
21	chloride	mg/kg	44	800	15,000	25,000
22	fluoride	mg/kg	<5	10	150	500
23	sulphate	mg/kg	20	1,000	20,000	50,000
24	phenol index	mg/kg	<0.1	1	-	-
25	DOC (dissolved organic carbon)	mg/kg	29.9	500	800	1,000
26	TDS (total dissolved solids)	mg/kg	410	4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	SNRHW WAC criteria fail
	Hazardous WAC criteria fail

Classification of sample: WS02-0.75-26/02/2025

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS02-0.75-26/02/2025
Sample Depth:
0.75 m
Moisture content:
15.3%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15.3% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		17 mg/kg	1.32	19.011 mg/kg	0.0019 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5 mg/kg	1.142	0.484 mg/kg	0.0000484 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	23.521 mg/kg	0.00235 %	✓	
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		102 mg/kg	1.126	97.27 mg/kg	0.00973 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	89 mg/kg	1.56	117.584 mg/kg	0.00754 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		47 mg/kg	2.976	118.482 mg/kg	0.0118 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		111 mg/kg	2.774	260.817 mg/kg	0.0261 %	✓	
11	TPH (C6 to C40) petroleum group			TPH		187 mg/kg		158.389 mg/kg	0.0158 %	✓	
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
13	benzene	601-020-00-8	200-753-7	71-43-2		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
14	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		xylene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
		006-007-00-5											
18		pH				8.4	pH		8.4	pH	8.4 pH		
				PH									
19		naphthalene				0.48	mg/kg		0.407	mg/kg	0.0000407 %	✓	
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				0.32	mg/kg		0.271	mg/kg	0.0000271 %	✓	
			205-917-1	208-96-8									
21		acenaphthene				3.46	mg/kg		2.931	mg/kg	0.000293 %	✓	
			201-469-6	83-32-9									
22		fluorene				3.16	mg/kg		2.677	mg/kg	0.000268 %	✓	
			201-695-5	86-73-7									
23		phenanthrene				18.4	mg/kg		15.585	mg/kg	0.00156 %	✓	
			201-581-5	85-01-8									
24		anthracene				4.66	mg/kg		3.947	mg/kg	0.000395 %	✓	
			204-371-1	120-12-7									
25		fluoranthene				20.9	mg/kg		17.702	mg/kg	0.00177 %	✓	
			205-912-4	206-44-0									
26		pyrene				17.2	mg/kg		14.568	mg/kg	0.00146 %	✓	
			204-927-3	129-00-0									
27		benzo[a]anthracene				8.35	mg/kg		7.072	mg/kg	0.000707 %	✓	
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				6.69	mg/kg		5.666	mg/kg	0.000567 %	✓	
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				8.02	mg/kg		6.793	mg/kg	0.000679 %	✓	
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				3.6	mg/kg		3.049	mg/kg	0.000305 %	✓	
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				6.82	mg/kg		5.777	mg/kg	0.000578 %	✓	
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				3.52	mg/kg		2.981	mg/kg	0.000298 %	✓	
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				0.8	mg/kg		0.678	mg/kg	0.0000678 %	✓	
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				2.91	mg/kg		2.465	mg/kg	0.000246 %	✓	
			205-883-8	191-24-2									
35		monohydric phenols				<2	mg/kg		<2	mg/kg	<0.0002 %		**<LOD**
				P1186									
										Total:	0.0861 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 12500 mg/kg (1.25%) because: No evident free draining liquid phase. Limit values determined in accordance with WM3 (1st edition v 1.2.GB) worked example for the determination of HP3.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0158%)

WAC results for sample: WS02-0.75-26/02/2025

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	8.4	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: WS03-0.50-26/02/2025

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS03-0.50-26/02/2025
Sample Depth:
0.50 m
Moisture content:
16.6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16.6% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18 mg/kg	1.32	19.821 mg/kg	0.00198 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3 mg/kg	1.142	0.286 mg/kg	0.0000286 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22 mg/kg	1.462	26.817 mg/kg	0.00268 %	✓	
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		40 mg/kg	1.126	37.56 mg/kg	0.00376 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	242 mg/kg	1.56	314.814 mg/kg	0.0202 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		24 mg/kg	2.976	59.573 mg/kg	0.00596 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		75 mg/kg	2.774	173.523 mg/kg	0.0174 %	✓	
11	TPH (C6 to C40) petroleum group			TPH		<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
13	benzene	601-020-00-8	200-753-7	71-43-2		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
14	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		xylene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
18		pH				8.5	pH		8.5	pH	8.5 pH		
				PH									
19		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
21		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
22		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
23		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
24		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
25		fluoranthene				0.14	mg/kg		0.117	mg/kg	0.0000117 %	✓	
			205-912-4	206-44-0									
26		pyrene				0.14	mg/kg		0.117	mg/kg	0.0000117 %	✓	
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
35		monohydric phenols				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
				P1186									
										Total:	0.0578 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS03-0.50-26/02/2025

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	8.5	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: WS04-0.50-26/02/2025

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS04-0.50-26/02/2025
Sample Depth:
0.50 m
Moisture content:
11.3%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 11.3% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11 mg/kg	1.32	12.882 mg/kg	0.00129 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2 mg/kg	1.142	0.203 mg/kg	0.0000203 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		12 mg/kg	1.462	15.557 mg/kg	0.00156 %	✓	
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		59 mg/kg	1.126	58.921 mg/kg	0.00589 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	24 mg/kg	1.56	33.205 mg/kg	0.00213 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		39 mg/kg	2.976	102.958 mg/kg	0.0103 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		31 mg/kg	2.774	76.281 mg/kg	0.00763 %	✓	
11	TPH (C6 to C40) petroleum group			TPH		<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
13	benzene	601-020-00-8	200-753-7	71-43-2		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
14	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		xylene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
18		pH				6.9	pH		6.9	pH	6.9 pH		
				PH									
19		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
21		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
22		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
23		phenanthrene				0.16	mg/kg		0.142	mg/kg	0.0000142 %	✓	
			201-581-5	85-01-8									
24		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
25		fluoranthene				0.16	mg/kg		0.142	mg/kg	0.0000142 %	✓	
			205-912-4	206-44-0									
26		pyrene				0.12	mg/kg		0.106	mg/kg	0.0000106 %	✓	
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
35		monohydric phenols				3.6	mg/kg		3.193	mg/kg	0.000319 %	✓	
				P1186									
										Total:	0.0348 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS04-0.50-26/02/2025

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	6.9	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: WS05-0.30-26/02/2025

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS05-0.30-26/02/2025
Sample Depth:
0.30 m
Moisture content:
20.1%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 20.1% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		19 mg/kg	1.32	20.044 mg/kg	0.002 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5 mg/kg	1.142	0.456 mg/kg	0.0000456 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		23 mg/kg	1.462	26.859 mg/kg	0.00269 %	✓	
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		154 mg/kg	1.126	138.536 mg/kg	0.0139 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	297 mg/kg	1.56	370.149 mg/kg	0.0237 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		1.4 mg/kg	1.353	1.514 mg/kg	0.000151 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		31 mg/kg	2.976	73.719 mg/kg	0.00737 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		234 mg/kg	2.774	518.671 mg/kg	0.0519 %	✓	
11	TPH (C6 to C40) petroleum group			TPH		177 mg/kg		141.423 mg/kg	0.0141 %	✓	
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
13	benzene	601-020-00-8	200-753-7	71-43-2		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
14	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		xylene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				17	mg/kg	1.884	25.59	mg/kg	0.00256 %	✓	
		006-007-00-5											
18		pH				8.5	pH		8.5	pH	8.5 pH		
				PH									
19		naphthalene				0.24	mg/kg		0.192	mg/kg	0.0000192 %	✓	
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				0.31	mg/kg		0.248	mg/kg	0.0000248 %	✓	
			205-917-1	208-96-8									
21		acenaphthene				0.44	mg/kg		0.352	mg/kg	0.0000352 %	✓	
			201-469-6	83-32-9									
22		fluorene				0.85	mg/kg		0.679	mg/kg	0.0000679 %	✓	
			201-695-5	86-73-7									
23		phenanthrene				9.93	mg/kg		7.934	mg/kg	0.000793 %	✓	
			201-581-5	85-01-8									
24		anthracene				3.13	mg/kg		2.501	mg/kg	0.00025 %	✓	
			204-371-1	120-12-7									
25		fluoranthene				27.2	mg/kg		21.733	mg/kg	0.00217 %	✓	
			205-912-4	206-44-0									
26		pyrene				24	mg/kg		19.176	mg/kg	0.00192 %	✓	
			204-927-3	129-00-0									
27		benzo[a]anthracene				14.8	mg/kg		11.825	mg/kg	0.00118 %	✓	
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				13.5	mg/kg		10.787	mg/kg	0.00108 %	✓	
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				10.8	mg/kg		8.629	mg/kg	0.000863 %	✓	
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				5.72	mg/kg		4.57	mg/kg	0.000457 %	✓	
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				11.7	mg/kg		9.348	mg/kg	0.000935 %	✓	
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				5.5	mg/kg		4.395	mg/kg	0.000439 %	✓	
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				1.39	mg/kg		1.111	mg/kg	0.000111 %	✓	
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				4.78	mg/kg		3.819	mg/kg	0.000382 %	✓	
			205-883-8	191-24-2									
35		monohydric phenols				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
				P1186									
										Total:	0.13 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 12500 mg/kg (1.25%) because: No evident free draining liquid phase. Limit values determined in accordance with WM3 (1st edition v 1.2.GB) worked example for the determination of HP3.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0141%)

WAC results for sample: WS05-0.30-26/02/2025

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	8.5	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: WS06-0.25-26/02/2025

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS06-0.25-26/02/2025
Sample Depth:
0.25 m
Moisture content:
5.6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.242%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.242%)

Determinands

Moisture content: 5.6% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		21 mg/kg	1.32	26.174 mg/kg	0.00262 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5 mg/kg	1.142	0.539 mg/kg	0.0000539 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	26.214 mg/kg	0.00262 %	✓	
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		89 mg/kg	1.126	94.593 mg/kg	0.00946 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	414 mg/kg	1.56	609.601 mg/kg	0.0391 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		26	mg/kg	2.976	73.049	mg/kg	0.0073 %	✓	
9		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		212	mg/kg	2.774	555.184	mg/kg	0.0555 %	✓	
11		TPH (C6 to C40) petroleum group			TPH		2560	mg/kg		2416.64	mg/kg	0.242 %	✓	
12		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
13		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
14		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
15		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
16		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				22	mg/kg	1.884	39.127	mg/kg	0.00391 %	✓	
18		pH			PH		8	pH		8	pH	8pH		
19		naphthalene	601-052-00-2	202-049-5	91-20-3		16.5	mg/kg		15.576	mg/kg	0.00156 %	✓	
20		acenaphthylene		205-917-1	208-96-8		0.89	mg/kg		0.84	mg/kg	0.000084 %	✓	
21		acenaphthene		201-469-6	83-32-9		31.5	mg/kg		29.736	mg/kg	0.00297 %	✓	
22		fluorene		201-695-5	86-73-7		32.7	mg/kg		30.869	mg/kg	0.00309 %	✓	
23		phenanthrene		201-581-5	85-01-8		139	mg/kg		131.216	mg/kg	0.0131 %	✓	
24		anthracene		204-371-1	120-12-7		39.7	mg/kg		37.477	mg/kg	0.00375 %	✓	
25		fluoranthene		205-912-4	206-44-0		118	mg/kg		111.392	mg/kg	0.0111 %	✓	
26		pyrene		204-927-3	129-00-0		93.6	mg/kg		88.358	mg/kg	0.00884 %	✓	
27		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		47.9	mg/kg		45.218	mg/kg	0.00452 %	✓	
28		chrysene	601-048-00-0	205-923-4	218-01-9		36.1	mg/kg		34.078	mg/kg	0.00341 %	✓	
29		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		37.7	mg/kg		35.589	mg/kg	0.00356 %	✓	
30		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		14.2	mg/kg		13.405	mg/kg	0.00134 %	✓	
31		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		37.7	mg/kg		35.589	mg/kg	0.00356 %	✓	
32		indeno[123-cd]pyrene		205-893-2	193-39-5		19.2	mg/kg		18.125	mg/kg	0.00181 %	✓	
33		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		3.65	mg/kg		3.446	mg/kg	0.000345 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
34	●	benzo[ghi]perylene	205-883-8	191-24-2		15.1	mg/kg		14.254	mg/kg	0.00143 %	✓	
35	●	monohydric phenols		P1186		6.8	mg/kg		6.419	mg/kg	0.000642 %	✓	
										Total:	0.428 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"
Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 12500 mg/kg (1.25%) because: No evident free draining liquid phase. Limit values determined in accordance with WM3 (1st edition v 1.2.GB) worked example for the determination of HP3.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.242%)

WAC results for sample: WS06-0.25-26/02/2025

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample FAILS the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria.

The sample FAILS the Hazardous (Hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	11	3	5	6
2	LOI (loss on ignition)	%	7.1	-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.05	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.1	1	-	-
5	Mineral oil (C10 to C40)	mg/kg	834	500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	687	100	-	-
7	pH	pH	8	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg	1.2	-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg	0.011	0.5	2	25
10	barium	mg/kg	0.503	20	100	300
11	cadmium	mg/kg	<0.002	0.04	1	5
12	chromium	mg/kg	<0.002	0.5	10	70
13	copper	mg/kg	0.029	2	50	100
14	mercury	mg/kg	0.0007	0.01	0.2	2
15	molybdenum	mg/kg	0.071	0.5	10	30
16	nickel	mg/kg	0.006	0.4	10	40
17	lead	mg/kg	0.004	0.5	10	50
18	antimony	mg/kg	<0.002	0.06	0.7	5
19	selenium	mg/kg	0.005	0.1	0.5	7
20	zinc	mg/kg	0.25	4	50	200
21	chloride	mg/kg	11	800	15,000	25,000
22	fluoride	mg/kg	6	10	150	500
23	sulphate	mg/kg	219	1,000	20,000	50,000
24	phenol index	mg/kg	<0.1	1	-	-
25	DOC (dissolved organic carbon)	mg/kg	85.3	500	800	1,000
26	TDS (total dissolved solids)	mg/kg	900	4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	SNRHW WAC criteria fail
	Hazardous WAC criteria fail

Classification of sample: WS07-1.00-26/02/2025

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS07-1.00-26/02/2025
Sample Depth:
1.00 m
Moisture content:
12.7%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12.7% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18 mg/kg	1.32	20.748 mg/kg	0.00207 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5 mg/kg	1.142	0.499 mg/kg	0.0000499 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	24.243 mg/kg	0.00242 %	✓	
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		89 mg/kg	1.126	87.478 mg/kg	0.00875 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	434 mg/kg	1.56	590.986 mg/kg	0.0379 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		1.4 mg/kg	1.353	1.654 mg/kg	0.000165 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		19 mg/kg	2.976	49.367 mg/kg	0.00494 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		203 mg/kg	2.774	491.631 mg/kg	0.0492 %	✓	
11	TPH (C6 to C40) petroleum group			TPH		<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
13	benzene	601-020-00-8	200-753-7	71-43-2		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
14	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		xylene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
18		pH				8.1	pH		8.1	pH	8.1 pH		
				PH									
19		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
21		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
22		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
23		phenanthrene				0.55	mg/kg		0.48	mg/kg	0.000048 %	✓	
			201-581-5	85-01-8									
24		anthracene				0.14	mg/kg		0.122	mg/kg	0.0000122 %	✓	
			204-371-1	120-12-7									
25		fluoranthene				1.19	mg/kg		1.039	mg/kg	0.000104 %	✓	
			205-912-4	206-44-0									
26		pyrene				1.03	mg/kg		0.899	mg/kg	0.0000899 %	✓	
			204-927-3	129-00-0									
27		benzo[a]anthracene				0.54	mg/kg		0.471	mg/kg	0.0000471 %	✓	
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				0.61	mg/kg		0.533	mg/kg	0.0000533 %	✓	
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				0.6	mg/kg		0.524	mg/kg	0.0000524 %	✓	
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				0.25	mg/kg		0.218	mg/kg	0.0000218 %	✓	
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				0.56	mg/kg		0.489	mg/kg	0.0000489 %	✓	
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				0.34	mg/kg		0.297	mg/kg	0.0000297 %	✓	
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				0.32	mg/kg		0.279	mg/kg	0.0000279 %	✓	
			205-883-8	191-24-2									
35		monohydric phenols				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
				P1186									
36		asbestos				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.113 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS07-1.00-26/02/2025

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	8.1	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: WS08-0.15-26/02/2025

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS08-0.15-26/02/2025
Sample Depth:
0.15 m
Moisture content:
4%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 4% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8 mg/kg	1.32	10.14 mg/kg	0.00101 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		10 mg/kg	1.462	14.031 mg/kg	0.0014 %	✓	
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		36 mg/kg	1.126	38.911 mg/kg	0.00389 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	19 mg/kg	1.56	28.451 mg/kg	0.00182 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		19 mg/kg	2.976	54.287 mg/kg	0.00543 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		33 mg/kg	2.774	87.885 mg/kg	0.00879 %	✓	
11	TPH (C6 to C40) petroleum group			TPH		<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
13	benzene	601-020-00-8	200-753-7	71-43-2		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
14	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		xylene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
18		pH				10.7	pH		10.7	pH	10.7 pH		
				PH									
19		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
21		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
22		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
23		phenanthrene				0.24	mg/kg		0.23	mg/kg	0.000023 %	✓	
			201-581-5	85-01-8									
24		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
25		fluoranthene				0.38	mg/kg		0.365	mg/kg	0.0000365 %	✓	
			205-912-4	206-44-0									
26		pyrene				0.47	mg/kg		0.451	mg/kg	0.0000451 %	✓	
			204-927-3	129-00-0									
27		benzo[a]anthracene				0.38	mg/kg		0.365	mg/kg	0.0000365 %	✓	
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				0.42	mg/kg		0.403	mg/kg	0.0000403 %	✓	
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				0.57	mg/kg		0.547	mg/kg	0.0000547 %	✓	
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				0.24	mg/kg		0.23	mg/kg	0.000023 %	✓	
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				0.61	mg/kg		0.586	mg/kg	0.0000586 %	✓	
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				0.47	mg/kg		0.451	mg/kg	0.0000451 %	✓	
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				0.42	mg/kg		0.403	mg/kg	0.0000403 %	✓	
			205-883-8	191-24-2									
35		monohydric phenols				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
				P1186									
36		asbestos				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.0295 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS08-0.15-26/02/2025

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	10.7	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Appendix A: Classifier defined and non GB MCL determinands

- **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2025.65.6483.11817 (06 Mar 2025)
HazWasteOnline Database: 2025.65.6483.11817 (06 Mar 2025)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023
GB MCL List v3.0 - version 3.0 of 11th January 2024
GB MCL List v4.0 - version 4.0 of 2nd March 2024
GB MCL List v5.0 - version 5.0 of 26th June 2024

APPENDIX 6 – MONITORING DATA

Ground Gas and Soil Vapour Monitoring

Project Name:	West Drayton
Project Reference:	5027861

	Date	Personnel	Pressure Trend	Start Pressure (mb)	End Pressure (mb)	Equipment Used	Weather	Max. Flow	Max. CO2	Max. Methane
Round 1	20/03/2025	**OS**	Falling	1013	1013	GA 5000-G505446	Clear Mild	0.1	6.7	0.3

1 Royal Court, Kings Worthy, Winchester, SO23 7TW

ID	Pipe Diameter (mm)	Monitoring Round	Time (elapsed time)	Atmospheric Pressure (mb)	Relative Pressure (mb)	Gas Flow (L/hr) [Max. and Steady]	Methane (%/v)	Carbon Dioxide (%/v)	Oxygen (%/v)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	LEL (%)	PID (ppm)	DTW (mbgl)	DTB (mbgl)	Response Zone (mbgl)	Comments
WS01	50	1	0	1013	0.02	0.1	0.3	0.1	20.6	0	0	-		Dry	3.73		
			30				0.3	0.5	20.2	0	0						
			60				0.3	0.5	20.1	0	0						
			90				0.3	0.5	20.1	0	0						No odour no sheen. PID unavailable.
			120				0.3	0.5	20.1	0	0						
			150				0.3	0.5	20.1	0	0						
			180				0.3	0.5	20.1	0	0						
WS03	50	1	0	1013	0.05	0.0	0.3	0.1	20.5	0	0	-		Dry	2.46		
			30				0.3	0.2	20.4	0	0						
			60				0.3	0.2	20.3	0	0						
			90				0.3	0.2	20.3	0	0						No odour no sheen. PID unavailable.
			120				0.3	0.2	20.3	0	0						
			150				0.3	0.2	20.3	0	0						
			180				0.3	0.2	20.3	0	0						
WS07	50	1	0	1013	0.03	0.1	0.3	0.1	20.5	0	0	-		Dry	3.21		
			30				0.3	6.3	13.6	0	0						
			60				0.1	6.7	13.4	0	0						
			90				0.1	6.3	13.4	0	0						No odour no sheen. PID unavailable.
			120				0.2	6.4	13.3	0	0						
			150				0.2	6.3	13.3	0	0						
			180				0.2	6.3	13.3	0	0						

Ground Gas and Soil Vapour Monitoring

Project Name:	West Drayton
Project Reference:	5027861

	Date	Personnel	Pressure Trend	Start Pressure (mb)	End Pressure (mb)	Equipment Used	Weather	Max. Flow	Max. CO2	Max. Methane
Round 1	20/03/2025	**OS**	Falling	1013	1013	GA 5000-G505446	Clear Mild	0.1	6.7	0.3
Round 2	24/03/2025	**OS**	Stable	1012	1012	GA 5000-G505446	Grey Mild	0.1	5.6	0.3

1 Royal Court, Kings Worthy, Winchester, SO23 7TW

ID	Pipe Diameter (mm)	Monitoring Round	Time (elapsed time)	Atmospheric Pressure (mb)	Relative Pressure (mb)	Gas Flow (L/hr) [Max. and Steady]	Methane (%/v)	Carbon Dioxide (%/v)	Oxygen (%/v)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	LEL (%)	PID (ppm)	DTW (mbgl)	DTB (mbgl)	Response Zone (mbgl)	Comments
WS01	50	2	0	1012	0.05	0.1	0.3	0.1	20.6	0	0	-	1.1	Dry	3.73		
			30				0.3	0.6	20	0	0						
			60				0.3	0.6	20	0	0						
			90				0.3	0.6	20	0	0						No odour no sheen.
			120				0.3	0.6	20	0	0						
			150				0.3	0.6	20	0	0						
			180				0.3	0.6	20	0	0						
WS03	50	2	0	1012	0.03	0.1	0.3	0.1	20.7	0	0	-	0.7	Dry	2.45		
			30				0.3	0.2	20.6	0	0						
			60				0.3	0.2	20.6	0	0						
			90				0.3	0.2	20.6	0	0						No odour no sheen.
			120				0.3	0.2	20.6	0	0						
			150				0.3	0.2	20.6	0	0						
			180				0.3	0.2	20.6	0	0						
WS07	50	2	0	1012	0.12	0.1	0.3	0.1	20.8	0	0	-	0.6	Dry	3.21		
			30				0.3	5.4	15.0	0	0						
			60				0.3	5.5	14.8	0	0						
			90				0.2	5.5	14.8	0	0						No odour no sheen.
			120				0.2	5.5	14.7	0	0						
			150				0.3	5.6	14.7	0	0						
			180				0.3	5.6	14.7	0	0						

Ground Gas and Soil Vapour Monitoring

Project Name:	West Drayton
Project Reference:	5027861

	Date	Personnel	Pressure Trend	Start Pressure (mb)	End Pressure (mb)	Equipment Used	Weather	Max. Flow	Max. CO2	Max. Methane
Round 1	20/03/2025	**OS**	Falling	1013	1013	GA 5000-G505446	Clear Mild	0.1	6.7	0.3
Round 2	24/03/2025	**OS**	Stable	1012	1012	GA 5000-G505446	Grey Mild	0.1	5.6	0.3
Round 3	31/03/2025	**OS**	Rising	1021	1022	GA 5000-G505446	Clear Sunny Mild	0.1	3.3	0.3

1 Royal Court, Kings Worthy, Winchester, SO23 7TW

ID	Pipe Diameter (mm)	Monitoring Round	Time (elapsed time)	Atmospheric Pressure (mb)	Relative Pressure (mb)	Gas Flow (L/hr) [Max. and Steady]	Methane (%/v)	Carbon Dioxide (%/v)	Oxygen (%/v)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	LEL (%)	PID (ppm)	DTW (mbgl)	DTB (mbgl)	Response Zone (mbgl)	Comments
WS01	50	3	0	1021	0.09	0.1	0.3	0.1	20.6	0	0	-	1.9	Dry	3.73		
			30				0.3	0.9	29.6	0	0						
			60				0.3	0.9	19.6	0	0						
			90				0.3	0.9	19.6	0	0						No odour no sheen.
			120				0.3	0.9	19.6	0	0						
			150				0.3	0.9	19.6	0	0						
			180				0.3	0.9	19.6	0	0						
WS03	50	3	0	1022	0.05	0.1	0.3	0.1	20.6	0	0	-	0.7	Dry	2.45		
			30				0.3	0.2	20.5	0	0						
			60				0.3	0.2	20.5	0	0						
			90				0.2	0.2	20.5	0	0						No odour no sheen.
			120				0.2	0.2	20.5	0	0						
			150				0.2	0.2	20.5	0	0						
			180				0.2	0.2	20.5	0	0						
WS07	50	3	0	1022	0.1	0.0	0.3	0.1	20.6	0	0	-	0.8	Dry	3.22		
			30				0.2	2.7	17.7	0	0						
			60				0.2	2.7	17.6	0	0						
			90				0.2	2.8	17.5	0	0						
			120				0.2	3.0	17.3	0	0						No odour no sheen.
			150				0.2	3.1	17.1	0	0						
			180				0.2	3.3	16.9	0	0						
			210				0.2	3.3	16.9	0	0						

APPENDIX 7 – GEOTECHNICAL LABORATORY RESULTS

Laboratory Report

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES A PHENNA GROUP COMPANY

Contract Number: 77461

Client Ref: **5027861**
Client PO: **633328**

Client: **Ridge**

Contract Title: **West Drayton**
For the attention of: **Tom Lockwood**

Date Received: **07-03-2025**
Date Completed: **24-03-2025**
Report Date: **24-03-2025**

This report has been checked and approved by:

B. Evans

Brendan Evans
Senior Office Administrator

Description	Qty
Determination of water content BS EN ISO 17892-1:2014	3
4 Point Liquid & Plastic Limit.. BS EN ISO 17892-12 - * UKAS	3
Particle Size Distribution BS EN ISO 17892-4 : 5.1 - * UKAS	4
Water Soluble Sulphate 2:1 extract Sub-contracted Test In-house method	8
pH value of soil Sub-contracted Test - In-house method	8
Compressive Strength of cored specimens in concrete structures BS EN 12504-1 - * UKAS	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
 # - denotes test carried out by approved contractor
@ - denotes non accredited tests

Approved Signatories:
Brendan Evans (Senior Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (HR & HSE Manager)

GEO Site & Testing Services Ltd
Unit 3-4 Heol Aur, Dafen Ind Est, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784 040 Fax: 01554 784 040 info@gstl.co.uk https://gstl.co.uk

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX** **BS EN ISO 17892-12:2018+A2:2022 4 Point Liquid Limit** **BS EN ISO 17892-1:2014+A1:2022 Determination of Water Content**	
Contract Number	77461	
Project Name	West Drayton	
Date Tested	11/03/2025	
	DESCRIPTIONS	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
WS01	1	D	1.00	-		Brown fine to medium gravelly silty CLAY
WS05	1	D	1.50	-		Brown fine to medium gravelly silty CLAY
WS07	1	D	1.75	-		Brown fine to medium gravelly silty CLAY
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		

Operator
Conor Davison

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX** **BS EN ISO 17892-12:2018+A2:2022 4 Point Liquid Limit** **BS EN ISO 17892-1:2014+A1:2022 Determination of Water Content**	
Contract Number	77461	
Project Name	West Drayton	
Date Tested	11/03/2025	
Test Comments	80g/30° Fall cone used with increasing water content	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Water Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
WS01	1	D	1.00	-		21.7	41	19	22	91	CI Intermediate Plasticity
WS05	1	D	1.50	-		21.3	35	20	15	90	CL/I Low/Inter. Plasticity
WS07	1	D	1.75	-		19.8	37	18	19	89	CI Intermediate Plasticity
				-							
				-							
				-							
				-							
				-							
				-							
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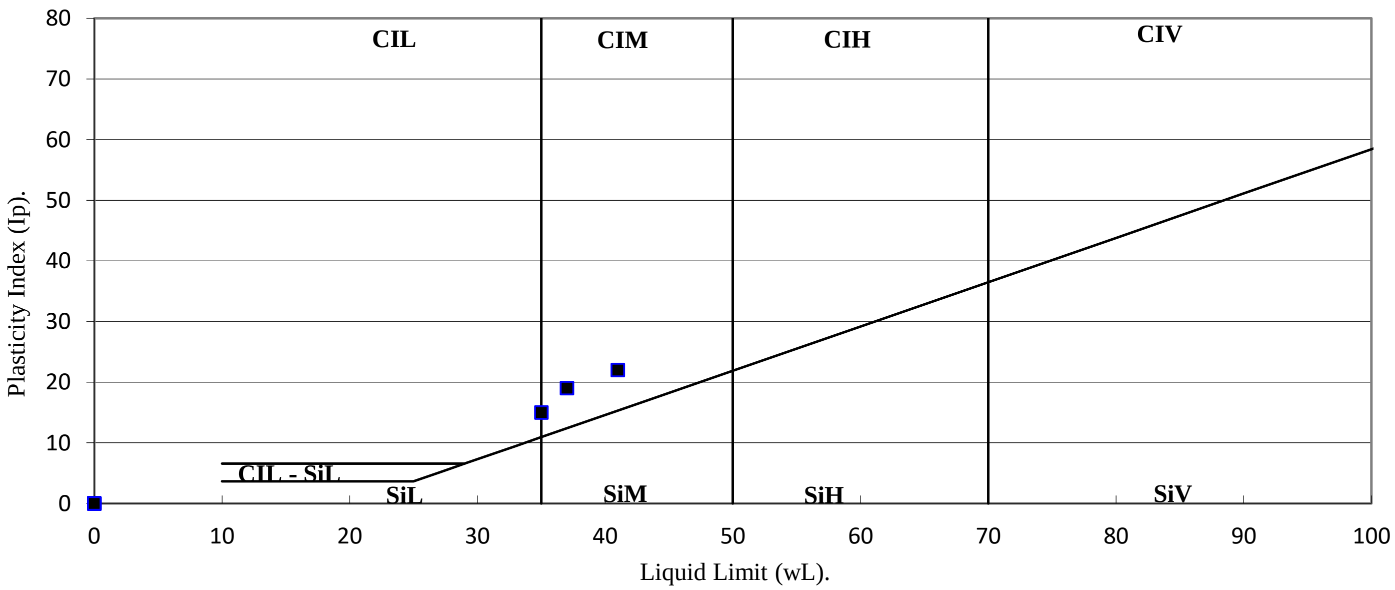
				-							
				-							
				-							

SYMBOLS : NP = Non Plastic **NB: All liquid limits are 4 point and wet sieved**

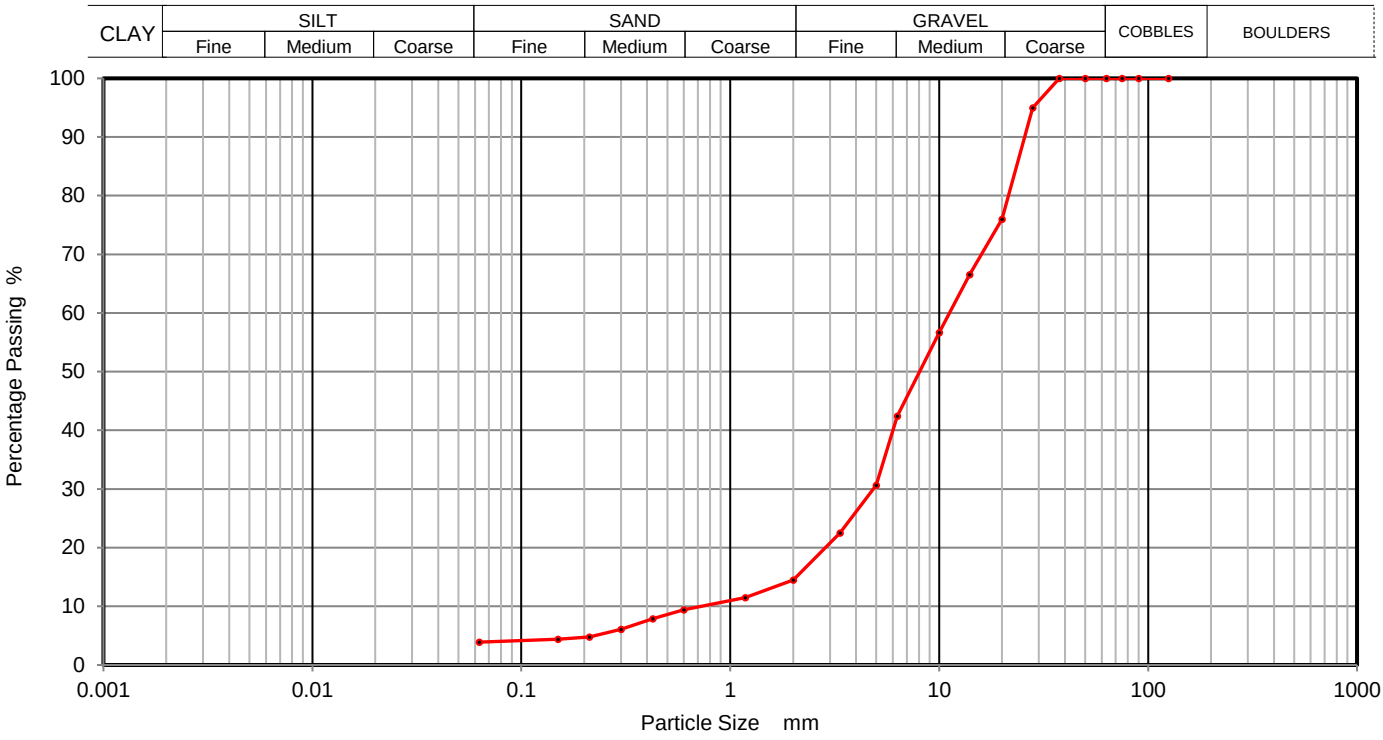
PLASTICITY CHART
BS EN ISO 14688-2:2018 Clause 4.4



***For sample descriptions please see sample descriptions sheet**

Operator
Conor Davison

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	PARTICLE SIZE DISTRIBUTION BS EN ISO 17892-4:2016 Wet Sieve, Clause 5.2	Contract Number	77461
		Borehole/Pit No.	WS01
Project Name	West Drayton	Sample No.	1
Sample Description	Brown slightly silty/clay fine to coarse sandy fine to coarse GRAVEL	Depth Top	2.50
		Depth Base	3.00
Date Tested	11/03/2025	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	76		
14	67		
10	57		
6.3	42		
5	31		
3.35	23		
2	14		
1.18	11		
0.63	9		
0.425	8		
0.30	6		
0.20	5		
0.15	4		
0.063	4		

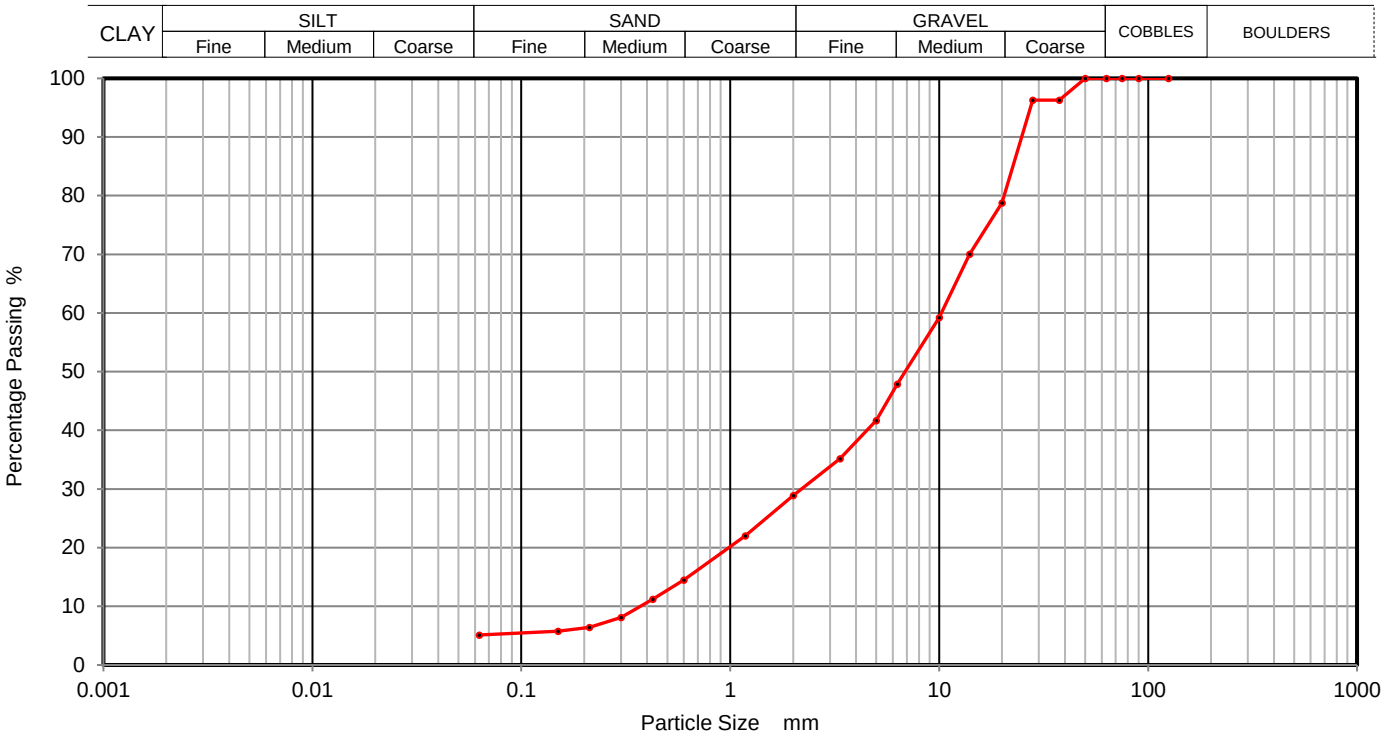
Sample Proportions	% dry mass
Cobbles	0
Gravel	86
Sand	10
Silt and Clay	4

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Cameron Thomas

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**77461**
		Borehole/Pit No.	**WS02**
Project Name	**West Drayton**	Sample No.	**1**
Sample Description	Brown slightly silty/clay fine to coarse sandy fine to coarse GRAVEL	Depth Top	**3.00**
		Depth Base	**4.00**
Date Tested	11/03/2025	Sample Type	**B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	96		
20	79		
14	70		
10	59		
6.3	48		
5	42		
3.35	35		
2	29		
1.18	22		
0.63	14		
0.425	11		
0.30	8		
0.20	6		
0.15	6		
0.063	5		

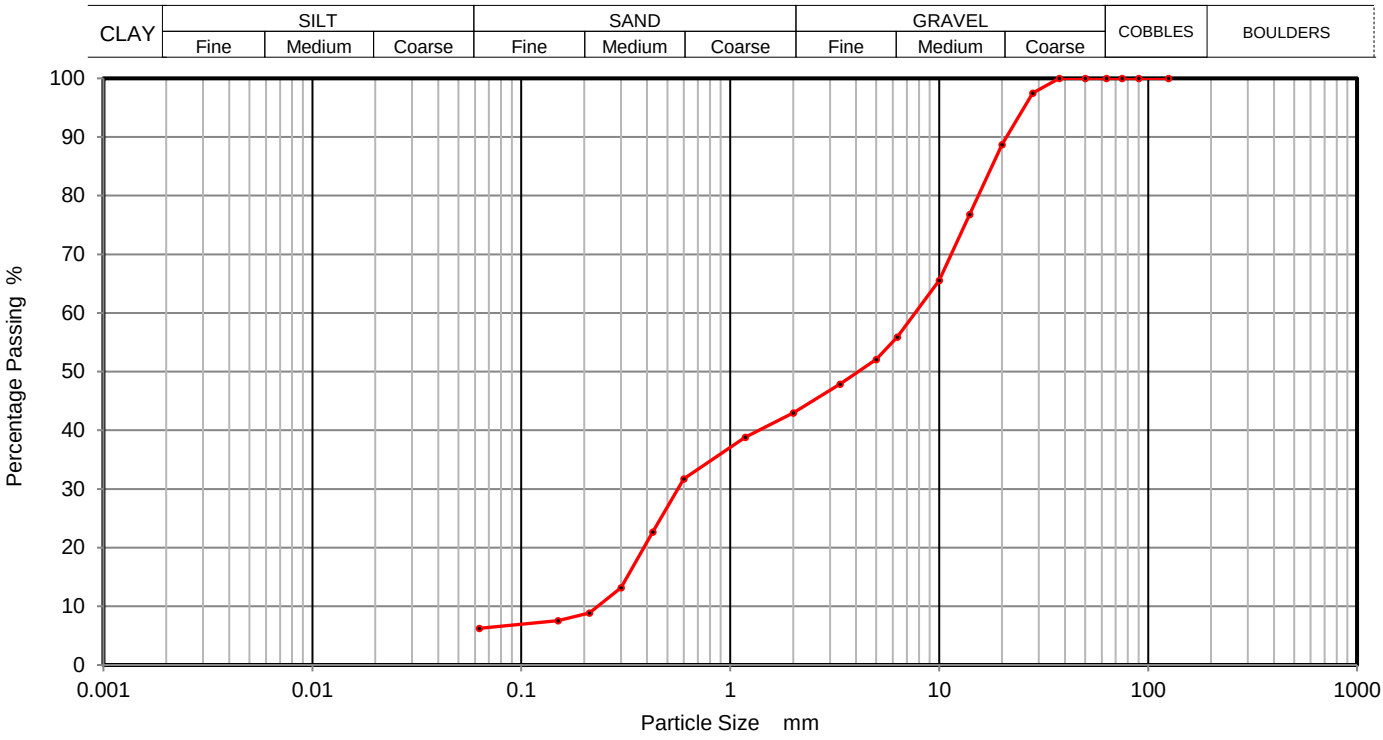
Sample Proportions	% dry mass
Cobbles	0
Gravel	71
Sand	24
Silt and Clay	5

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Cameron Thomas

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**77461**
		Borehole/Pit No.	**WS06**
Project Name	**West Drayton**	Sample No.	**1**
Sample Description	Brown slightly silty/clay fine to coarse sandy fine to coarse GRAVEL	Depth Top	**2.00**
		Depth Base	**3.00**
Date Tested	11/03/2025	Sample Type	**B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	89		
14	77		
10	66		
6.3	56		
5	52		
3.35	48		
2	43		
1.18	39		
0.63	32		
0.425	23		
0.30	13		
0.20	9		
0.15	8		
0.063	6		

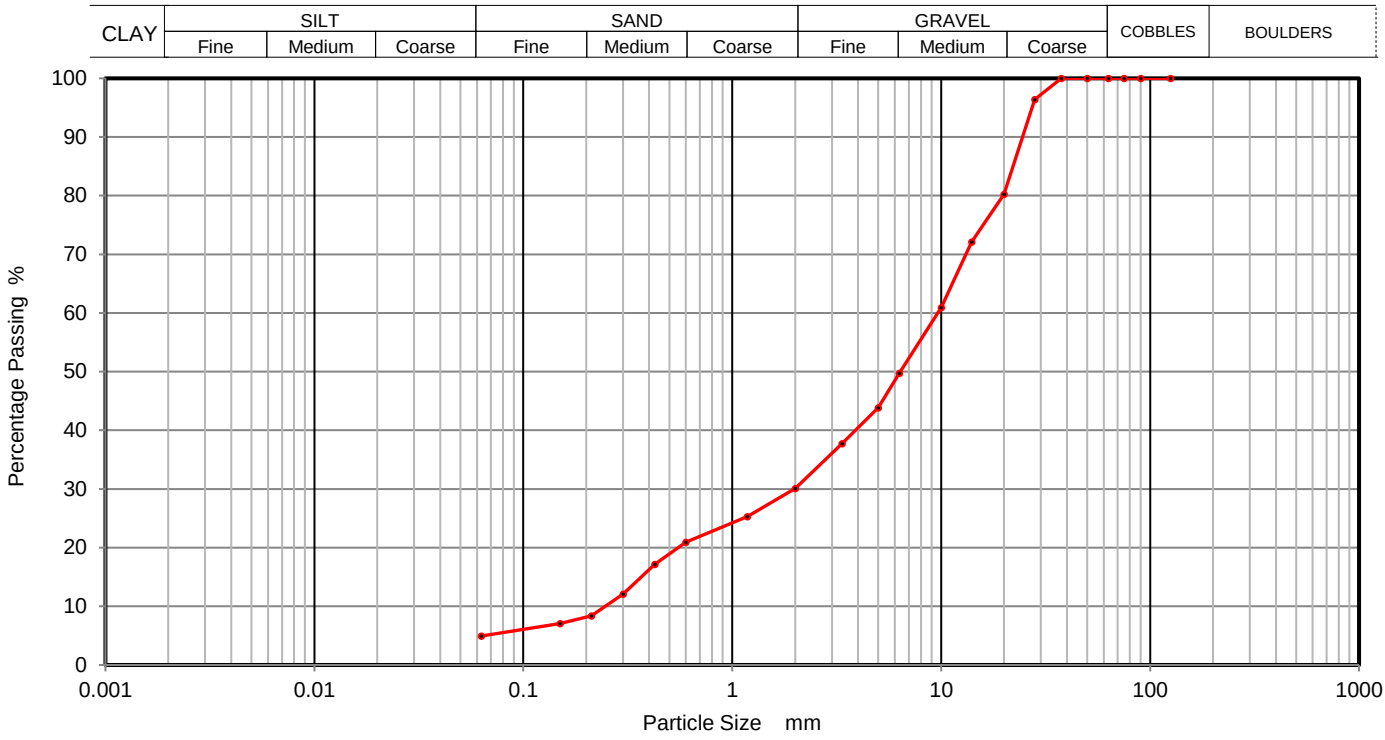
Sample Proportions	% dry mass
Cobbles	0
Gravel	57
Sand	37
Silt and Clay	6

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator
Cameron Thomas

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS EN ISO 17892-4:2016** **Wet Sieve, Clause 5.2**	Contract Number	**77461**
		Borehole/Pit No.	**WS08**
Project Name	**West Drayton**	Sample No.	**1**
Sample Description	Brown slightly silty/clay fine to coarse sandy fine to coarse GRAVEL	Depth Top	**2.50**
		Depth Base	**3.00**
Date Tested	11/03/2025	Sample Type	**B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	80		
14	72		
10	61		
6.3	50		
5	44		
3.35	38		
2	30		
1.18	25		
0.63	21		
0.425	17		
0.30	12		
0.20	8		
0.15	7		
0.063	5		

Sample Proportions	% dry mass
Cobbles	0
Gravel	70
Sand	25
Silt and Clay	5

Remarks

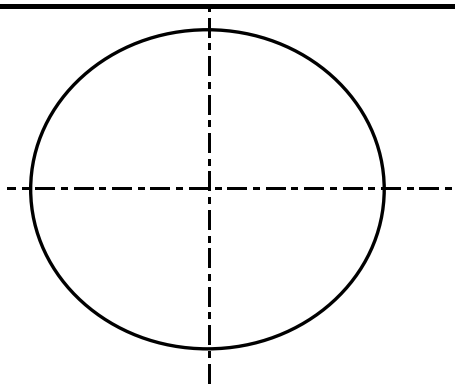
Preparation and testing in accordance with BS17892 unless noted below

Operator
Cameron Thomas

Test Report: **Testing concrete in structures. Cored specimens. Taking, examining and testing in compression BS EN 12504-1:2019**

Client:	**Ridge & Partners LLP**
Client Ref:	**5027861**
Contract Number:	**77461**
Project Name	**West Drayton**

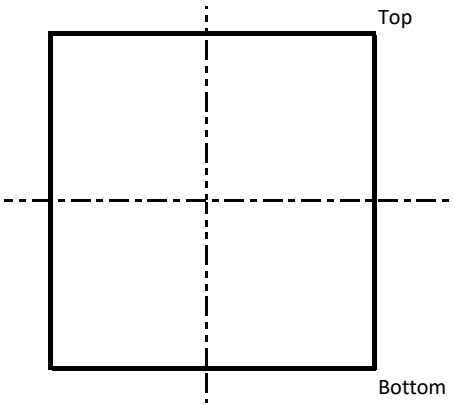
Core Description	**Concrete Core**
Sample Number	**WS04 0.00-0.17**
Maximum aggregate Size (mm)	**31**
Direction of coring	**Unknown**
Date cored	**Unknown**
Date of Test	**07/03/2025**
Method used for Preparation	**Cutting**
Condition On Test	**Surface Dry**
Core Density (kg/m^3)	**2331**
Density Condition	**As received**



Vertical re-bar
From Centre (mm) n/a
Horizontal Rebar
From Top (mm) n/a
From Centre (mm) n/a
Re-bar Diameter (mm) n/a

Measurement Dimensions: BS EN 12390-1: 2021

Size of sample Received in Lab (mm)	Diameter	**98.0**
	Length	**170.0**
Size of sample tested (mm)	Diameter	**97.9**
	Length	**98.0**
Length Diameter ratio of prepared specimen:		**1.00**



Compression: BS EN 12390-3:2019

Compressive Strength N/mm2	**47.1**
Appearance of concrete and Type of Fracture	**Satisfactory**
Compaction of concrete, classification of void %	**0.5**
Any Deviations from the standard Method of Testing [1]	**n/a**

Remarks:

[1] All the testing was carried out in accordance with BS EN 12390-3: 2019 except as detailed

Technician Responsible
Julian Jones

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

SOCOTEC
Environmental Chemistry

Certificate of Analysis

Client: CTS

Project: 25031868

Quote: BEC250339777 V2.1

Project Ref: 77461

Site: 5027861 West Drayton

Contact: David Ratcliffe

Address: 4 Oak Spinney Park
Ratby
Leicester
LE3 3AW

E-Mail: David.Ratcliffe@constructiontesting.co.uk

Phone: 0116 253 6333

No. Samples Received: 8

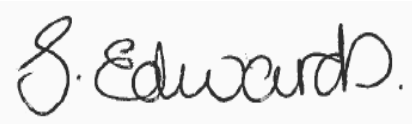
Date Received: 13/03/2025

Analysis Completed: 20/03/2025

Date Issued: 20/03/2025

Report Type: Version 01

This report supersedes any versions previously issued by the laboratory



Reported by Customer Service Co-Ordinator
Samantha Edwards
01283 554 541
Samantha.Edwards@socotec.co.uk

Project Number: 25031868

Client: CTS
Date Issued: 20/03/2025
Project Name: 77461 - 5027861 West Drayton

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
25031868-001	WS01-0-D-1.00		SOLID	Clay Sample
25031868-002	WS02-0-D-0.30		SOLID	Sand Sample
25031868-003	WS03-0-D-2.40-2.70		SOLID	Sand Sample
25031868-004	WS05-0-D-1.00		SOLID	Clay Sample
25031868-005	WS05-0-D-2.30		SOLID	Sand Sample
25031868-006	WS06-0-D-0.80		SOLID	Silt Sample
25031868-007	WS07-0-D-2.50		SOLID	Clay Sample
25031868-008	WS08-0-D-0.75		SOLID	Clay Sample

Project Number: 25031868

Client: CTS
Date Issued: 20/03/2025
Project Name: 77461 - 5027861 West Drayton

UKAS TESTING 1252

Analysis Results

Method Code	Analysis	MDL	Accred.	SOCOTEC Sample ID:	25031868-001	25031868-002	25031868-003	25031868-004	25031868-005
				Sampling Date:					
				Customer ID:	WS01-0-D-1.00	WS02-0-D-0.30	WS03-0-D-2.40-2.70	WS05-0-D-1.00	WS05-0-D-2.30
CLANDPREP	Total Moisture at 35°C	0.1 %	N		13.4	34.2	8.5	22.1	7.2
	Major Constituents	-	N		CLAY	SAND	SAND	CLAY	SAND
	Minor Constituents	-	N		Gravel	Silt	Clay	Gravel	Gravel
	Miscellaneous Constituents	-	N		n/a	Made Ground	Gravel	n/a	n/a
	Colour of Material	-	N		Brown/Grey	Grey/Brown	Brown	Brown/Grey	Brown
PHSOIL	pH (2.5:1 extraction)	1 pH units	U		8.5	8.4	8.1	8.5	8.6
ICPWSS	Water Soluble Sulphate as SO4 2:1 Ext	10 mg/l	U		21	170	13	82	25

Project Number: 25031868

Client: CTS
Date Issued: 20/03/2025
Project Name: 77461 - 5027861 West Drayton

1252

Analysis Results

Method Code	Analysis	MDL	Accred.	SOCOTEC Sample ID: 25031868-006	25031868-007	25031868-008
				Sampling Date:		
				Customer ID: WS06-0-D-0.80	WS07-0-D-2.50	WS08-0-D-0.75
CLANDPREP	Total Moisture at 35°C	0.1 %	N	7.0	5.9	12.9
	Major Constituents	-	N	SILT	CLAY	CLAY
	Minor Constituents	-	N	Gravel	Gravel	Silt
	Miscellaneous Constituents	-	N	Made Ground	n/a	Made Ground
	Colour of Material	-	N	Brown	Brown/Grey	Brown
PHSOIL	pH (2.5:1 extraction)	1 pH units	U	9.3	8.5	7.9
ICPWSS	Water Soluble Sulphate as SO4 2:1 Ext	10 mg/l	U	223	24	499

Project Number: 25031868

Client: CTS
Date Issued: 20/03/2025
Project Name: 77461 - 5027861 West Drayton

Deviating Sample Report

Sample Reference	Text ID	Method Code	Incorrect Container	Incorrect Label	Headspace	Incorrect/No Preservative	No Sampling Date	Holding Time
WS01-0-D-1.00	25031868-001	CLANDPREP					✓	✓
WS01-0-D-1.00	25031868-001	ICPWSS					✓	✓
WS01-0-D-1.00	25031868-001	PHSOIL					✓	✓
WS02-0-D-0.30	25031868-002	CLANDPREP					✓	✓
WS02-0-D-0.30	25031868-002	ICPWSS					✓	✓
WS02-0-D-0.30	25031868-002	PHSOIL					✓	✓
WS03-0-D-2.40-2.70	25031868-003	CLANDPREP					✓	✓
WS03-0-D-2.40-2.70	25031868-003	ICPWSS					✓	✓
WS03-0-D-2.40-2.70	25031868-003	PHSOIL					✓	✓
WS05-0-D-1.00	25031868-004	CLANDPREP					✓	✓
WS05-0-D-1.00	25031868-004	ICPWSS					✓	✓
WS05-0-D-1.00	25031868-004	PHSOIL					✓	✓
WS05-0-D-2.30	25031868-005	CLANDPREP					✓	✓
WS05-0-D-2.30	25031868-005	ICPWSS					✓	✓
WS05-0-D-2.30	25031868-005	PHSOIL					✓	✓
WS06-0-D-0.80	25031868-006	CLANDPREP					✓	✓
WS06-0-D-0.80	25031868-006	ICPWSS					✓	✓
WS06-0-D-0.80	25031868-006	PHSOIL					✓	✓
WS07-0-D-2.50	25031868-007	CLANDPREP					✓	✓
WS07-0-D-2.50	25031868-007	ICPWSS					✓	✓
WS07-0-D-2.50	25031868-007	PHSOIL					✓	✓
WS08-0-D-0.75	25031868-008	CLANDPREP					✓	✓
WS08-0-D-0.75	25031868-008	ICPWSS					✓	✓
WS08-0-D-0.75	25031868-008	PHSOIL					✓	✓

Analysis Method

Method Code	Method Description	Analysis Method
CLANDPREP	Moisture Content @ 35°C	As Received
CLANDPREP	Solid Material Description	As Received
ICPWSS	Sulphate as SO4 (Water Soluble 2:1 Extract)	Air Dried & Ground
PHSOIL	pH (2.5:1)	As Received

Project Number: 25031868

Client: CTS
Date Issued: 20/03/2025
Project Name: 77461 - 5027861 West Drayton

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing. Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Project Number: 25031868

Client: CTS
Date Issued: 20/03/2025
Project Name: 77461 - 5027861 West Drayton

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any accreditation marked with ^ signify results are reported on a dry weight basis of 105 ° C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35° C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any results marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

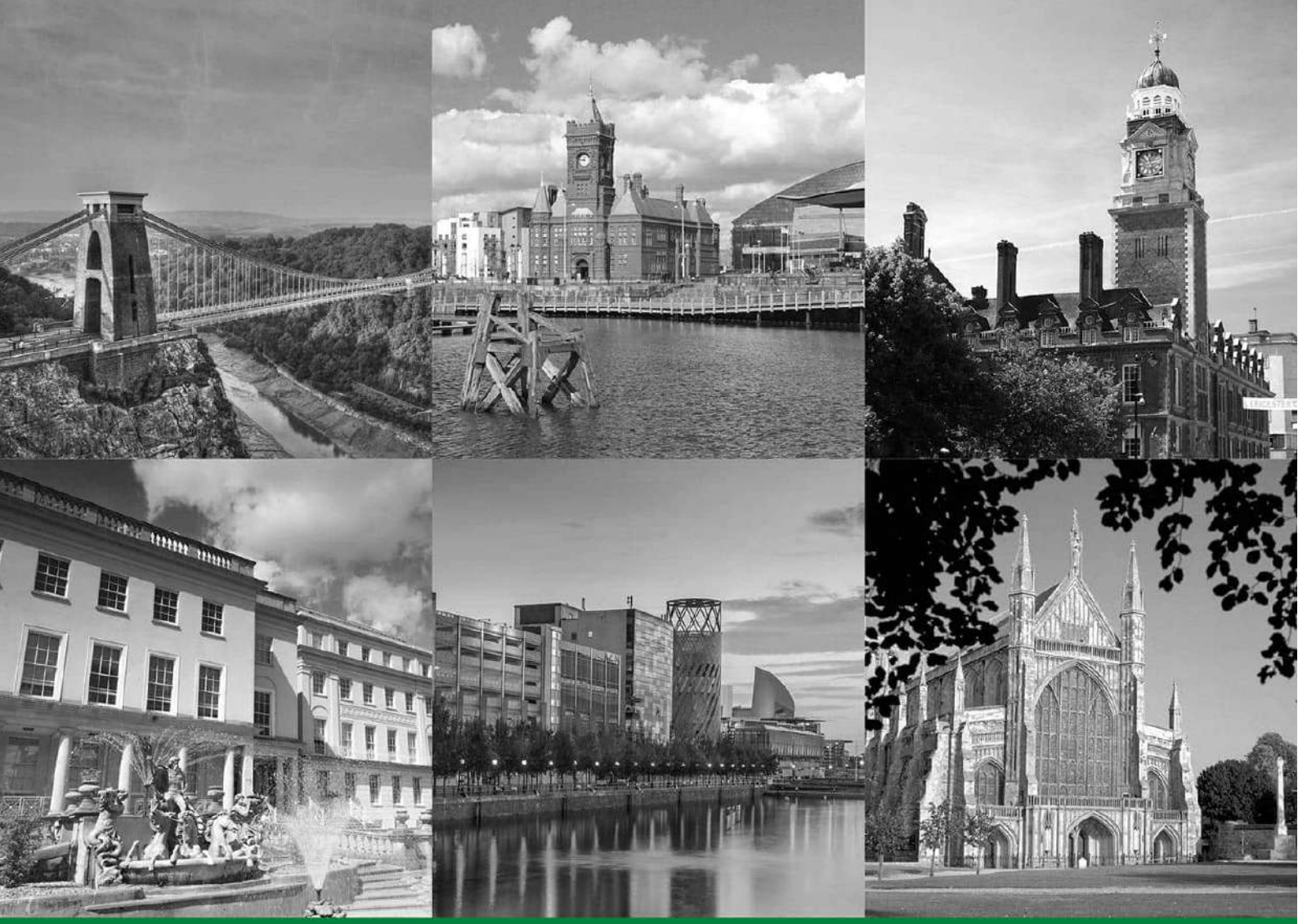
IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by another SOCOTEC department or by an external subcontracted laboratory. Further information is available upon request.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis



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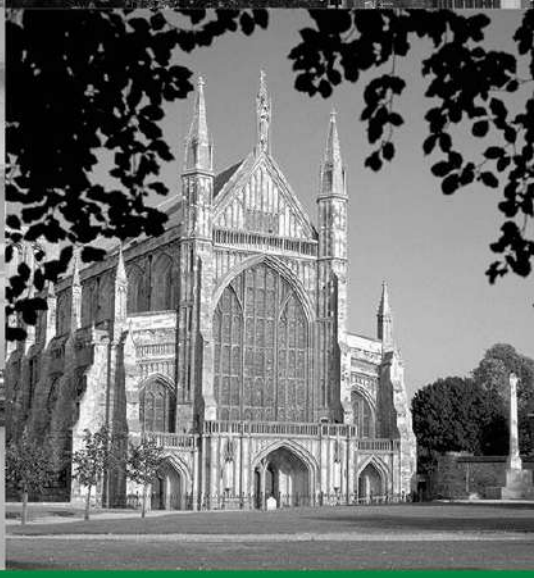

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