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Ground Investigation Report

Proposed LED Floodlit 3G PlayZone Pitch

Back O'th Moss, Heywood

July 2024



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Non-technical Summary

Topic	Commentary
Site description	The site consists of an existing 25m x 45m asphalt surfaced multi-use games area (MUGA). The surrounding area is largely residential, with Back O'th Moss community centre located to the south of the existing MUGA.
Development proposals	The proposed development is for the refurbishment of a 25m x 45m MUGA, into an LED floodlit 3G artificial surfaced PlayZone pitch for football use.
Site history	The PlayZone pitch is shown to be the site of terraced housing until the mid to late 1900s, with the existing MUGA constructed pre-2000.
Ground conditions	Ground conditions comprised Asphalt surfacing to a depth of 0.12m to 0.15m bgl. Made Ground was observed in all exploratory positions consisting of sand or clay with anthropogenic material. Made Ground was encountered to a depth of 0.65m to 1.2m bgl. A Reworked Till was observed underlying the Made Ground to a depth of 2.7m to 3.2m bgl and consisted of firm to stiff sandy clay. Glaciofluvial Deposits were encountered underlying the reworked Till, typically comprising of very loose gravelly sands. The Glaciofluvial Deposits extended beyond the depth of excavation (>5.45m bgl). Groundwater was present at depths of >2.7m bgl.
Development constraints	The near surface Made Ground soils near surface and the Glaciofluvial Deposits at depth are unsuitable for supporting concentrated foundation loads due to their low strength/density and or compressible nature. There are a number of trees within close proximity of the proposed development, which may impact upon the foundation design depth. It is recommended that a suitably qualified arboriculturist is appointed to undertake a survey such that building foundations can be designed appropriately.
Mining and ground stability risk	A Coal Mining Risk Assessment (CMRA) report has previously been completed for the site (ref: STW6378-R01-Rev_A) issued in March 2024. Based upon evidence presented within the CMRA, there is considered to be a low to moderate instability risk on site associated with unrecorded shallow coal mining workings within the Arley Coal seam. Whilst the development of the site is unlikely to promote collapse of any shallow unrecorded workings within the Arley Coal seam, if collapse occurred during the life span of the development, voids which propagate into the basal deposits of superficial soils at the site are unlikely to generate significant surface settlement, sufficient to cause notable foundation instability issues/differential settlement of the pitch surfacing.
Floodlight foundation solution	As a precaution, due to the typical variability in strength/density and composition of Made Ground deposits, we would usually advise against the use of such soils to provide suitable support to concentrated foundation loads, given the likelihood that high levels of total settlement would occur as soils consolidate. The near surface Made Ground - Reworked Till at this site, however, comprised generally of naturally derived soils and exhibited a reasonably good degree of compaction throughout. Such deposits are, therefore, considered suitable for supporting floodlight foundations on shallow pads. Further details are provided within Section 7 of the report. A concrete classification of DS-1, AC-1s is considered suitable for the proposed development. Mitigation measures in relation to possible coal mining instability hazards are not required.
CBR assessment	Based on the anticipated founding depth and DCP results, a CBR design value of 6% can be adopted for Made Ground deposits that are likely to be representative of those which remain at or near pitch formation levels. Due to the composition, variable density/strength, and thickness of Made Ground at the site, it is recommended such soils present at and below formation levels are appropriately conditioned to achieve a more uniform level of compaction and minimise levels of differential settlement which could otherwise manifest across the PlayZone pitch surfacing. Due to the low-moderate risk of land instability related to coal mining legacy below the site, we recommend a geosynthetic reinforcement is introduced into the pitch formation regardless, which will assist with mitigating the effects of differential settlement which could manifest at surface.
Drainage potential	The Glaciofluvial Deposits encountered exhibited low permeability and are thus considered unsuitable for sustainable drainage design purposes. As an alternative, it is possible that the PlayZone drainage could key into the existing combined sewers in either Abbey Crescent to the northwest or Peel Lane to the southeast. In addition, there is the possibility of creating a connection through to the River Roch to the west of the site.

Topic	Commentary
Waste characterisation	The Made Ground on site is considered suitable for disposal in a non-hazardous landfill and cannot be classified as inert owing to elevated concentrations of total organic carbon, mineral oil and PAH (17 congeners).
	Natural soils would be classified as inert based on soils being of natural origin and unaffected by artificial contamination.
	Reworked deposits of Till have not been tested but given they are naturally derived, they could be suitable for disposal as inert waste. Further testing should be undertaken to confirm disposal routes.
Recommendation for further works	At this stage further investigations are not considered to be necessary. Further testing of Reworked deposits of Till could be undertaken to determine appropriate waste disposal routes.

1 Introduction

1.1 Scheme Outline

- 1.1.1 The proposed development is for the refurbishment of a 25m x 45m tarmacadam multi-use games area (MUGA), into an LED floodlit 3G artificial surfaced PlayZone pitch for football use. The approximate footprint of the proposed PlayZone pitch is presented in Figure 2-A below.
- 1.1.2 The report is based on the project proposals and information outlined above; should the scheme change then it will be necessary to review the conclusions and recommendations presented in this report.

1.2 Brief

- 1.2.1 This report has been prepared following instructions received from our client, The Football Foundation.
- 1.2.2 The scope of works has been completed in accordance with the 2023 framework agreement for a ground investigation utilising a combination of windowless sampling and hand pitting methods. The principal objectives of the ground investigation are to establish ground conditions at the site sufficient to assess the infiltration potential and provide information necessary to allow design of the artificial sports pitch and floodlight foundations. The report will also advise on abnormal ground conditions and provide recommendations for further investigation works where applicable.
- 1.2.3 In addition to the above, a topographical survey and electrical capacity survey were commissioned for the project, provided under separate cover.

1.3 Limitations

- 1.3.1 Soiltechnics disclaims any responsibility to our Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence in accordance with the terms of our contract, taking account of the resources, investigations and testing devoted to it by agreement with our Client. This report is confidential to our Client and Soiltechnics accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

2 Desk Study

2.1 Sources of information

2.1.1 Reference has been made to the following sources of information:

- British Geological Survey (BGS) GeoIndex – Onshore database.
- BGS Sheet 85 (Scale 1:50 000) – Manchester (2010).
- Ordnance Survey OpenData.
- Coal Authority Development and Specific Risk databases.
- Environment Agency open-source databases.
- Google mapping services.
- Interrogation of search engines for anecdotal information on the site history and other readily available online resources.

2.2 Site Location and Description

2.2.1 The proposed development lies within Heywood, approximately 850m north of the town centre, at the following postal address:

Back O'th Moss Community Centre
Community Centre
Peel Lane
Heywood
OL10 4TU

2.2.2 An aerial image showing the approximate site boundary and development footprint is presented below, followed by a table summarising the key site features and a series of site photographs. A site plan is provided within Appendix A.



Figure 2-A: Aerial photograph of site boundary (red) and PlayZone Pitch footprint (blue)

Theme	Feature
Current site use	The development site currently forms a tarmacadam surfaced MUGA associated with Back O'th Moss Community Centre. Peel Lane provides access to the site from the south.
Local area land use	Adjacent sites comprise of residential housing in all directions, with the associated Back O'th Moss community centre and retail units beyond Peel Lane to the south of the development site.
Topography	The topography of the surrounding area generally falls northwards towards the River Roch. The existing MUGA is relatively flat.
Buildings, surfacing and other permanent features	There are no buildings within the development site. The development site consists of a tarmacadam MUGA with ball stop fencing on the north-western and south-eastern ends of the MUGA (other sides open). Existing floodlighting is present on all corner of the MUGA apart from the southern corner. Landscaped areas laid to grass are present to the southwest and northeast.
Vegetation	A number of mature trees border the development site, with two trees (approximately 8m in height) at the sites southern corner, in addition to a bank of mature trees adjacent to the east.
On-site / adjacent surface water features	None observed on site. River Roch is located 160m to the west at its closest point, meandering beyond the site to the north.
Injurious and invasive weeds	No invasive weeds were identified during the site reconnaissance.
Evidence for ground instability	No evidence for ground instability was noted during site reconnaissance.

Table 2-A: Site Description

2.2.3 The observations provided above are made by a Geoenvironmental Engineer, who is not a specialist in asbestos surveying or invasive weed identification. Any associated comments are intended for use by this report only, and not for any other purpose.

2.2.4 A selection of site photographs are presented below.



Figure 2-B: Looking across the site towards the north



Figure 2-C: Looking across the site towards the south

2.3 Site History

2.3.1 An attempt to trace the history of the site has been carried out by reviewing readily available ordnance survey maps. A chronological summary of the site’s history is provided below.

Date	On-site	Off-site
Late-1800s	The proposed development area comprises terraced housing (see Figure 2-D, below).	Open land to the north, whilst a row of houses bordered the site to the southeast. Further afield, ‘Roach Mill’, a cotton mill, existed on the River Roch 100m to the west, and a gas works ~250m to the east
Mid to late 1900s	Site remained as residential housing	Further housing developments in the area. No other significant changes to the surrounding land use are noted.
Early-2000s to present day	Aerial imagery from the last 20 years shows the current MUGA to have been constructed pre-2000	No significant change during this period.

Table 2-B: Summary of site history



Figure 2-D: 1892-1914 Historical map extract overlay for the site

2.4 Anticipated Geology and Hydrogeology

- 2.4.1 Based on a review of available records, the site is anticipated to be underlain by superficial Glaciofluvial Deposits (refer to Figure 2-E, below), with Alluvium surrounding the nearby River Roch. Devensian Till is also noted in the area and could also underlie the site.
- 2.4.2 In addition, due to historical terraced housing at the site, it is anticipated that Made Ground is present across the entire site footprint. This could comprise of reworked natural soils and demolition materials, where infilling of basements or cellars could have occurred.
- 2.4.3 The underlying bedrock is recorded as Pennine Lower Coal Measures Formation across the entirety of the site, with coal seams running parallel ~120m northeast and southwest of the site (refer to Figure 2-F, below).



Figure 2-E: Extract from BGS showing superficial geology at the site



Figure 2-F: Extract from BGS showing bedrock geology at the site

2.4.4 A summary of the anticipated geology underlying the site is summarised as follows:

Stratum	Bedrock/ superficial	Approximate thickness (m)	Typical soil type	Aquifer Designation	Likely permeability
Hard Surfacing	-	~0.2	Asphalt	-	-
Made Ground	-	1.0 – 3.0	Variable	-	Variable
Glaciofluvial Deposits	Superficial	1.0 – 3.0	Sand, gravel with clay and silt.	Secondary A	Low-moderate
Pennine Lower Coal Measures Formation	Bedrock	Basal unit	Sandstone, Siltstone, Mudstone and Coals	Secondary A	Low

Table 2-C: Summary of anticipated geology and hydrogeology

2.5 Flood Risk

2.5.1 The site falls within a Flood Zone 1 area (see Figure 2-G, below). This designation indicates there is a less than 0.1% chance of flooding from rivers or the sea in any year.

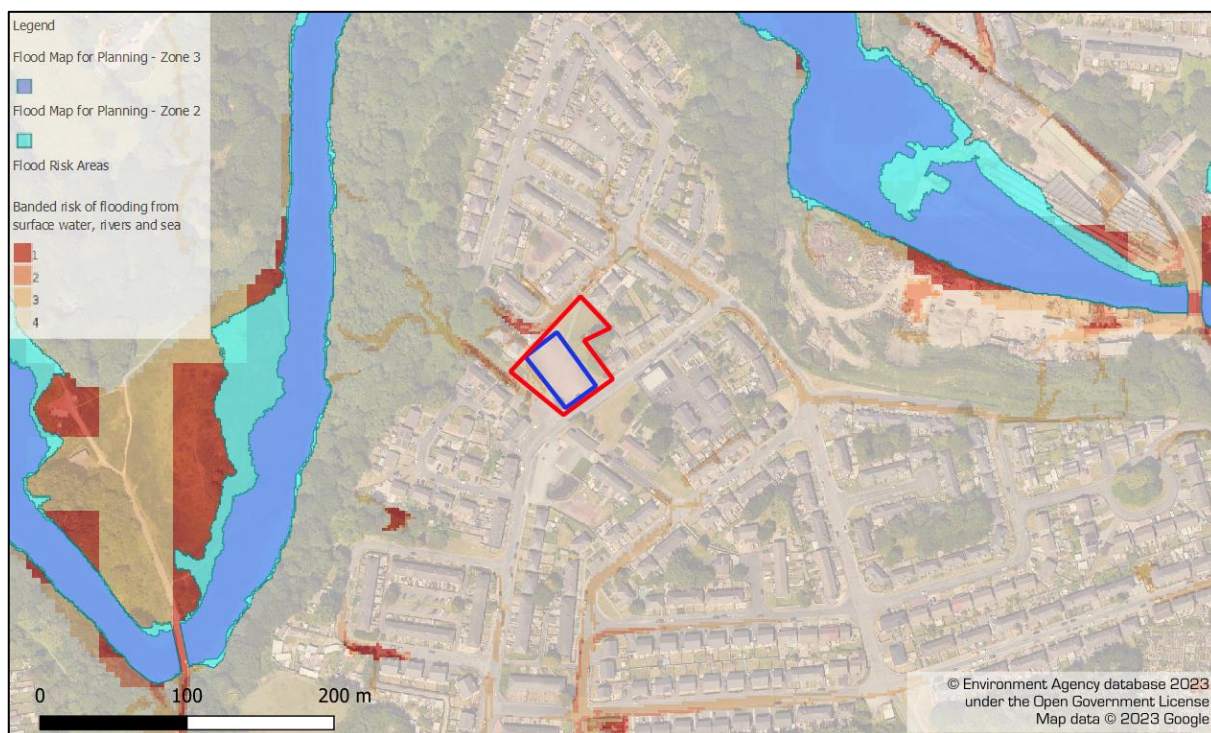


Figure 2-G: Extract of EA flood risk mapping for the site

- 2.5.2 It should be noted that this information does not constitute a site-specific Flood Risk Assessment and one may be required for the scheme.

2.6 Mining and Ground Stability

- 2.6.1 The site is located within a coal mining 'Development High Risk Area' (refer to Figure 2-H below) associated with the presence of probable shallow coal mine workings (purple hatching). On this basis, a Coal Mining Risk Assessment Report (CMRA) has been completed to support the proposed development (ref: STW6378-R01-Rev_A) issued by Soiltechnics in March 2024.

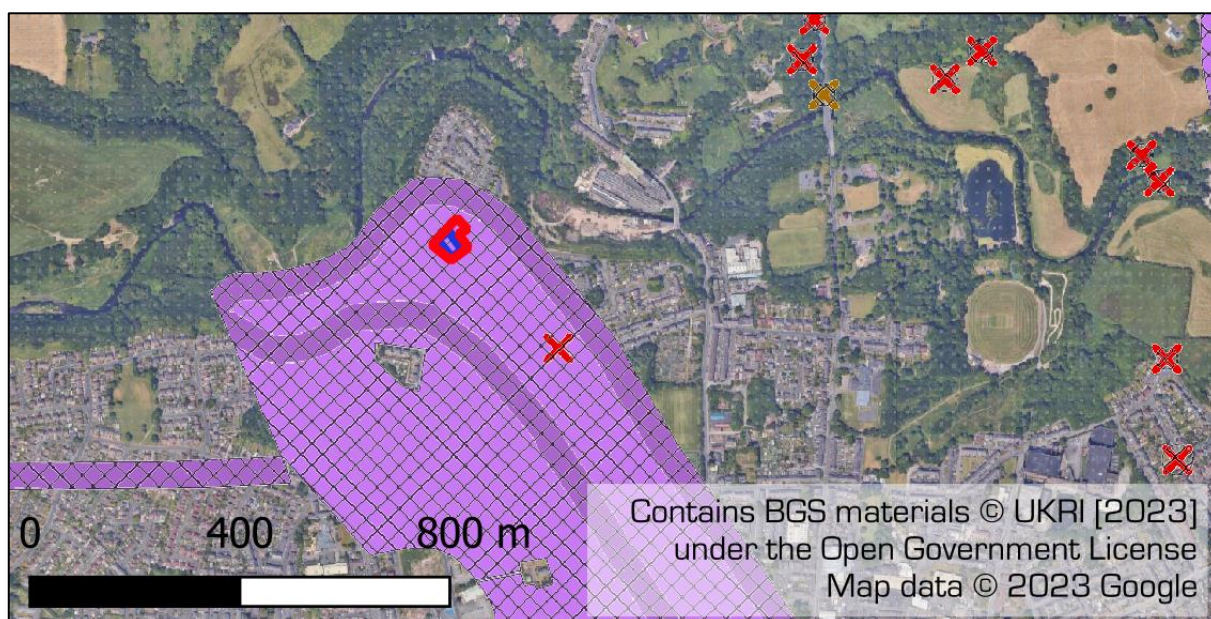


Figure 2-H: Extract showing coal mining hazards at the site

- 2.6.2 Based upon evidence presented within the CMRA, there is considered to be a low-moderate coal mining land instability risk on site associated with unrecorded shallow coal mining workings within the Arley Coal seam.
- 2.6.3 Whilst the development of the site (assuming shallow traditional construction for pitch formation and associated floodlights) is unlikely to promote collapse of any shallow unrecorded workings within the Arley Coal seam, if collapse occurred during the life span of the development, voids which propagate into the basal deposits of superficial soils at the site are unlikely to generate significant surface settlement, sufficient to cause notable foundation instability issues/differential settlement of the pitch surfacing.
- 2.6.4 Following the outcome of the CMRA, it was recommended that the pitch formation is suitably trimmed and rolled following the requirements outlined in the Specification for Highway Works Series 600, and geosynthetic reinforcement introduced into the formation to reduce the risk of differential settlement which could manifest at surface.
- 2.6.5 If deeper Made Ground deposits are present on site, and deep traditional foundations, ground improvement or piled foundations are required for proposed floodlights, this could affect the conclusions presented within the CMRA, and a reassessment would be required. Unless the existing floodlights are potentially utilised and re-headed, assuming they are supported by a shallow foundation solution.

2.7 Landfill and infilled ground

- 2.7.1 Multiple historic and permitted landfill sites are recorded within 250m of the development site (see Figure 2-I, below). With the development comprising an open and aerated PlayZone pitch, the risk of ground gas to affecting the health of proposed end users of the site is considered low.

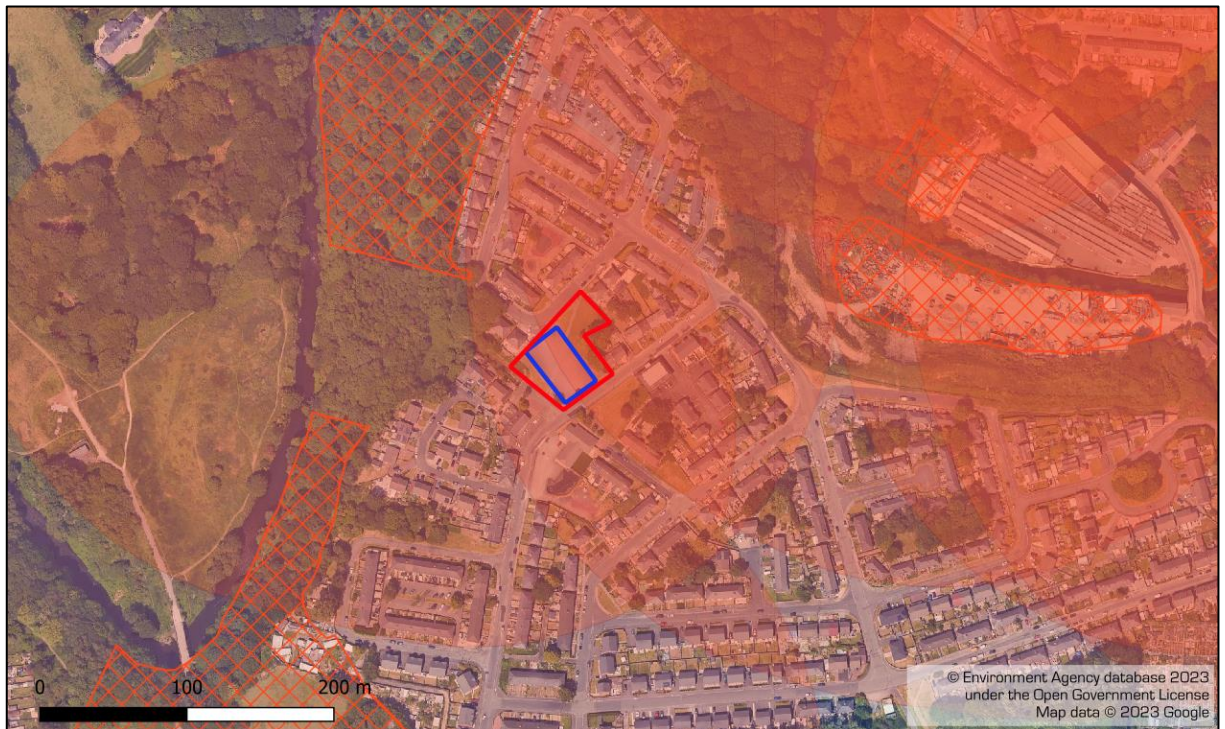


Figure 2-I: Extract from EA showing proximity of the site to landfills

2.8 Underground Infrastructure

- 2.8.1 Copies of all utility plans obtained are presented as Appendix H. The plans are provided for information only and should not be relied upon to be accurate. In addition, it is worth noting that the public utility plans provided by the asset owners typically exclude private service runs.
- 2.8.2 A low voltage electric cable is present within the centre of the site, which appears to have served the former residential properties. It is normal practice to have capped the service off at the site boundary, however, the cable should be treated as live until confirmation of such has been obtained.

2.9 Unexploded Ordnance (UXO) Hazard Screen

- 2.9.1 A UXO hazard screen has been undertaken by Soiltechnics (as a non-specialist) in accordance with CIRIA C785 to determine if further specialist risk assessment is required. This has been carried out with reference to the Zetica bomb density maps, area-specific bomb strike maps (where available), and a review of historical mapping and possible military sites in the area. A summary is presented below.

Hazard	Outcome	Discussion
Question 1: Are there any indicators of former military land use on site?	No	A review of the site's history has not identified indicators of former military use on site.
Question 2: Are there any indicators of historical bombing on or near the site?	No	The site falls within a low bombing density area and no military sites or likely Luftwaffe targets have been identified in the surrounding area. A review of historical mapping records did not reveal any indicators of bombing in the area.

Table 2-D: UXO Hazard Screen

3 Ground Investigation

3.1 Objectives

- 3.1.1 The ground investigation scope and location of exploratory holes was determined by Soiltechnics Ltd, based upon the overall brief outlined in Section 1.
- 3.1.2 The objectives of the fieldwork were to:
- a) Establish ground and groundwater conditions at the site.
 - b) Obtain samples for subsequent laboratory testing.

3.2 Fieldwork summary

- 3.2.1 Fieldwork was undertaken on 23rd April 2024.
- 3.2.2 A summary of the works completed is set out in the table below, along with the location of the exploratory records. The exploratory hole location plan is presented within Appendix A.

Exploratory records	Method	Qty	Final Depth Range (m bgl)	Comments
Appendix B	Hand Pits	2	0.61 – 1.08	HP01 and HP02 Terminated at scheduled depth.
Appendix C	Dynamic Cone Penetrometer Tests	6	0.85 – 0.88	DCP01 to DCP05 Terminated at scheduled depth.
Appendix B	Dynamic windowless sampling boreholes	4	5.45	WS01 to WS04 Boreholes terminated at scheduled depth.

Table 3-A: Summary of fieldwork undertaken

- 3.2.3 All soils encountered were described in accordance with BS EN ISO 14688 “Identification and Classification of soil”.

3.3 Sampling

- 3.3.1 During the fieldwork, sampling of soil, rock and groundwater for geotechnical purposes has been undertaken in accordance with BS EN ISO 22475-1 “Geotechnical Investigation and testing – sampling by drilling and excavation and groundwater measurements”.
- 3.3.2 Samples collected for chemical analysis have been taken and handled in accordance with BS ISO 18400-105:2017 “Soil quality — Sampling Part 105: Packaging, transport, storage and preservation of samples”.
- 3.3.3 Various sampling and sub-sampling methodologies have been adopted as appropriate, with the primary aim of obtaining the highest quality sample class practicable.
- 3.3.4 Untested chemical and geotechnical samples will be held for a period of 4 weeks from the date of the first report issue, after which they will be disposed of with no further notice.

3.4 In-situ Testing

- 3.4.1 The following table summarises the field testing carried out. The results are summarised on individual exploratory hole logs where appropriate and detailed within the Appendices indicated.

Tests	Qty	Applicable standard / guidance	Location of Results
Standard penetration test (SPT)	20	BS EN ISO 22476-3	Included within logs Detailed in Appendix C
Pocket penetrometer	33	Manufacturer's instructions	Included within logs Detailed in Appendix C
Dynamic cone penetrometer (DCP) using TRL probe	6	DMRB: CS229	Detailed in Appendix C
Variable head permeability	1	BS EN ISO 22282-2	Detailed in Appendix C
Soakaway test	1	BRE 365	Detailed in Appendix C

Table 3-B: Summary of field testing undertaken

3.5 Investigation Constraints

- 3.5.1 No significant constraints were encountered which limited the design of the scope of works or the undertaking of fieldworks.

4 Laboratory testing

4.1 Overview

- 4.1.1 Samples obtained from exploratory holes were sent to independent accredited laboratories for geotechnical and chemical testing.

4.2 Geotechnical Testing

- 4.2.1 The geotechnical testing schedule was prepared by Soiltechnics using a targeted and judgemental approach, based upon the scheme proposals and ground conditions encountered.
- 4.2.2 Geotechnical laboratory test results are presented in Appendix D, and the total number of geotechnical tests undertaken is summarised below:

Geological Unit	Test	Quantity
Made Ground	BRE SD1 Suite D	1
	Moisture content	2
Made Ground – Reworked Till	Liquid Limit/Plastic Limit/Plasticity Index	2
	BRE SD1 Suite D	1
Glaciofluvial Deposits	Particle size distribution (fine)	1
Glaciofluvial Deposits	BRE SD1 Suite D	1

Table 4-A: Summary of geotechnical laboratory testing

4.3 Chemical Testing

- 4.3.1 The chemical testing schedule was prepared by Soiltechnics using a targeted and judgemental approach, based upon fieldwork observations.
- 4.3.2 Chemical laboratory test results are presented in Appendix E, and the total number of chemical tests undertaken is summarised below:

Geological Unit	Testing Suite	Quantity
Made Ground	ST Basic classification suite (Metals, inorganics, PAH, banded TPH, asbestos)	1
	Full WAC Suite (solid and 2-stage leachate)	1

Table 4-B: Summary of chemical laboratory testing

5 Ground Investigation Findings

5.1 Ground Model

5.1.1 Ground conditions encountered were relatively consistent across the site and were broadly in line with those anticipated from the desk study.

5.1.2 The table below interprets the geological conditions at the site. Unless otherwise stated in subsequent interpretive report sections, this represents the adopted ground model.

Stratum	Brief description	Top depth range (m bgl)	Adopted model top depth (m bgl)	Thickness (m)	Water
Hard surfacing	Asphalt.	G.L	G.L	0.12 – 0.15	-
Made Ground	Brown clay and sand with gravels of anthropogenic materials.	0.12 – 0.15	0.15	0.52 – 1.08	-
Made Ground – Reworked Till	Firm to stiff brown to orangish brown slightly sandy slightly gravelly clay.	0.65 – 1.20	1.20	1.50 – 2.55	-
Glaciofluvial Deposits	Greyish brown silty sand.	2.70 – 3.20	2.70	Not proven	2.70 – 4.20

Table 5-A: Ground Model

5.1.3 Further detail about the ground conditions encountered is provided in the relevant sub-sections below.

5.2 Asphalt

5.2.1 Asphalt was encountered in all exploratory holes as the surface for the existing MUGA. The Asphalt varied in thickness from 0.12m and 0.15m across the MUGA.

5.3 Made Ground

5.3.1 Made Ground was encountered in all exploratory holes. The base of the unit varied between 0.65m and 1.2m bgl, and the Made Ground ranged in thickness from 0.52m to 1.08m.

5.3.2 The Made Ground was observed as either a brown very gravelly slightly clayey fine to coarse sand, or a dark brown slightly sandy slightly gravelly clay. Gravels comprised of brick, concrete, coal, sandstone, metal fragments, plastic fragments, tiles, slate and ceramics. In WS04 (southeast of proposed development area), the Made Ground comprised predominantly cobbles of brick between a depth of 0.15m and 0.45m bgl.

5.3.3 A photograph of the Made Ground encountered is presented below.



Figure 5-A: Made Ground encountered within WS01

5.4 Made Ground – Reworked Till

- 5.4.1 Reworked Till was encountered in all exploratory holes (except HP02 where the initial Made Ground was not fully penetrated). The base of the unit ranged from 2.7m to 3.2m bgl and was observed between 1.50m to 2.55m in thickness.
- 5.4.2 It is anticipated that the Reworked Till represents the material used to possibly infill the site following demolition of the former terraced housing.
- 5.4.3 The unit generally consisted of a firm and stiff sandy gravelly clay, with gravels of sandstone and coal. A band of dark brown to black organic rich clay containing coal was noted within WS02 (northwest of proposed development area), between a depth of 2.3m and 3.0m bgl.
- 5.4.4 A photograph of the Made Ground – Reworked Till is presented below.



Figure 5-B: Made Ground – Reworked Till encountered within WS02

5.5 Glaciofluvial Deposits

- 5.5.1 Glaciofluvial Deposits were encountered in all exploratory holes except HP01 and HP02. The base of the unit and thickness was not proven as it surpassed termination depth of all exploratory holes.
- 5.5.2 The Glaciofluvial Deposits typically consisted of very loose greyish brown clayey gravelly sand with localised bands of soft greyish brown slightly sandy clay.
- 5.5.3 A photograph of the Glaciofluvial Deposits encountered is presented below.



Figure 5-C: Glaciofluvial Deposits encountered within WS02

5.6 Groundwater

5.6.1 A summary of the groundwater level data obtained during the fieldworks phase is presented below.

Exploratory hole ID	Groundwater observation
WS01	Groundwater strikes encountered at 2.7m bgl and at 4.2m bgl, filling borehole to 2.7m upon completion.
WS02	Groundwater encountered at 3.8m bgl upon completion of borehole.
WS03	Groundwater encountered at 4.0m bgl upon completion of borehole.
WS04	Groundwater encountered at 3.8m bgl upon completion of borehole.

Table 5-B: Summary of groundwater observations during the fieldworks

5.6.2 Groundwater levels are expected to vary seasonally and in response to recent weather conditions. Long term monitoring will provide a reasonable quantification of such variation.

5.7 Evidence of Possible Contamination

5.7.1 During the ground investigation works, no significant visual or olfactory evidence of contamination was noted, except for the presence of anthropogenic materials contained within the Made Ground (brick, concrete, metal, plastic, ceramic, tiles).

5.8 Obstructions and Instability

5.8.1 The progress of the ground investigation works was not generally affected by below ground obstructions or instability.

6 Chemical Assessment

6.1 Reuse of soils

- 6.1.1 A composite sample of the Made Ground deposits was obtained and tested for the sole purpose of assessing the suitability of such soils for either reuse on or offsite.
- 6.1.2 Assessment of laboratory test data has been carried out using published generic assessment criteria (GACs). The GACs act as screening values to provide a 'trigger' to an assessor that soil concentrations above these limits might present an unacceptable risk. Specific details regarding the published GAC sources chosen and any parameter refinements made are summarised within Appendix F, along with the order of preference where multiple GAC sources are available.
- 6.1.3 Asbestos does not currently have published GACs which can be used for generic assessment purposes, at this stage a present / absent trigger limit has been adopted.
- 6.1.4 A table analysing the test data is presented in Appendix F, and the following table summarises the outcome of the analysis.

Receptor group	CLEA model	Inorganic contaminants	Organic contaminants
Residential users (child)	Residential without plant uptake	No exceedances	Dibenz(a,h)anthracene Benzo(b)fluoranthene
Adults	Industrial/commercial	No exceedances	No exceedances

Table 6-A: Summary of chemical analysis

- 6.1.5 Based on the above, the testing indicates that the Made Ground would be chemically suitable for reuse onsite, or offsite within a similar setting, or industrial/commercial development. There are marginal exceedances of dibenz(a,h)anthracene and benzo(b)fluoranthene, however, these are within an order of magnitude and unlikely to cause harm to human health.
- 6.1.6 In addition, no asbestos was detected within the Made Ground sample analysed and no suspected asbestos containing materials were observed during the site works.

6.2 Waste disposal

- 6.2.1 Sampling has been undertaken to characterise the in-situ soils encountered on site for the potential disposal to landfill. The classification of soils for disposal to landfill is undertaken in accordance with WM3 (v1.2GB), and a Waste Acceptance Criteria assessment (WAC) undertaken in accordance with the limits in Annex II of the Landfill Directive (Directive 1999/31/EC).
- 6.2.2 A single composite sample of the Made Ground was obtained using soils from each exploratory hole, referenced as WAC01.

- 6.2.3 The assessment sheets are enclosed within Appendix G, and a summary of the findings is presented in the table below.

Potential waste population	Hazardous classification (LoW code)	Landfill classification
Made Ground (WAC01)	Non-Hazardous (17-05-04)	Non-hazardous landfill site and cannot be disposed as inert due to elevated total organic carbon, mineral oil and PAH (17 congeners).
Natural soils	Non-Hazardous (17-05-04)	Inert based on soils being of natural original and unaffected by artificial contamination.

Table 6-B: Summary of waste characterisation

- 6.2.4 Reworked deposits of Till have not been tested but given they are naturally derived, they could be suitable for disposal as inert waste. Further testing should be undertaken to confirm disposal routes.

6.3 Materials Management

- 6.3.1 In terms of the development, where reasonably practicable, landfill disposal should be minimised through the reuse of site-won materials on site, or off-site transfer of surplus soils to other development schemes or Soil Treatment Facilities. Early consideration of the site's overall material balance at the design stage is also critical in reducing the need for off-site disposal, limiting costs, and increasing the overall sustainability of the development.
- 6.3.2 Where Made Ground soils are to be reused onsite or materials transferred between sites, a Materials Management Plan (MMP) or Waste Exemption is recommended.
- 6.3.3 The process of an MMP allows soils that are suitable for reuse and have a certainty of use to not be considered a waste, and therefore not fall under the waste regulations. This scheme is self-regulated within the industry and is supported in principle by the Environment Agency.

7 Geotechnical Discussion

7.1 Scheme Overview

7.1.1 The following assessments are made on the investigatory data presented in the preceding sections of this report and are made with reference to the specific nature of the development. Should scheme proposals change then it is recommended that the validity of the conclusions of this report in relation to the revised scheme are checked.

7.1.2 The project will comprise construction of an LED floodlit 3G artificial surfaced PlayZone pitch for football use. In view of the scheme proposals, the geotechnical elements considered in this report are outlined below:

- a) Floodlight and pitch foundations.
- b) Drainage

7.2 Key Geotechnical Issues

7.2.1 In view of the ground conditions, the following list summarises the key geotechnical issues that may impact the scheme and will therefore need to be appropriately managed during the lifecycle of the project:

- Made Ground and low strength soils
- Trees and other vegetation
- Groundwater

7.3 Made Ground

7.3.1 The near surface Made Ground soils are unsuitable for supporting concentrated foundation loads due to their variable composition, low strength/density and compressible nature. Accordingly, foundations should extend, as a minimum, through such deposits.

7.3.2 The naturally derived Glaciofluvial Deposits were observed from depths of 2.7m to 3.2m bgl and typically comprised of very loose deposits of sand. Such soils are considered unsuitable for supporting concentrated foundation loads for floodlighting without promoting excess settlement. Moreover, the depth of the deposits will also likely render the construction of a traditional foundation uneconomical/impractical difficult to achieve at such depths.

7.3.3 However, the Reworked deposits of Till, present from depths of 0.65m to 1.2m bgl and overlying the loose Glaciofluvial Deposits, are likely to be considered suitable for supporting floodlight foundations. It is considered deposits were placed following the historic clearance of the dwellings onsite. Such deposits will have generated some self-weight settlement, the majority of which is likely to have occurred.

7.3.4 As a precaution, due to the typical variability in strength/density and composition of Made Ground deposits, we would usually advise against the use of such soils to provide suitable support to concentrated foundation loads, given the likelihood that high levels of total settlement would occur as soils consolidate. The Reworked Till at this site, however, comprised generally of naturally derived soils and exhibited a reasonably good degree of compaction between depths of 1.0m to 3.0m bgl (refer to SPT and shear strength data presented in Appendix C).

7.4 Trees and Vegetation

- 7.4.1 There are a number of trees within close proximity of the proposed development, which may impact upon the foundation design depth. It is recommended that a suitably qualified arboriculturist is appointed to undertake a survey such that building foundations can be designed appropriately. The survey should include the location, species, height (and mature height) and water demand of each tree and major vegetation.

7.5 Groundwater

- 7.5.1 It is anticipated that groundwater will be encountered at a depth >2.7m bgl, and thus unlikely to be encountered within foundation and service trench excavations.
- 7.5.2 Groundwater levels are, however, expected to vary seasonally and in response to weather events.
- 7.5.3 The inflow of groundwater into excavations could potentially lead to instability and excavation collapse if encountered.

7.6 Foundation Strategy

- 7.6.1 In view of the key geotechnical issues discussed above and anticipated loadings, shallow pad type foundations are considered suitable for the project.

7.7 Floodlight Foundations

- 7.7.1 The Made Ground – Reworked Till will adequately support the proposed floodlight bases on pad type foundations. Excavations for foundations are likely to encounter clay deposits. The following assessment is, therefore, based on foundations located within cohesive soils.
- 7.7.2 Laboratory testing indicates that the soils are of low volume change potential and thus, foundations should extend a minimum of 0.75m depth below the proposed ground level, subject to penetrating the Made Ground – Reworked Till soils by a minimum of 0.3m. It is recommended that the base of foundations do not exceed depths of 1.2m bgl across the site to avoid stressing the underlying Glaciofluvial Deposits, which could otherwise result in excess settlement of foundations.
- 7.7.3 The floodlight foundations will be eccentrically loaded thus stresses imparted to the ground will not be uniform. As a result of the long-term stresses, the settlement in turn may not be uniform in clay soils. Such stresses are likely to be from dead loads only and not from live loads (such as wind), which will be transient and not likely to contribute to settlement. Live loads will increase the eccentricity of loads and thus increase the concentration of stresses potentially to an edge of the foundation.
- 7.7.4 Based on ground conditions and in-situ pocket penetrometer testing, a conservative undrained shear strength of 50kN/m² has been adopted for design purposes. The presumed bearing capacity to limit the effects of eccentricity should not exceed 90kN/m².
- 7.7.5 The results of calculations undertaken to determine the bearing values for pad type foundations in cohesive Made Ground – Reworked Till are presented below;

Plan size of pad (m)	Ultimate bearing value (kN/m ²)	Presumed bearing value (kN/m ²)	Allowable bearing pressure (kN/m ²)
1.0 x 1.0	460	90	90
1.5 x 1.5	440	90	75
2.0 x 2.0	430	90	60

Table 7-A: Bearing values for floodlight foundations

- 7.7.6 The presumed bearing values have been derived from the ultimate bearing value by applying a factor of safety of 3 and adopting the lesser value when compared with the eccentricity value derived in paragraph 7.7.4 above for floodlights in a clay soil scenario. The presumed bearing capacities given above should not be exceeded in any loading cases.
- 7.7.7 The allowable bearing capacity is derived assuming a constant, uniformly applied load, with a settlement limit of 25mm, limited where necessary for floodlights in cohesive soils in line with paragraph 7.7.4 above.
- 7.7.8 Based on the above, mitigation measures in relation to possible coal mining instability hazards are not required at the site.

7.8 Artificial Pitch Foundations

- 7.8.1 It is anticipated that the proposed PlayZone, will be located at or about existing ground levels, with the formation located on Made Ground deposits. There are no existing subbase type material below the MUGA.
- 7.8.2 Based on the anticipated founding depth and DCP results, a CBR design value of 6% can be adopted for soils that are likely to be representative of those which remain at or near pitch formation levels. It should be noted that values in Made Ground deposits range from 5.1% to 72.0% at and below likely formation levels.
- 7.8.3 Due to the composition, variable density/strength, and thickness of Made Ground at the site, it is recommended such soils present at and below formation levels are appropriately conditioned to achieve a more uniform level of compaction and minimise levels of differential settlement which could otherwise manifest across the PlayZone pitch surfacing.
- 7.8.4 It is also recommended that the formation level is trimmed and rolled following the requirements outlined in the Specification for Highway Works Series 600. Such a process will identify any soft/loose areas, which should either be excavated out and backfilled with a suitable well compacted material similar to those exposed in the sides of the resulting excavation, or large cobbles of a good quality stone rolled into the formation to stabilise the 'soft/loose' area.
- 7.8.5 Alternatively, consideration should be given to excavating, sorting and compacting the initial 1m depth of Made Ground to achieve consistent levels of compaction across the proposed FTP and minimising the potential effects of differential settlement.
- 7.8.6 In addition, increasing and homogenising the density of the Made Ground through ground improvement techniques such as rolling dynamic compaction (RDC) or permeation grouting/lime & cement stabilisation could be undertaken. These are notably expensive and would require specialist input at the feasibility stage.

- 7.8.7 Due to the low-moderate risk of land instability related to coal mining legacy below the site, we recommend a geosynthetic reinforcement is introduced into the pitch formation regardless, which will assist with mitigating the effects of differential settlement which could manifest at surface.
- 7.8.8 The Made Ground soils are considered frost susceptible, and this may override the CBR criteria for pavement foundation design purposes.

7.9 Drainage

- 7.9.1 Infiltration testing has been undertaken at the site following the principles of BRE 365: Soakaway Design (2016) within HP02 and in situ permeability testing has been undertaken at the site in accordance with BS EN ISO 22282 Geotechnical investigation and testing – Geohydraulic testing (2012) within WS01.

- 7.9.2 The results are presented in Appendix C and summarised below:

Exploratory hole ID	Stratum tested	Cycle	Infiltration rate (m/s)
WS01	Glaciofluvial Deposits	1	1.27×10^{-6}
		2	6.24×10^{-7}
		3	3.55×10^{-7}
HP02	Made Ground	1	N/A

Table 7-B: Summary of infiltration test results undertaken in accordance with BRE 365

- 7.9.3 Based on ground conditions, the natural Glaciofluvial Deposits are unlikely to be amenable to the use of soakaway type systems.
- 7.9.4 In addition, the Made Ground underlying the existing MUGA is considered to be effectively impermeable.
- 7.9.5 No existing soakaway features were observed on site during ground investigation works; however, a full drainage survey was not undertaken.
- 7.9.6 As an alternative, it is possible that the PlayZone drainage could key into the existing combined sewers in either Abbey Crescent to the northwest or Peel Lane to the southeast. In addition, there is the possibility of creating a connection through to the River Roch to the west of the site.
- 7.9.7 Given the proximity of the combined sewers, this is considered to be a feasible and practical option for the disposal of surface water collected by the proposed pitch development, subject to obtaining relevant permissions. However, a comprehensive drainage assessment will be required to determine the potential impact on the capacity of the existing systems and to confirm drainage gradients will be achievable across the proposed pitch area.

7.10 Aggressiveness of the Ground to Buried Concrete

- 7.10.1 The aggressiveness of the ground with respect to buried concrete has been assessed in accordance with Building Research Establishment Special Digest 1: Concrete in Aggressive Ground Third Edition (2005).
- 7.10.2 The site is interpreted to be a brownfield site where pyrite is unlikely to be present.
- 7.10.6 The classification of the strata is tabulated below:

Stratum	Disturbed / Undisturbed	Design sulphate class	Aggressive chemical environment for concrete class
Made Ground	N/A	DS-1	AC-1s
Made Ground – Reworked Till		DS-1	AC-1s
Glaciofluvial Deposits		DS-1	AC-1s
		DS-1	AC-1s

Table 7-C: Summary of the aggressiveness of the ground to buried concrete.

8 Recommendations for further works

- 8.1.1 At this stage further investigations are not considered to be necessary.
- 8.1.2 Further testing of Reworked deposits of Till could be undertaken to determine appropriate waste disposal routes.

Appendix A Drawings



Key:

Exploratory Holes

-  Hand Pit
-  Windowless Sampling Borehole
-  Dynamic Cone Penetrometer Test
-  Infiltration Testing

Site Features

-  Wider Site Boundary
-  PlayZone Development Boundary

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

Contains OS data © Crown copyright [and database right] [2023]
Map data © 2023 Google

A	April 2024	First issue
REV	DATE	COMMENT ON VARIATION

soiltechnics
environmental • geotechnical • building fabric

PROJECT
Back O'th Moss, Heywood

TITLE
Exploratory Hole Location Plan

DRAWING No.
STW6378-D01-A

Appendix B Exploratory Hole Logs

Key to legends

Composite materials, soils and lithology					
	Topsoil		Made Ground		Boulders
	Clay		Coal		Cobbles
	Gravel		Limestone		Mudstone
	Sand		Sandstone		Silt
					Siltstone
					Chalk
					Concrete
					Peat

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result		Sampling	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)	From (m) To (m)	Records depth of sampling
	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m ²) by applying a factor of 50.		D Disturbed sample
			B Bulk disturbed sample
			ES Environmental sample
Result	SV – Hand held shear vane result reported as an undrained shear strength (kN/m ²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.	Type	W Water sample
			U Undisturbed thick-walled sample 100mm diameter sampler
			UT Undisturbed thin walled sample 100mm diameter sampler
			UTF Failed undisturbed sample

Water observations

Described at foot of log and shown in the 'water strike' column.

▼ Water level observed after specified delay in drilling

∇ Water strike

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

[illegible]

Notes Trial pit sides remained upright and stable upon completion.	Title Trial pit record	Dimensions (w x l) 0.40m x 0.37m	Date(s) 23/04/2024
	Method Hand tools	Logged by TT	Sheet number Sheet 1 of 1
Groundwater observations No groundwater encountered.	Level (m OD) -	Compiled by KD	Revision A
	Co-ordinates -	Checked by JP	HP01

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
ASPHALT. (ASPHALT)	0.15						0.25		D
Dark brown to reddish brown sandy fine to coarse angular GRAVEL with low cobble content of subangular brick. Gravel is brick and sandstone. (MADE GROUND)									
Dark brown gravelly slightly clayey fine to coarse SAND. Gravel is fine to coarse subangular brick and sandstone. (MADE GROUND)									
TRIAL PIT TERMINATED AT 0.61m	0.61								
Notes Trial pit sides remained upright and stable upon completion. Infiltration testing performed.				Title Trial pit record		Dimensions (w x l) 0.30m x 0.30m		Date(s) 23/04/2024	
				Method Hand tools		Logged by TT		Sheet number Sheet 1 of 1	
				Groundwater observations No groundwater encountered.		Compiled by KD		Revision A	
				Co-ordinates -		Checked by JP		HP02	

Key to legends

Composite materials, soils and lithology					
	Topsoil		Made Ground		Boulders
	Clay		Coal		Cobbles
	Gravel		Limestone		Mudstone
	Sand		Sandstone		Silt
					Siltstone
					Chalk
					Concrete
					Peat

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result		Sampling	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)	From (m) To (m)	Records depth of sampling
Result	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m ²) by applying a factor of 50.		D Disturbed sample
	SV – Hand held shear vane result reported as an undrained shear strength (kN/m ²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.		B Bulk disturbed sample
			ES Environmental sample
		Type	W Water sample
	SPT – Standard Penetration Test result (N value) (uncorrected) ^{1,2,3} SPT(c) – Standard Penetration Test result (solid cone) (N value) (uncorrected) ^{1,2,3}		U Undisturbed thick-walled sample 100mm diameter sampler
	UT – Undisturbed sample 100mm diameter sampler with number of blows of driving equipment required to obtain sample		UT Undisturbed thin walled sample 100mm diameter sampler
			UTF Failed undisturbed sample

Water observations

Described at foot of log and shown in the 'water strike' column.

-  Water level observed after specified delay in drilling
-  Water strike

Installation details

	Gravel filter		Bentonite
	Slotted pipe		Unslotted pipe
	Arisings		Grout
	Extensometer magnet		Vibrating wire piezometer

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT. (ASPHALT)	0.15										0.20		D
	Dark brown to greyish brown very gravelly slightly clayey fine to coarse SAND. Gravel is fine to coarse angular brick and sandstone. (MADE GROUND)	0.67								PP 0.75 PP 1.00	PP=25 PP=21	0.80		D
	Soft grey mottled orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to angular sandstone and coal. (MADE GROUND - REWORKED TILL)	1.20				S 1.25 - 1.70	(3) 13			PP 1.30 PP 1.60	PP=117 PP=158			
	Firm to stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium angular coal and sandstone. (MADE GROUND - REWORKED TILL)					S 2.00 - 2.45	(6) 14			PP 2.20 PP 2.60	PP=167 PP=163	2.00		D
					▼									
	Very loose greyish brown slightly clayey fine to medium SAND. (GLACIOFLUVIAL DEPOSITS)	2.70				S 3.00 - 3.45	(0) 2		3.00					
										PP 3.70	PP=83			
	Soft greyish brown slightly sandy CLAY. (GLACIOFLUVIAL DEPOSITS)	3.70				S 4.00 - 4.45	(0)							
					▼									
	Very loose greyish brown slightly clayey fine to medium SAND. (GLACIOFLUVIAL DEPOSITS)	4.20				S 5.00 - 5.45	(0)							
	BOREHOLE TERMINATED AT 5.45m	5.45												

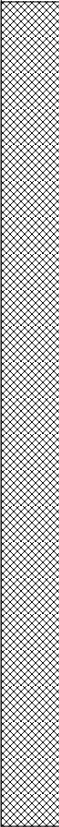
Notes	Title				Date(s)
	Dynamic Windowless Sampling record				23/04/2024
	Recovery details		Method	Logged by	Sheet number
	Range (m)	Recovery (%)			
			Windowless sampler	TT	Sheet 1 of 1
Groundwater observations	1.25 - 2.00	100	Level (m OD)	Compiled by	Revision
	2.00 - 3.00	95			
	3.00 - 4.00	95	-	KD	A
	4.00 - 5.00	70	Co-ordinates	Checked by	WS01
Groundwater strike encountered at 2.7m depth. Second groundwater strike encountered at 4.2m depth. Filling borehole to 2.7m depth upon completion.					

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT. (ASPHALT) Firm dark brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subrounded to angular brick and sandstone with infrequent metal and plastic fragments.	0.13								PP 0.40	PP=38			
	(MADE GROUND) <i>...from 0.55m depth, becoming stiff.</i>	0.65								PP 0.60	PP=83	0.50		D
	Stiff brown slightly sandy slightly gravelly CLAY with low cobble content of rounded sandstone. Gravel is fine to coarse subangular to angular sandstone and coal. (MADE GROUND - REWORKED TILL)					S 1.20 - 1.65	(2) 10			PP 0.80	PP=121			
										PP 1.10	PP=133	1.20		D
										PP 1.50	PP=150			
						S 2.00 - 2.45	(5) 15			PP 1.80	PP=167			
	Firm dark brown to black slightly gravelly sandy organic CLAY. Gravel is fine to medium angular to coal. (MADE GROUND - REWORKED TILL)	2.30								PP 2.30	PP=150			
										PP 2.70	PP=29	2.50		D
	Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded to subangular sandstone. (MADE GROUND - REWORKED TILL)	3.00				S 3.00 - 3.45	(0) 4			PP 3.10	PP=46			
	Very loose light brown clayey fine to medium SAND. (GLACIOFLUVIAL DEPOSITS)	3.20												
	<i>...between 4.9m and 5m depth, becoming orangish.</i>					S 4.00 - 4.45	(0)		4.00					
						S 5.00 - 5.45	(0)							
	BOREHOLE TERMINATED AT 5.45m	5.45												

Notes Inspection pit excavated to 1.20m depth. Borehole terminated at scheduled depth.	Title Dynamic Windowless Sampling record			Date(s) 23/04/2024	
	Recovery details		Method Windowless sampler	Logged by TT	Sheet number Sheet 1 of 1
	Range (m)	Recovery (%)			
Groundwater observations Groundwater encountered at 3.8m depth upon completion of borehole.	1.20 - 2.00	100	Level (m OD) -	Compiled by KD	Revision A
	2.00 - 3.00	90			
	3.00 - 4.00	90	Co-ordinates -	Checked by JP	WS02
	4.00 - 5.00	100			

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT. (ASPHALT) Brown gravelly slightly clayey medium to coarse SAND with low cobble content of angular brick. Gravel is fine to coarse angular brick and sandstone. (MADE GROUND)	0.12										0.30		D
	Stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular brick, concrete and coal. (MADE GROUND)	0.67								PP 0.80	PP=104	1.00		D
	Stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to angular sandstone. (MADE GROUND - REWORKED TILL)	1.20				S 1.20 - 1.65	(4) 11			PP 1.10	PP=146			
										PP 1.50	PP=67			
						S 2.00 - 2.45	(6) 12			PP 1.80	PP=108			
										PP 2.10	PP=83			
	Loose dark grey and orangish brown slightly gravelly clayey fine to coarse SAND. Gravel is fine to coarse subangular to angular coal and sandstone. (MADE GROUND - REWORKED TILL)	2.70								PP 2.50	PP=83			
	Medium dense becoming loose brown slightly gravelly slightly clayey fine to medium SAND. Gravel is fine to medium sandstone. (GLACIOFLUVIAL DEPOSITS)	3.20				S 3.00 - 3.45	(8) 8			PP 3.00	PP=25			
						S 4.00 - 4.45	(6) 11					4.00		D
						S 5.00 - 5.45	(4) 8		5.00					
	BOREHOLE TERMINATED AT 5.45m	5.45												

Notes Inspection pit excavated to 1.20m depth. Borehole terminated at scheduled depth.	Title Dynamic Windowless Sampling record			Date(s) 23/04/2024	
	Recovery details		Method Windowless sampler	Logged by TT	
	Range (m)	Recovery (%)		Sheet number Sheet 1 of 1	
Groundwater observations Groundwater encountered at 4.0m depth upon completion of borehole.	1.20 - 2.00	100	Level (m OD) -	Compiled by KD	
	2.00 - 3.00	95		Revision A	
	3.00 - 4.00	50	Co-ordinates -	Checked by JP	
	4.00 - 5.00	60		WS03	

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT. (ASPHALT)	0.15												
	Reddish brown slightly sandy gravelly COBBLES of angular brick. Gravel is fine to coarse angular brick. (MADE GROUND)	0.46								PP 0.50	PP=58			
	Firm greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium brick, coal and sandstone. (MADE GROUND)									PP 0.80	PP=21			
										PP 1.10	PP=33	1.00		D
	Stiff orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse coal and sandstone. (MADE GROUND - REWORKED TILL)	1.20				S 1.20 - 1.65	(4) 8			PP 1.40	PP=179			
										PP 1.80	PP=158			
						S 2.00 - 2.45	(4) 11			PP 2.10	PP=142	2.00		D
										PP 2.40	PP=117			
										PP 2.90	PP=142			
	Very loose greyish brown slightly clayey silty fine to medium SAND. (GLACIOFLUVIAL DEPOSITS)	3.20				S 3.00 - 3.45	(1) 4			PP 3.20	PP=108			
														
						S 4.00 - 4.45	(0) 3					4.50		D
														
						S 5.00 - 5.45	(1) 1		5.00					
	BOREHOLE TERMINATED AT 5.45m													

Notes Inspection pit excavated to 1.20m depth. Borehole terminated at scheduled depth.	Title Dynamic Windowless Sampling record			Date(s) 23/04/2024	
	Recovery details		Method Windowless sampler	Logged by TT	Sheet number Sheet 1 of 1
	Range (m)	Recovery (%)			
	1.20 - 2.00 2.00 - 3.00 3.00 - 4.00 4.00 - 5.00	100 100 95 70	Level (m OD) - Co-ordinates -	Compiled by KD Checked by JP	Revision A WS04

Appendix C In Situ Test Results

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP01	88	1
DCP01	102	2
DCP01	113	3
DCP01	122	4
DCP01	138	5
DCP01	157	6
DCP01	176	7
DCP01	203	8
DCP01	216	9
DCP01	225	10
DCP01	236	11
DCP01	246	12
DCP01	256	13
DCP01	265	14
DCP01	274	15
DCP01	283	16
DCP01	289	17
DCP01	296	18
DCP01	301	19
DCP01	309	20
DCP01	315	21
DCP01	324	23
DCP01	326	24
DCP01	335	26
DCP01	338	28
DCP01	353	31
DCP01	359	33
DCP01	369	35
DCP01	376	37
DCP01	377	39
DCP01	390	41
DCP01	393	42
DCP01	403	44
DCP01	411	45
DCP01	417	46
DCP01	419	47
DCP01	420	48
DCP01	428	50
DCP01	442	51
DCP01	446	52
DCP01	462	53
DCP01	469	54
DCP01	490	55

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP01	503	56
DCP01	521	57
DCP01	545	58
DCP01	576	59
DCP01	602	60
DCP01	639	61
DCP01	701	62
DCP01	761	63
DCP01	803	64
DCP01	846	65
DCP01	883	66
DCP02	102	1
DCP02	113	2
DCP02	121	3
DCP02	127	4
DCP02	142	5
DCP02	152	6
DCP02	166	7
DCP02	188	8
DCP02	204	9
DCP02	232	10
DCP02	256	11
DCP02	285	12
DCP02	313	13
DCP02	343	14
DCP02	381	15
DCP02	431	16
DCP02	492	17
DCP02	549	18
DCP02	600	19
DCP02	635	20
DCP02	671	21
DCP02	688	22
DCP02	711	23
DCP02	742	24
DCP02	776	25
DCP02	830	26
DCP02	885	27
DCP03	61	1
DCP03	66	2
DCP03	74	3
DCP03	86	5
DCP03	88	6

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP03	99	7
DCP03	109	8
DCP03	120	9
DCP03	138	10
DCP03	161	11
DCP03	187	12
DCP03	252	13
DCP03	290	14
DCP03	327	15
DCP03	350	16
DCP03	377	17
DCP03	390	18
DCP03	410	19
DCP03	434	20
DCP03	505	21
DCP03	576	22
DCP03	628	23
DCP03	666	24
DCP03	699	25
DCP03	720	26
DCP03	745	27
DCP03	760	28
DCP03	772	29
DCP03	784	30
DCP03	810	31
DCP03	826	32
DCP03	843	33
DCP03	852	34
DCP04	95	1
DCP04	106	2
DCP04	116	3
DCP04	127	4
DCP04	137	5
DCP04	145	6
DCP04	151	7
DCP04	164	8
DCP04	211	9
DCP04	236	10
DCP04	265	11
DCP04	316	12
DCP04	394	13
DCP04	431	14
DCP04	457	15

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP04	478	16
DCP04	493	17
DCP04	510	18
DCP04	529	19
DCP04	549	20
DCP04	567	21
DCP04	611	22
DCP04	660	23
DCP04	713	24
DCP04	767	25
DCP04	811	26
DCP04	851	27
DCP04	868	28
DCP05	76	1
DCP05	84	2
DCP05	86	3
DCP05	96	5
DCP05	101	6
DCP05	108	7
DCP05	112	8
DCP05	126	10
DCP05	129	11
DCP05	136	12
DCP05	141	13
DCP05	148	14
DCP05	154	15
DCP05	167	17
DCP05	177	18
DCP05	182	19
DCP05	189	20
DCP05	197	21
DCP05	204	22
DCP05	212	23
DCP05	226	24
DCP05	235	25
DCP05	241	26
DCP05	245	27
DCP05	251	29
DCP05	255	31
DCP05	263	34
DCP05	271	37
DCP05	273	38
DCP05	281	40

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP05	292	42
DCP05	325	44
DCP05	348	45
DCP05	379	46
DCP05	413	47
DCP05	444	48
DCP05	452	49
DCP05	458	50
DCP05	461	51
DCP05	471	53
DCP05	476	54
DCP05	480	55
DCP05	484	57
DCP05	506	60
DCP05	515	61
DCP05	534	63
DCP05	552	64
DCP05	568	65
DCP05	583	66
DCP05	593	67
DCP05	613	68
DCP05	630	69
DCP05	648	70
DCP05	668	71
DCP05	684	72
DCP05	701	73
DCP05	716	74
DCP05	733	75
DCP05	752	76
DCP05	769	77
DCP05	787	78
DCP05	806	79
DCP05	823	80
DCP05	837	81
DCP05	853	82
DCP06	118	1
DCP06	133	2
DCP06	143	3
DCP06	149	4
DCP06	161	6
DCP06	176	7
DCP06	180	8
DCP06	191	9

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP06	214	10
DCP06	231	11
DCP06	243	12
DCP06	253	13
DCP06	265	14
DCP06	276	15
DCP06	286	16
DCP06	298	17
DCP06	311	18
DCP06	323	19
DCP06	338	20
DCP06	353	21
DCP06	370	22
DCP06	415	23
DCP06	466	24
DCP06	490	25
DCP06	520	26
DCP06	578	27
DCP06	627	28
DCP06	665	29
DCP06	706	30
DCP06	743	31
DCP06	778	32
DCP06	809	33
DCP06	831	34
DCP06	856	35

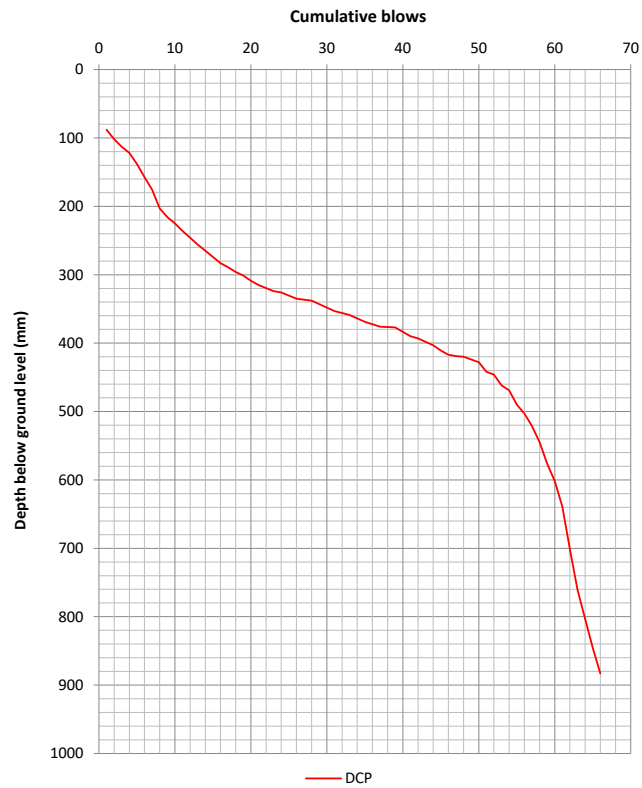
Dynamic Cone Penetrometer (DCP) summary

Location	Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
DCP01	1	16.8	140	85	225
DCP01	2	47.0	260	225	485
DCP01	3	7.0	390	485	875
DCP02	1	22.4	80	98	178
DCP02	2	6.8	700	178	878
DCP03	1	28.3	90	60	150
DCP03	2	6.5	550	150	700
DCP03	3	14.9	150	700	850
DCP04	1	24.1	80	90	170
DCP04	2	8.0	410	170	580
DCP04	3	5.1	270	580	850
DCP05	1	40.1	160	70	230
DCP05	2	72.0	70	230	300
DCP05	3	9.6	140	300	440
DCP05	4	37.4	120	440	560
DCP05	5	15.4	290	560	850
DCP06	1	21.4	260	110	370
DCP06	2	6.6	486	370	856

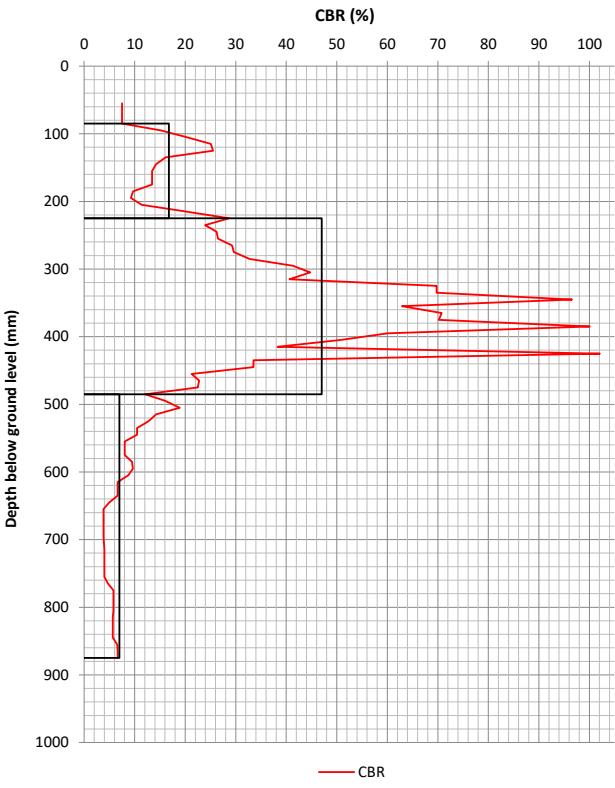
Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP01	23/04/2024	55	108	TT

Plot showing number of blows against depth



Plot showing CBR (%) against depth



Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	16.8	140	85	225
2	47.0	260	225	485
3	7.0	390	485	875

Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

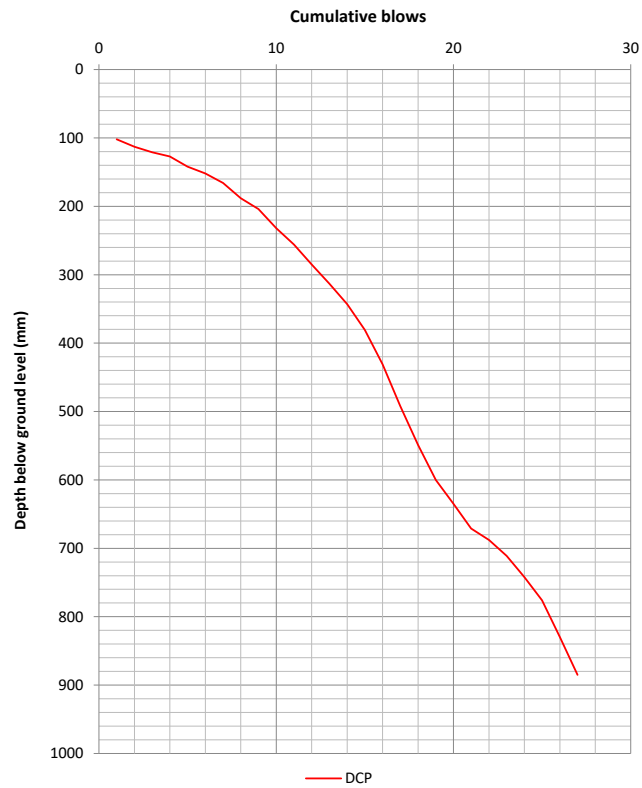
Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$

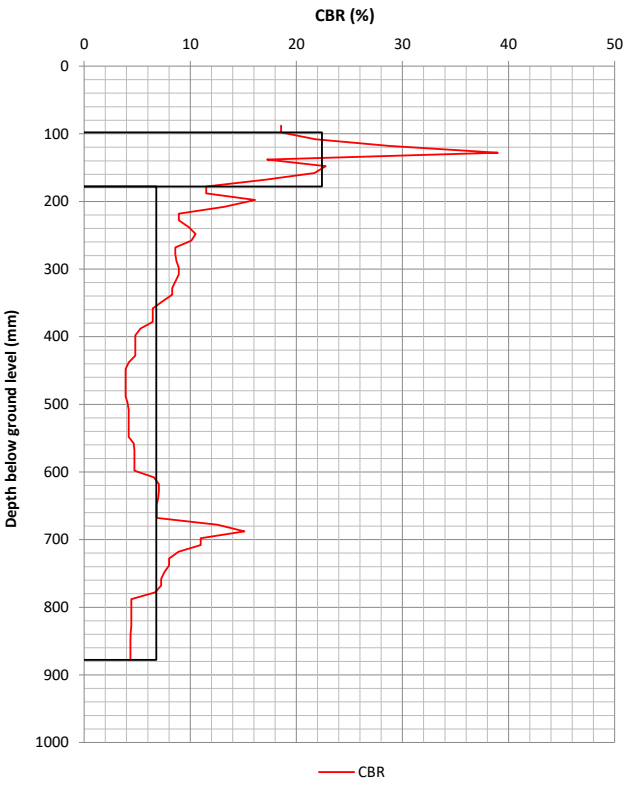
Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP02	23/04/2024	88	142	TT

Plot showing number of blows against depth



Plot showing CBR (%) against depth



Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	22.4	80	98	178
2	6.8	700	178	878

Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

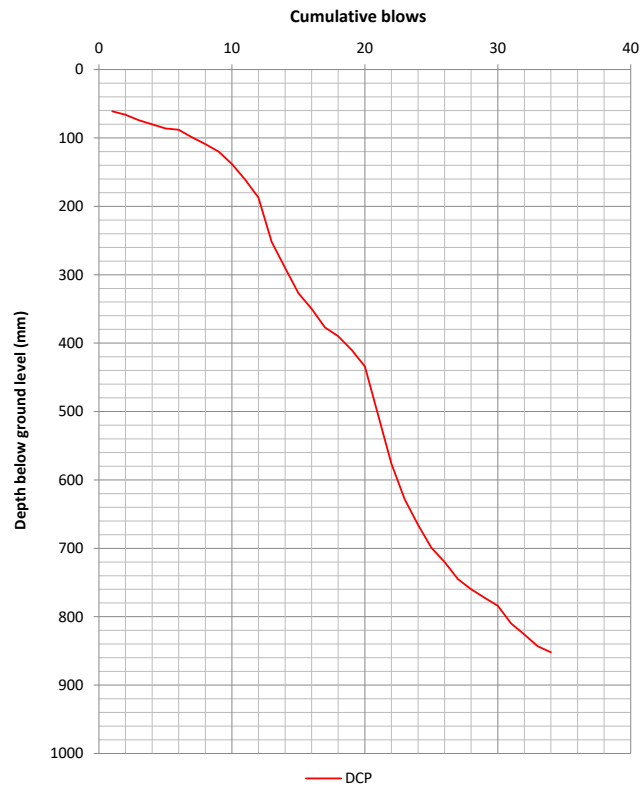
Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10(mm/blow)}$

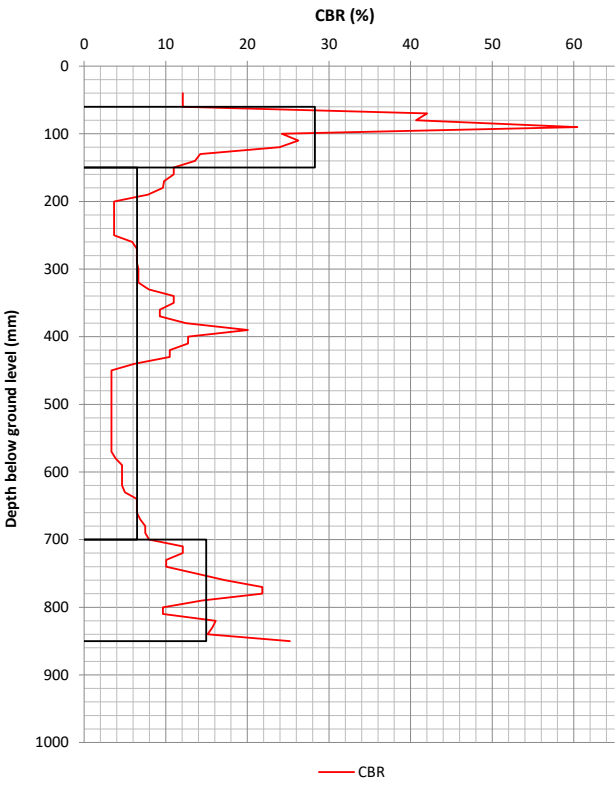
Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP03	23/04/2024	40	96	TT

Plot showing number of blows against depth



Plot showing CBR (%) against depth



Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	28.3	90	60	150
2	6.5	550	150	700
3	14.9	150	700	850

Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

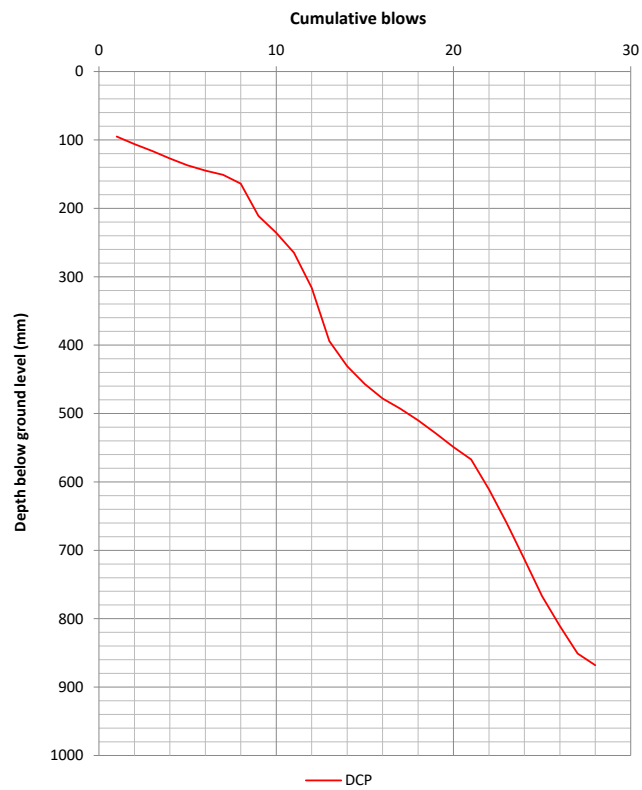
Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$

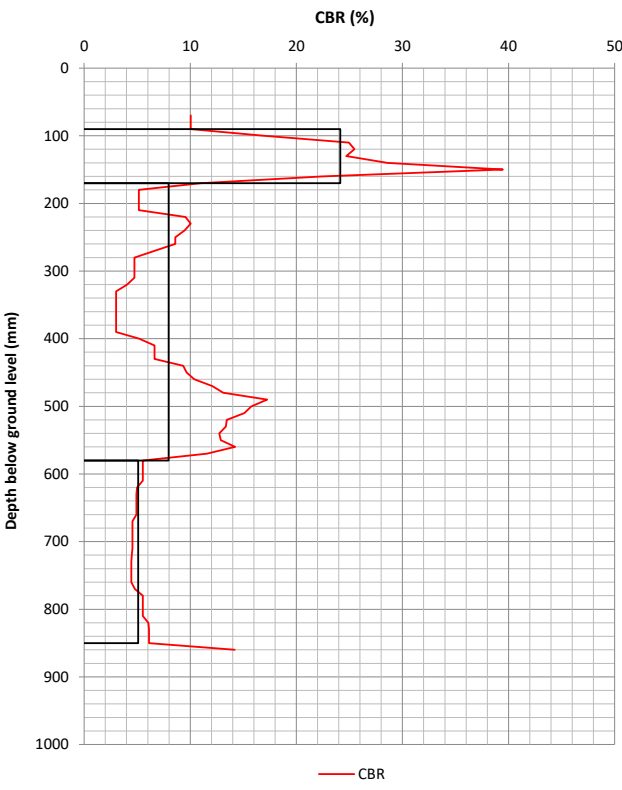
Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP04	23/04/2024	70	115	TT

Plot showing number of blows against depth



Plot showing CBR (%) against depth



Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	24.1	80	90	170
2	8.0	410	170	580
3	5.1	270	580	850

Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

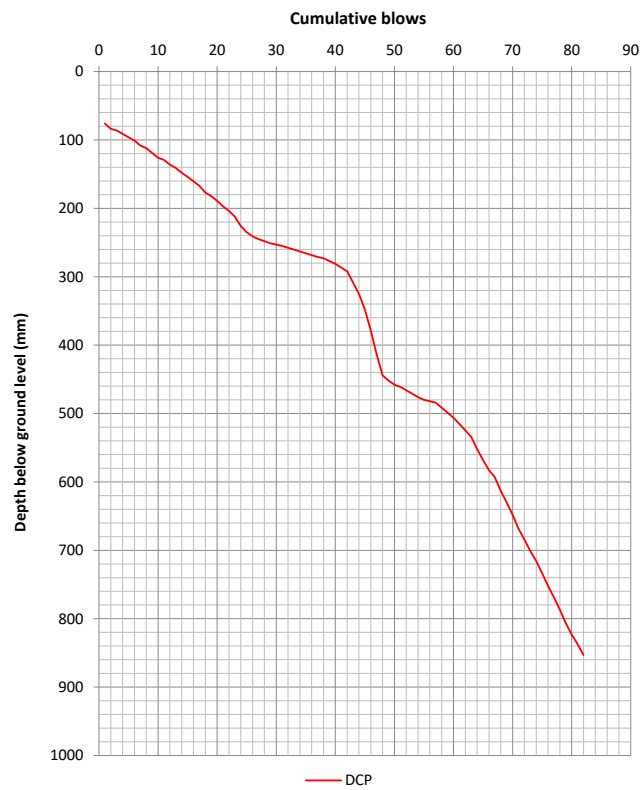
Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10(mm/blow)}$

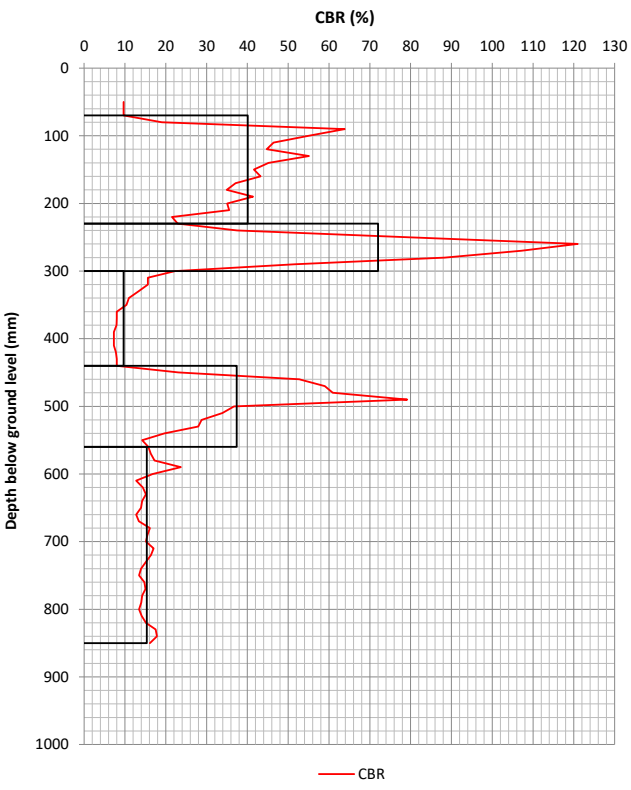
Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP05	23/04/2024	50	105	TT

Plot showing number of blows against depth



Plot showing CBR (%) against depth



Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	40.1	160	70	230
2	72.0	70	230	300
3	9.6	140	300	440
4	37.4	120	440	560
5	15.4	290	560	850

Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

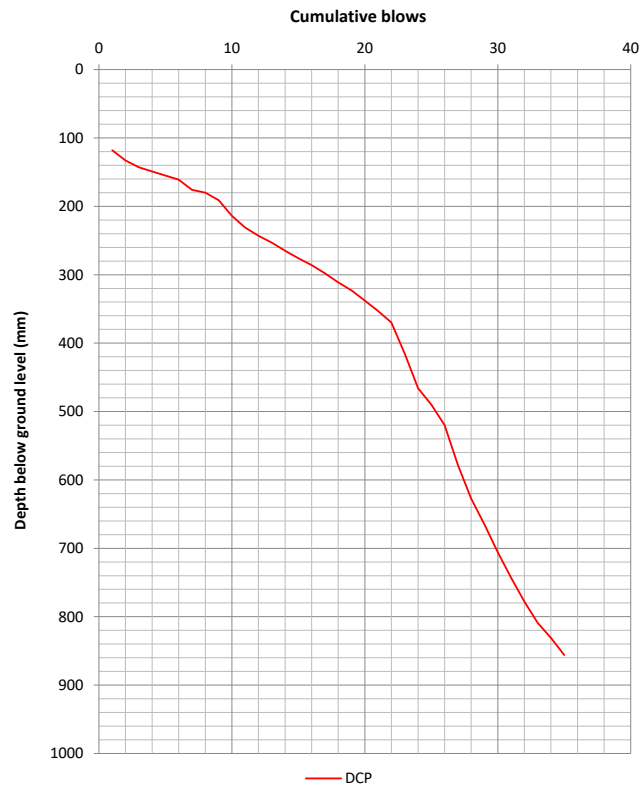
Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$

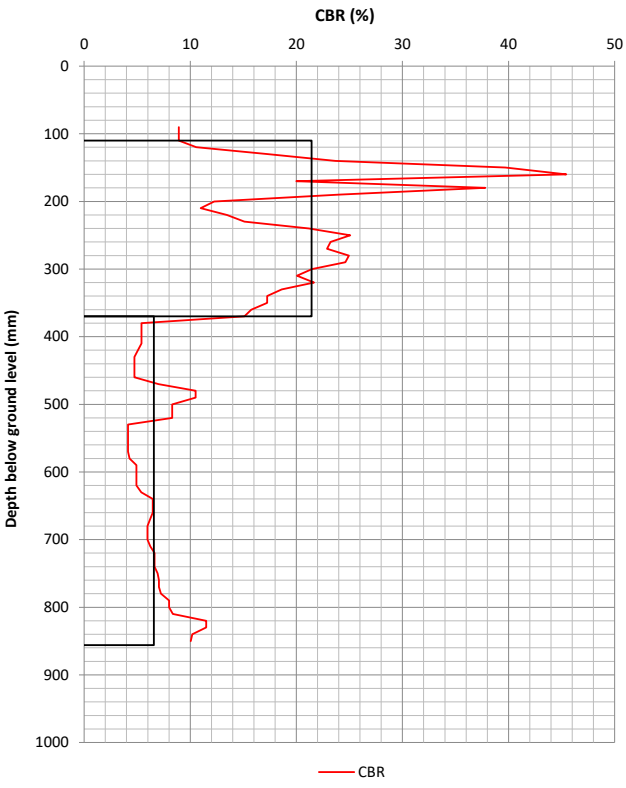
Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP06	23/04/2024	90	135	TT

Plot showing number of blows against depth



Plot showing CBR (%) against depth



Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	21.4	260	110	370
2	6.6	486	370	856

Notes

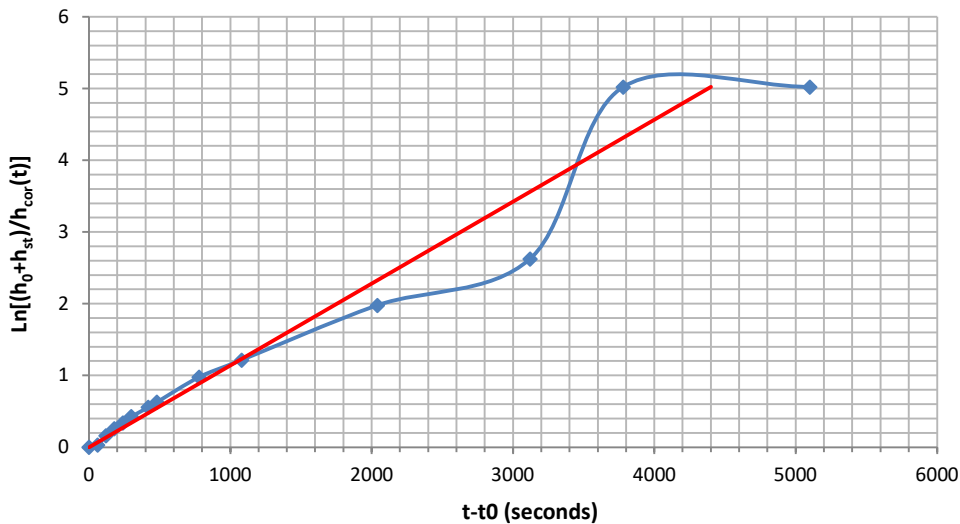
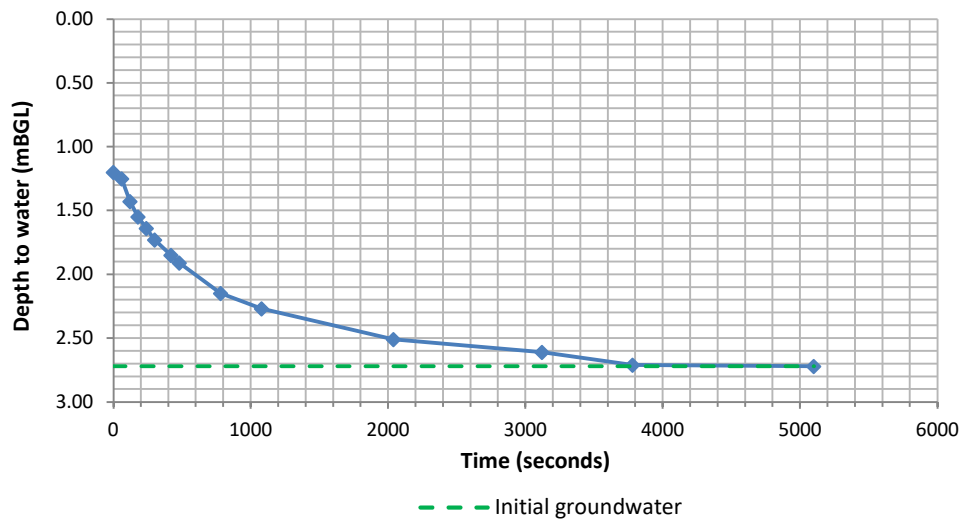
1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$

Permeability test in a borehole using open systems (BS EN ISO 22282-2:2012)

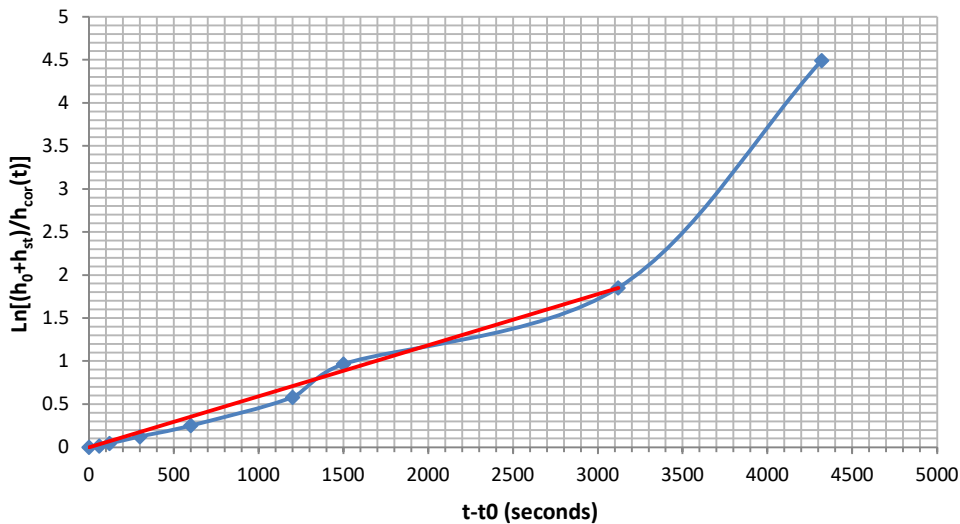
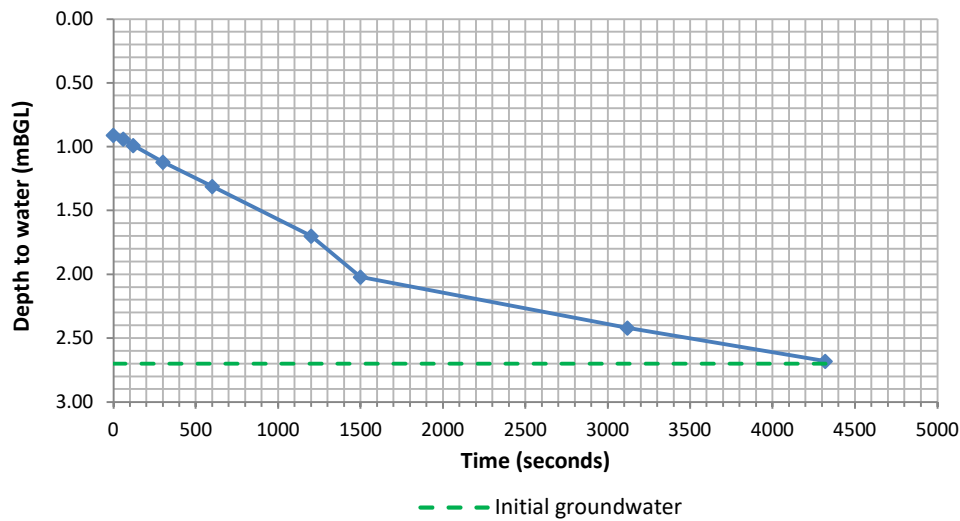
Location	Test number	Test method	Test system	Test date
WS01	1	Falling head	Open borehole	23/04/2024
Top of test section (m)	Bottom of test section (m)	Test section length (m)	Test diameter (m)	
1.20	5.00	3.8	0.087	
Variables at start of test				
Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)		
2.72	1.2	1.52		



F	Shape factor according BS EN ISO 22282-1:2012	5.341 m
S	Cross sectional area of measurement tube	0.0059 m ²
h _{st}	Corrective term to initial static level	0.00E+00 m
α	Gradient of line alpha	1.14E-03 s ⁻¹
k	Permeability (α S / F)	1.27E-06 m/s

Permeability test in a borehole using open systems (BS EN ISO 22282-2:2012)

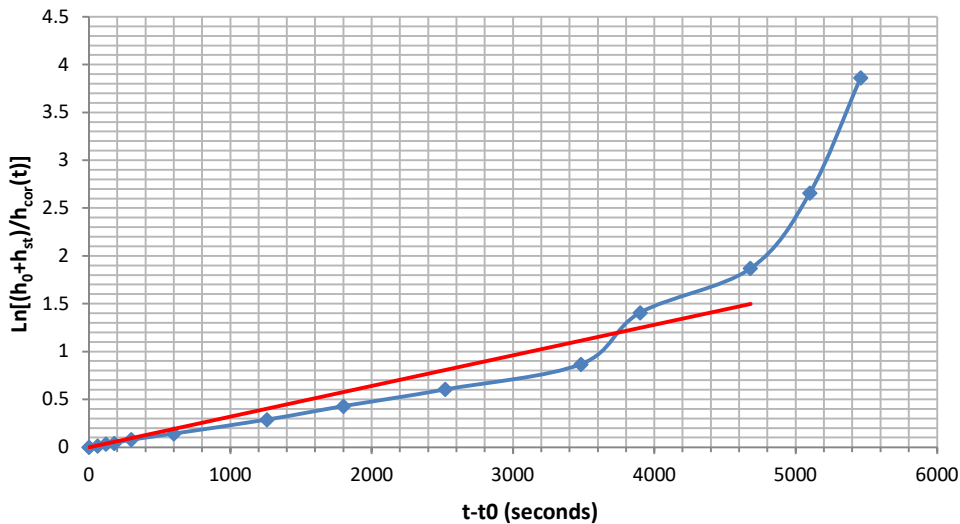
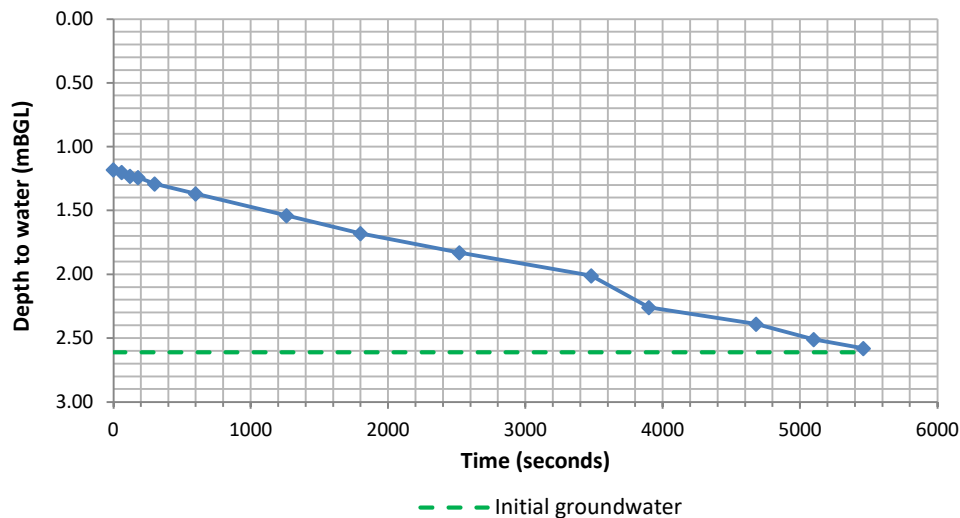
Location	Test number	Test method	Test system	Test date
WS01	2	Falling head	Open borehole	23/04/2024
Top of test section (m)	Bottom of test section (m)	Test section length (m)	Test diameter (m)	
0.92	5.00	4.08	0.087	
Variables at start of test				
Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)		
2.7	0.91	1.79		



F	Shape factor according BS EN ISO 22282-1:2012	5.645 m
S	Cross sectional area of measurement tube	0.0059 m ²
h _{st}	Corrective term to initial static level	0.00E+00 m
α	Gradient of line alpha	5.93E-04 s ⁻¹
k	Permeability (α S / F)	6.24E-07 m/s

Permeability test in a borehole using open systems (BS EN ISO 22282-2:2012)

Location	Test number	Test method	Test system	Test date
WS01	3	Falling head	Open borehole	23/04/2024
Top of test section (m)	Bottom of test section (m)	Test section length (m)	Test diameter (m)	
1.18	5.00	3.82	0.087	
Variables at start of test				
Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)		
2.61	1.18	1.43		



F	Shape factor according BS EN ISO 22282-1:2012	5.363 m
S	Cross sectional area of measurement tube	0.0059 m ²
h _{st}	Corrective term to initial static level	1.00E-06 m
α	Gradient of line alpha	3.21E-04 s ⁻¹
k	Permeability (α S / F)	3.55E-07 m/s

Table summarising Pocket Penetrometer results

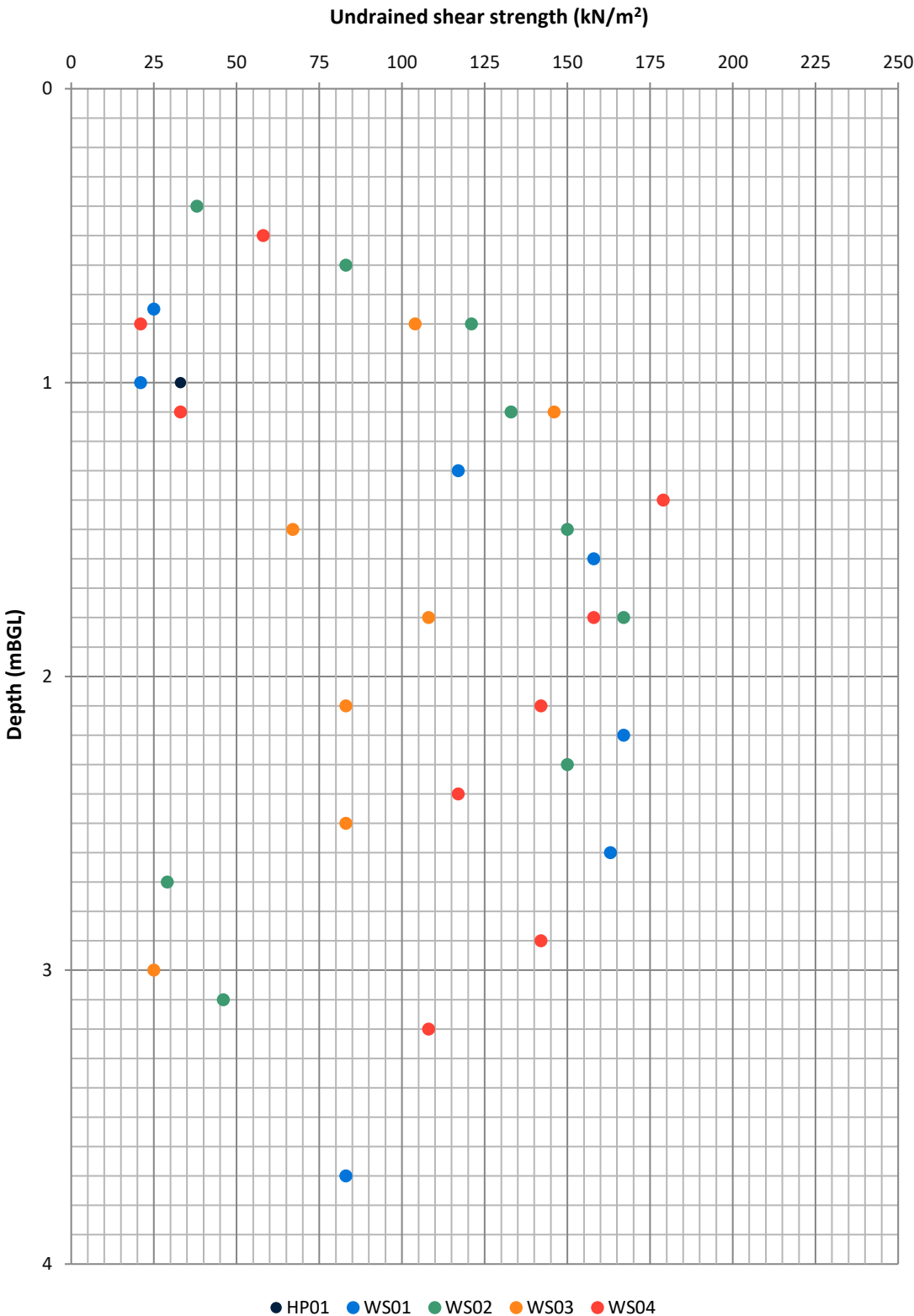
* Instrument limit reached.

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m ²)
HP01	1.00	0.5/0.75/0.75	0.67	33
WS01	0.75	0.5/0.5/0.5	0.50	25
WS01	1.00	0.5/0.25/0.5	0.42	21
WS01	1.30	2.75/2.25/2	2.33	117
WS01	1.60	3/3.25/3.25	3.17	158
WS01	2.20	3/3.75/3.25	3.33	167
WS01	2.60	3.5/3.25/3	3.25	163
WS01	3.70	1.5/1.75/1.75	1.67	83
WS02	0.40	1/0.75/0.5	0.75	38
WS02	0.60	1.75/1.5/1.75	1.67	83
WS02	0.80	2.25/2.5/2.5	2.42	121
WS02	1.10	2.75/2.75/2.5	2.67	133
WS02	1.50	3/3.25/2.75	3.00	150
WS02	1.80	3.5/3/3.5	3.33	167
WS02	2.30	3.25/3/2.75	3.00	150
WS02	2.70	0.5/0.75/0.5	0.58	29
WS02	3.10	0.75/0.75/1.25	0.92	46
WS03	0.80	1.5/2.5/2.25	2.08	104
WS03	1.10	3/3/2.75	2.92	146
WS03	1.50	0.75/1.5/1.75	1.33	67
WS03	1.80	2/2/2.5	2.17	108
WS03	2.10	1.75/1.75/1.5	1.67	83
WS03	2.50	1.75/1.75/1.5	1.67	83
WS03	3.00	0.5/0.5/0.5	0.50	25
WS04	0.50	0.75/1.25/1.5	1.17	58
WS04	0.80	0.25/0.5/0.5	0.42	21
WS04	1.10	0.75/0.75/0.5	0.67	33
WS04	1.40	3.5/3.75/3.5	3.58	179
WS04	1.80	3.25/3.5/2.75	3.17	158
WS04	2.10	3/2.75/2.75	2.83	142
WS04	2.40	2.5/2.5/2	2.33	117
WS04	2.90	3/2.75/2.75	2.83	142
WS04	3.20	2.25/2/2.25	2.17	108

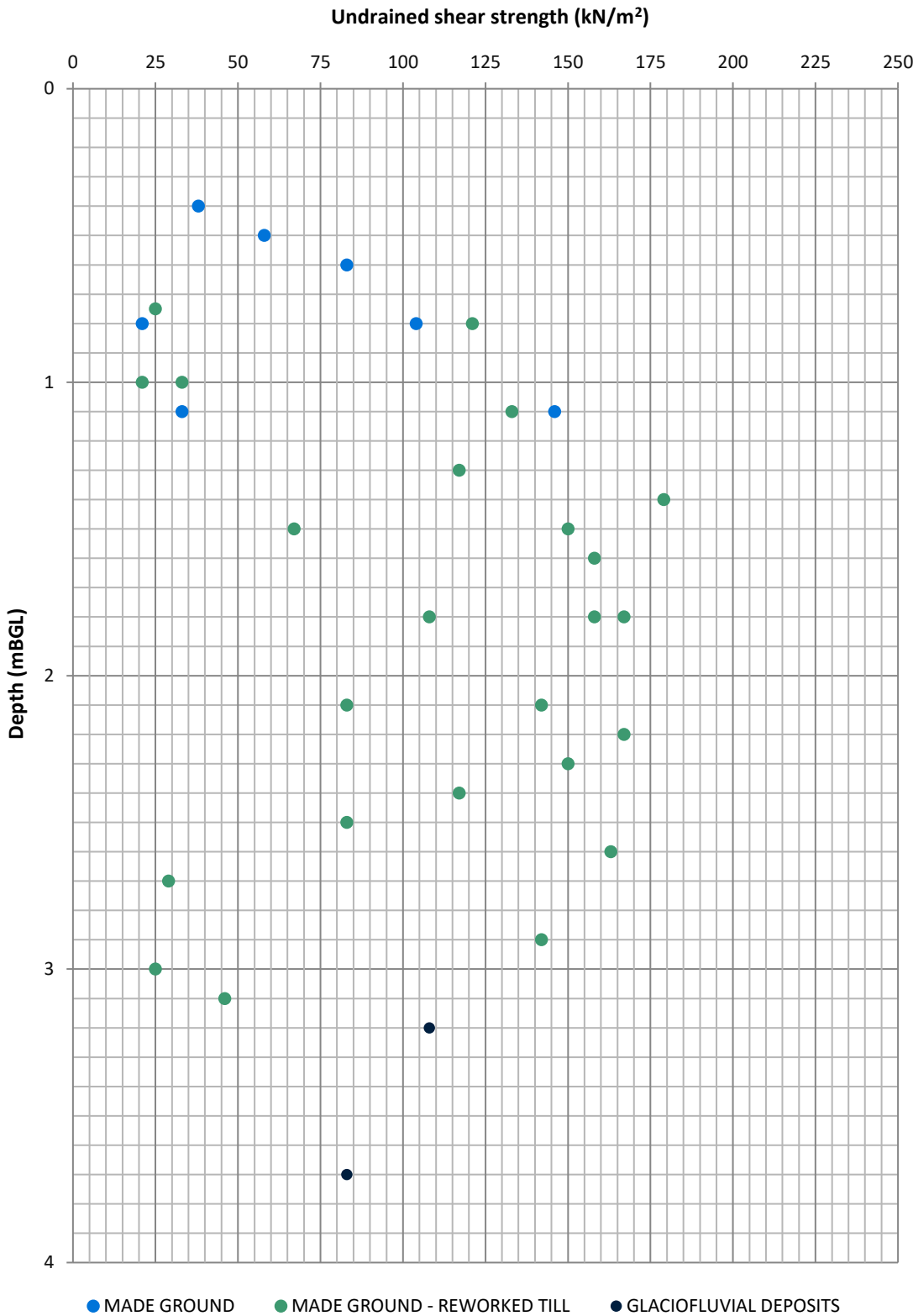
Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)	Penetration (mm)					
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
WS01	1.25	1/2	2/3/4/4	3	13	150	300
WS01	2.00	3/3	3/3/4/4	6	14	150	300
WS01	3.00	0/0	0/0/1/1	0	2	150	300
WS01	4.00	0/0	0/0/0/0	0	0	150	300
WS01	5.00	0/0	0/0/0/0	0	0	150	300
WS02	1.20	1/1	1/3/3/3	2	10	150	300
WS02	2.00	2/3	3/4/4/4	5	15	150	300
WS02	3.00	0/0	1/1/1/1	0	4	150	300
WS02	4.00	0/0	0/0/0/0	0	0	150	300
WS02	5.00	0/0	0/0/0/0	0	0	150	300
WS03	1.20	2/2	2/3/3/3	4	11	150	300
WS03	2.00	3/3	3/3/3/3	6	12	150	300
WS03	3.00	4/4	2/2/2/2	8	8	150	300
WS03	4.00	3/3	3/2/3/3	6	11	150	300
WS03	5.00	2/2	2/2/2/2	4	8	150	300
WS04	1.20	2/2	2/2/2/2	4	8	150	300
WS04	2.00	2/2	3/2/3/3	4	11	150	300
WS04	3.00	1/0	1/1/1/1	1	4	150	300
WS04	4.00	0/0	0/1/1/1	0	3	150	300
WS04	5.00	1/0	1/0/0/0	1	1	150	300

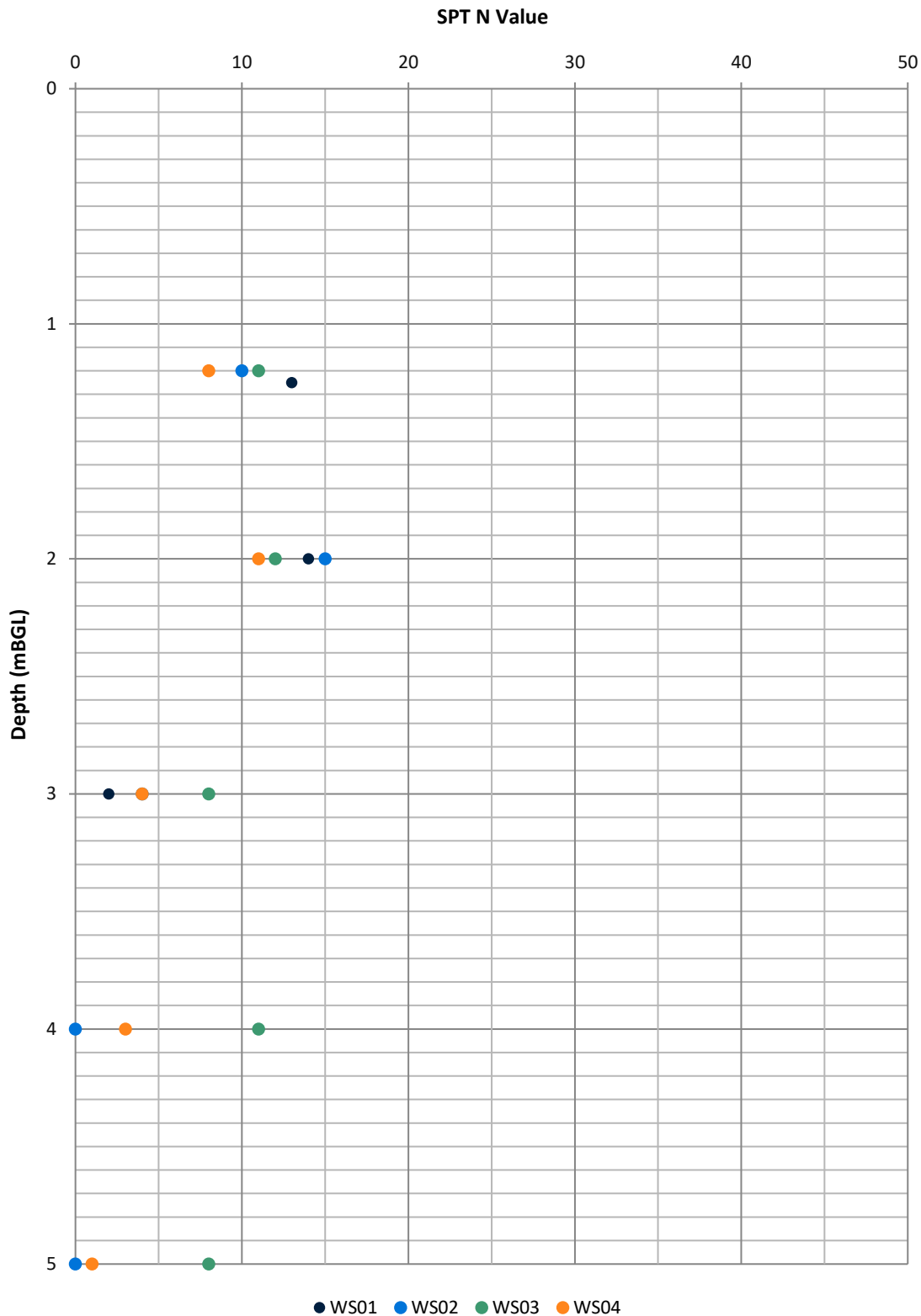
Plot summarising Pocket Penetrometer results versus depth filtered by location



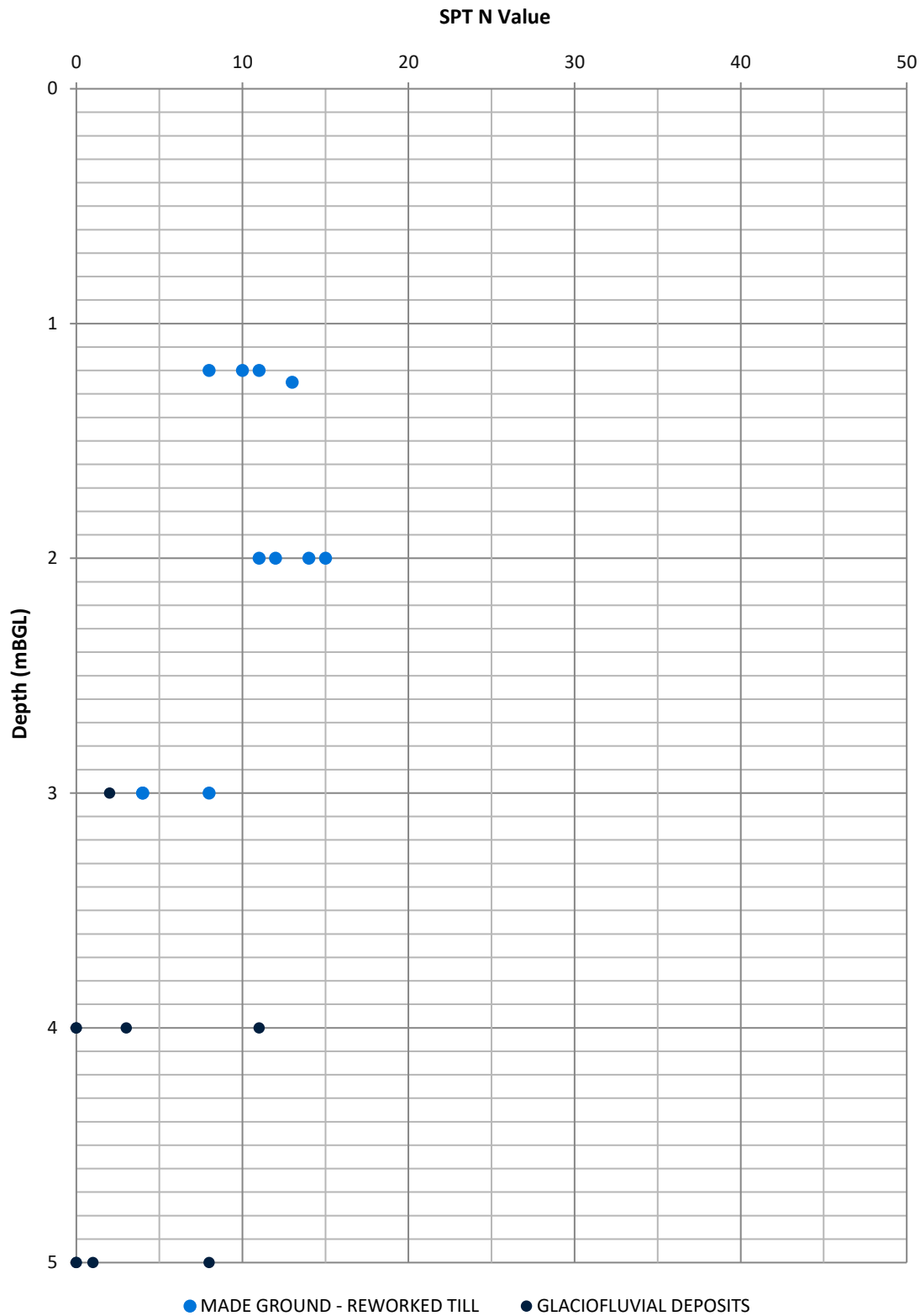
Plot summarising Pocket Penetrometer results versus depth filtered by geology



Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology

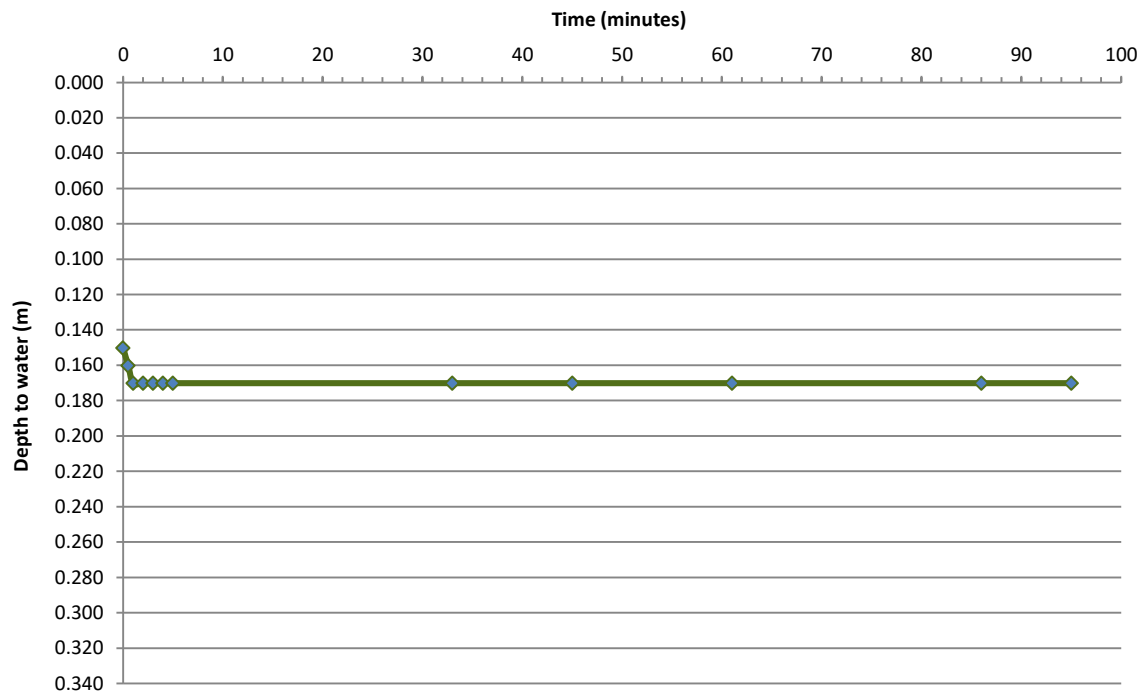


Soil infiltration test (following BRE Digest 365 2016)

Location	Cycle	Test date	Plan dimensions (m)
HP02	1	23/04/2024	0.30 x 0.30

Groundwater observations (at time of excavation)
No groundwater encountered.

Depth of pit at start (m)	Depth of pit at end (m)
0.34	0.34



Insufficient infiltration over 95 minutes of monitoring therefore unable to calculate soil infiltration rate.

Appendix D Geotechnical Laboratory Test Results



TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
cl 5.3.14, 5.5, Fall Cone Method, 1 Pt Test, BS 1377-2:2022,
cl 5.3, 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton, NN6 9PY

Contact: Admin
Site Address: Back O'th Moss, Heywood

Client Reference: STW6378
Job Number: 24-016174-1
Date Sampled: 23/04/2024
Date Received: 25/04/2024
Date Tested: 03/05/2024
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

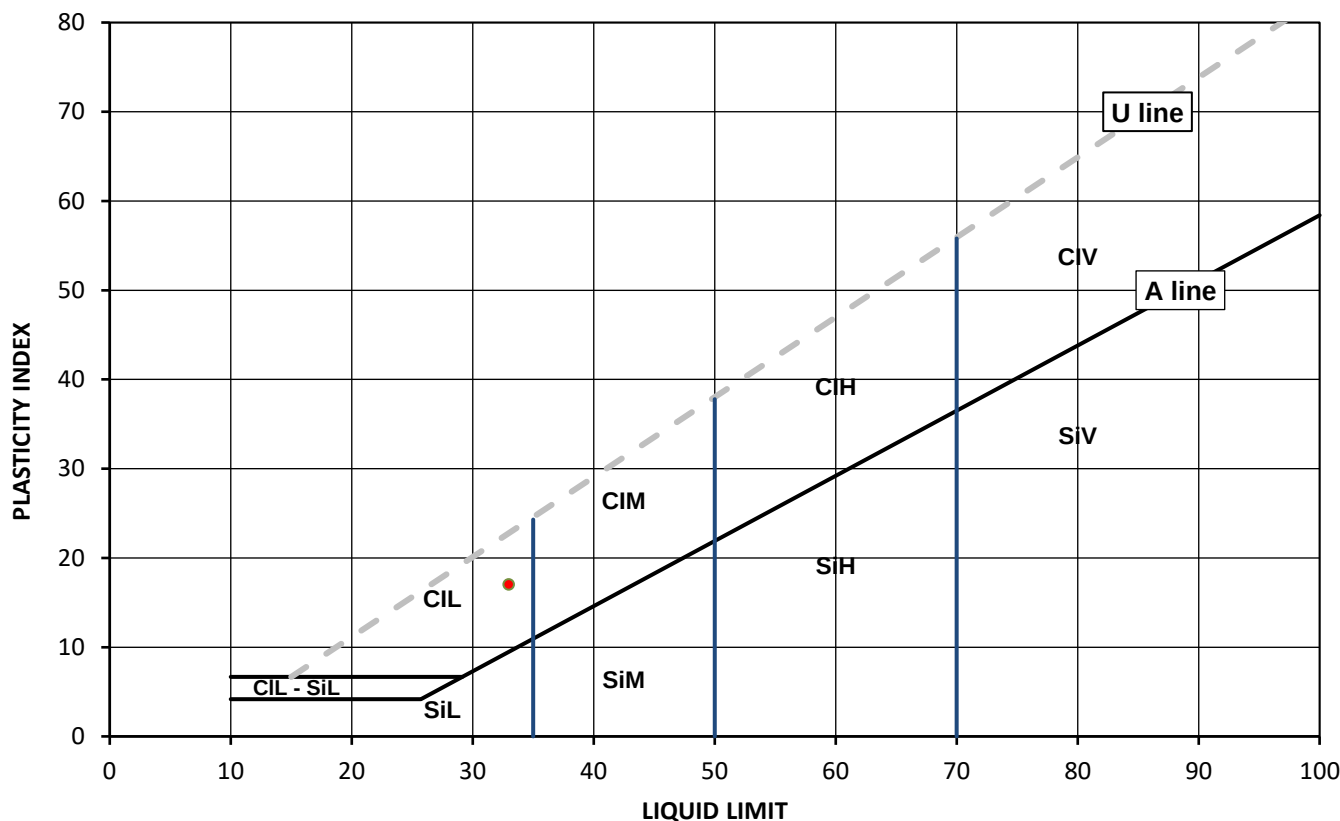
Test Results:

Laboratory Reference: 180743
Hole No.: WS01
Sample Reference: WS012.003
Sample Description: Brown slightly gravelly very sandy CLAY

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after >0.425 mm removed by hand;
Cone Type: 80g/30deg

As Received Water Content [W] %	Corrected Liquid Limit [WL] %	Correlation Factor	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity index [IL] % #	Consistency index [IC] % #	% Passing 425µm BS Test Sieve
14.4	33	0.971	16	17	-0.12	1.12	95



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity	Liquid Limit
Cl	Clay	L Low	below 35
Si	Silt	M Medium	35 to 50
		H High	50 to 70
		V Very high	exceeding 70
		O Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN 17892-1: 2014; Correlation Factor by Clayton C.R.I and Jukes A.W (1978); # Non accredited

Remarks:

Signed:

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Katarzyna Koziel

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022,
cl 5.3.14, 5.5, Fall Cone Method, 1 Pt Test, BS 1377-2:2022,
cl 5.3, 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton, NN6 9PY

Contact: Admin
Site Address: Back O'th Moss, Heywood

Client Reference: STW6378
Job Number: 24-016174-1
Date Sampled: 23/04/2024
Date Received: 25/04/2024
Date Tested: 03/05/2024
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

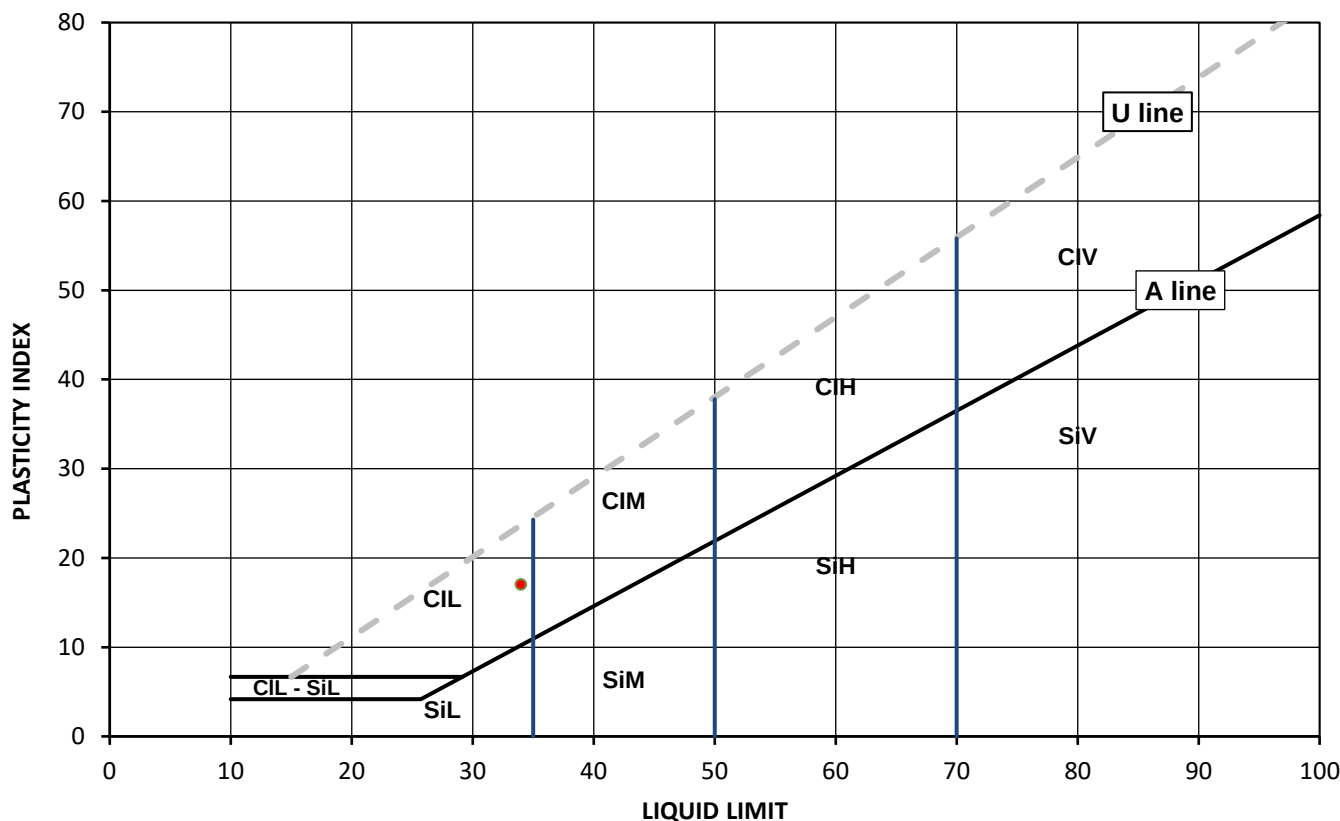
Test Results:

Laboratory Reference: 180744
Hole No.: WS04
Sample Reference: WS042.002
Sample Description: Brown slightly gravelly very sandy CLAY

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after >0.425 mm removed by hand;
Cone Type: 80g/30deg

As Received Water Content [W] %	Corrected Liquid Limit [WL] %	Correlation Factor	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity index [IL] % #	Consistency index [IC] % #	% Passing 425µm BS Test Sieve
15.0	34	1.000	17	17	-0.12	1.12	97



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg ClHO)

Note: Water Content by BS EN 17892-1: 2014; Correlation Factor by Clayton C.R.I and Jukes A.W (1978); # Non accredited

Remarks:

Signed:

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Katarzyna Koziel

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd



SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with:

BS EN ISO 17892-12:2018+A2:2022, cl 5.3.14, 5.5, Fall Cone Method, 1 Pt Test, BS 1377-2:2022, cl 5.3, 6. Correlation Factor by Clayton C.R.I and Jukes A.W (1978). W by BS EN 17892-1:2014.

Client Reference: STW6378
Job Number: 24-016174-1
Date Sampled: 23/04/2024
Date Received: 25/04/2024
Date Tested: 03/05/2024
Sampled By: Not Given

4041

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton, NN6 9PY

Contact: Admin
Site Address: Back O'th Moss, Heywood

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	W	Liquid & Plastic Limit							Density		
		Reference	Depth Top	Depth Base	Type				% Passing 425um	WL*	Correlation Factor	Wp	Ip	Cone type	Sample Preparation	bulk	dry	PD
			m	m												Mg/m3	Mg/m3	Mg/m3
180743	WS01	WS012.003	2.00	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	14.4	95	33	0.971	16	17	80g/30 deg	R			
180744	WS04	WS042.002	2.00	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	15.0	97	34	1.000	17	17	80g/30 deg	R			

Note: # Non accredited; NP - Non plastic; N - Tested in natural condition, R - Tested after >0.425mm removed by hand, W - Tested after washing to remove >425mm; * - One point liquid limit corrected as per the report Correlation Factor by Clayton C.R.I and Jukes A.W (1978)

Comments:

Signed:

Katarzyna Koziel

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016,
BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton, NN6 9PY

Contact: Admin
Site Address: Back O'th Moss, Heywood

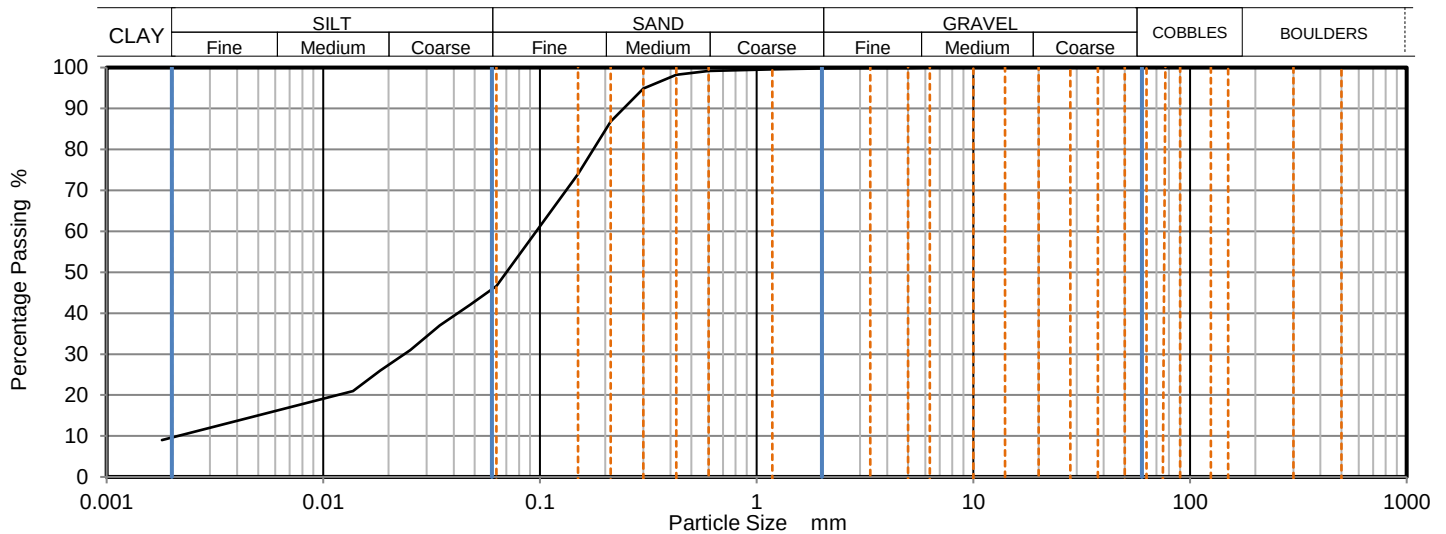
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Client Reference: STW6378
Job Number: 24-016174-1
Date Sampled: 23/04/2024
Date Received: 25/04/2024
Date Tested: 03/05/2024
Sampled By: Not Given

Test Results:

Laboratory Reference: 180745
Hole No.: WS04
Sample Reference: WS044.503
Sample Description: Brown sandy clayey SILT
Sample Preparation: Sample was quartered, oven dried at 108.6 °C and broken down by hand.

Depth Top [m]: 4.50
Depth Base [m]: Not Given
Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0474	42
300	100	0.0345	37
150	100	0.0252	31
125	100	0.0183	26
90	100	0.0137	21
75	100	0.0018	9
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99	Particle density (assumed) 2.65 Mg/m3	
0.425	98		
0.3	95		
0.212	87		
0.15	74		
0.063	47		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.00
Sand	54.00
Silt	37.00
Clay	9.00

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving and hydrometer sedimentation

Remarks:

Signed:

Katarzyna Koziel

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

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Soiltechnics Limited
Cedar Barn
White Lodge
Walgrave, Northampton
NN6 9PY

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

e: admin@soiltechnics.net

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-016175

Project / Site name:	Back O'th Moss, Heywood	Samples received on:	25/04/2024
Your job number:	STW6378	Samples instructed on/ Analysis started on:	25/04/2024
Your order number:	POR018571	Analysis completed by:	03/05/2024
Report Issue Number:	1	Report issued on:	06/05/2024
Samples Analysed:	3 soil samples		

Signed:

Izabela Wójcik

Izabela Wójcik
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-016175
 Project / Site name: Back O'th Moss, Heywood
 Your Order No: POR018571

Lab Sample Number				180746	180747	180748
Sample Reference				HP02	WS01	WS03
Sample Number				HP020.251	WS012.003	WS034.003
Depth (m)				0.25	2.00	4.00
Date Sampled				23/04/2024	23/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status

Stone Content	%	0.1	NONE	44.5	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	5.3	11	11
Total mass of sample received	kg	0.1	NONE	0.7	0.7	0.7

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.6	7.5	7.7
Total Sulphate as SO ₄	%	0.005	MCERTS	0.015	0.024	0.013
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	46	65	44
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	23	32.4	21.9
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2.1	0.7	< 0.5
Total Sulphur	mg/kg	50	MCERTS	170	120	77
Total Sulphur	%	0.005	MCERTS	0.017	0.012	0.008
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	2.6	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	5.2	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-016175

Project / Site name: Back O'th Moss, Heywood

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
180746	HP02	HP020.251	0.25	Brown gravelly sand with stones
180747	WS01	WS012.003	2	Brown clay and sand with gravel
180748	WS03	WS034.003	4	Brown clay and sand with gravel

Analytical Report Number : 24-016175

Project / Site name: Back O'th Moss, Heywood

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Appendix E Geoenvironmental Laboratory Test Results



Final Report

Report No.: 24-13273-1

Initial Date of Issue: 02-May-2024

Re-Issue Details:

Client Soiltechnics Limited

Client Address: 1st Floor Unit 9 Westpoint Enterprise
Park
Clarence Avenue
Trafford Park
Manchester
M17 1QS

Contact(s): Admin

Project STW6378 Back O'th Moss, Heywood

Quotation No.: **Date Received:** 26-Apr-2024

Order No.: POR018570 **Date Instructed:** 26-Apr-2024

No. of Samples: 1

Turnaround (Wkdays): 5 **Results Due:** 02-May-2024

Date Approved: 02-May-2024

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: STW6378 Back O'th Moss, Heywood

Client: Soiltechnics Limited		Chemtest Job No.:				24-13273
Quotation No.:		Chemtest Sample ID.:				1799699
Order No.: POR018570		Client Sample Ref.:				1
		Client Sample ID.:				WAC010.001
		Sample Location:				WAC01
		Sample Type:				SOIL
		Top Depth (m):				0.00
		Date Sampled:				23-Apr-2024
		Asbestos Lab:				DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD	
ACM Type		U	2192		N/A	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected
Moisture		N	2030	%	0.020	16
Soil Colour		N	2040		N/A	Brown
Other Material		N	2040		N/A	Stones
Soil Texture		N	2040		N/A	Loam
pH at 20C		M	2010		4.0	8.0
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	< 0.40
Cyanide (Complex)		M	2300	mg/kg	0.50	< 0.50
Cyanide (Free)		M	2300	mg/kg	0.50	< 0.50
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50
Arsenic		M	2455	mg/kg	0.5	19
Beryllium		U	2455	mg/kg	0.5	0.9
Cadmium		M	2455	mg/kg	0.10	0.16
Chromium		M	2455	mg/kg	0.5	13
Copper		M	2455	mg/kg	0.50	95
Mercury		M	2455	mg/kg	0.05	0.32
Nickel		M	2455	mg/kg	0.50	24
Lead		M	2455	mg/kg	0.50	280
Selenium		M	2455	mg/kg	0.25	0.56
Vanadium		U	2455	mg/kg	0.5	19
Zinc		M	2455	mg/kg	0.50	160
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50
LOI		M	2610	%	0.10	6.9
Organic Matter		M	2625	%	0.40	16
TPH >C5-C6	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0
TPH >C6-C7	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0
TPH >C7-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	15
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	42
TPH >C21-C35	EH_1D_Total	N	2670	mg/kg	1.0	710
Total TPH >C5-C35		N	2670	mg/kg	10	770
Naphthalene		M	2800	mg/kg	0.10	0.67
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10

Results - Soil

Project: STW6378 Back O'th Moss, Heywood

Client: Soiltechnics Limited		Chemtest Job No.:	24-13273			
Quotation No.:		Chemtest Sample ID.:	1799699			
Order No.: POR018570		Client Sample Ref.:	1			
		Client Sample ID.:	WAC010.001			
		Sample Location:	WAC01			
		Sample Type:	SOIL			
		Top Depth (m):	0.00			
		Date Sampled:	23-Apr-2024			
		Asbestos Lab:	DURHAM			
Determinand	HWOL Code	Accred.	SOP	Units	LOD	
Acenaphthene		M	2800	mg/kg	0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	5.9
Anthracene		M	2800	mg/kg	0.10	1.4
Fluoranthene		M	2800	mg/kg	0.10	7.2
Pyrene		M	2800	mg/kg	0.10	6.1
Benzo[a]anthracene		M	2800	mg/kg	0.10	3.5
Chrysene		M	2800	mg/kg	0.10	3.8
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	4.5
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	2.1
Benzo[a]pyrene		M	2800	mg/kg	0.10	3.7
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	2.5
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	1.4
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	2.7
Total Of 16 PAH's		N	2800	mg/kg	2.0	46
Total Phenols		M	2920	mg/kg	0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

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Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

Report Information

PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

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
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



Final Report

Report No.: 24-13274-1

Initial Date of Issue: 03-May-2024

Re-Issue Details:

Client Soiltechnics Limited

Client Address: 1st Floor Unit 9 Westpoint Enterprise
Park
Clarence Avenue
Trafford Park
Manchester
M17 1QS

Contact(s): Admin

Project STW6378 Back O'th Moss, Heywood

Quotation No.: **Date Received:** 26-Apr-2024

Order No.: POR018570 **Date Instructed:** 26-Apr-2024

No. of Samples: 1

Turnaround (Wkdays): 7 **Results Due:** 07-May-2024

Date Approved: 03-May-2024

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - 2 Stage WAC

Project: STW6378 Back O'th Moss, Heywood

Chemtest Job No: 24-13274 Chemtest Sample ID: 1799700 Sample Ref: 1 Sample ID: WAC010.001 Sample Location: WAC01 Top Depth(m): 0.00 Bottom Depth(m): Sampling Date: 23-Apr-2024							Landfill Waste Acceptance Criteria			
			Limits							
			Inert Waste Landfill				Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill		
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				9.5	3	5	6
Loss On Ignition	2610	M	%				4.9	--	--	10
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg				520	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				130	100	--	--
pH at 20C	2010	M					8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				0.018	--	To evaluate	To evaluate
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg			
Arsenic	1455	U	0.0041	0.0055	0.0082	0.053	0.5	2	25	
Barium	1455	U	0.048	0.017	0.095	0.22	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5	
Chromium	1455	U	0.0052	0.0028	0.010	0.032	0.5	10	70	
Copper	1455	U	0.0026	0.0026	0.0051	0.0041	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2	
Molybdenum	1455	U	0.042	0.0068	0.083	0.12	0.5	10	30	
Nickel	1455	U	0.0052	0.0025	0.010	0.029	0.4	10	40	
Lead	1455	U	0.0007	0.0019	0.0013	0.017	0.5	10	50	
Antimony	1455	U	0.0071	0.0018	0.014	0.027	0.06	0.7	5	
Selenium	1455	U	0.0012	0.0006	0.0024	0.0070	0.1	0.5	7	
Zinc	1455	U	0.011	0.011	0.022	0.11	4	50	200	
Chloride	1220	U	1.1	< 1.0	< 10	< 10	800	15000	25000	
Fluoride	1220	U	0.41	0.19	< 1.0	2.2	10	150	500	
Sulphate	1220	U	26	3.1	51	67	1000	20000	50000	
Total Dissolved Solids	1020	N	170	58	330	750	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	5.8	3.8	< 50	< 50	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	16

Leachate Test Information	
Leachant volume 1st extract/l	0.316
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.276

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	
2010	pH Value of Soils	pH at 20°C	pH Meter	
2015	Acid Neutralisation Capacity	Acid Reserve	Titration	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
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HWOL Acronym System

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1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

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customerservices@chemtest.com

Appendix F Contamination Assessment Screening

GQRA Screening

Assessments	Status	Date	Created by	Reviewed By
Acute human health risk - Soils	Not undertaken			
Chronic human health risk - Soils	Completed	03/05/24	CB	SCD
Chronic human health risk - Groundwater vapour	Not undertaken			
Controlled waters risk - Surface water	Not undertaken			
Controlled waters risk - Drinking water	Not undertaken			
Controlled waters - Free phase indicator	Not undertaken			
Phytotoxicity	Not undertaken			
Ecotoxicity	Not undertaken			

Key

Assessment	Abbr.	GQRA Source (in order of preference)	Last Update
All	NGA	No guideline value available	-
Chronic human health risk - Soils	C4SL	Category 4 Screening Levels (DEFRA)	May 2021
	S4UL	Suitable 4 Use Levels (LQM)	August 2015
	ATK	Atrisk Soil Screening Values (Atkins)	June 2017
	CL:AIRE	Generic Assessment Criteria (CL:AIRE)	Jan 2010

Chronic human health risk (soils)

Scenario					
End user	Current and proposed site user				
Receptor	Residential without homegrown produce				
SOM	1.00%				
GAC Preference	C4SLs over S4ULs				
Unspeciated TPH GAC	Worst-case aliphatic/aromatic				
Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	WAC01
				Depth (m)	0.00
				Date	23/04/24
Inorganics - Metals					
Arsenic	C4SL	40	19		19
Beryllium	S4UL	1.7	0.9		0.9
Boron	S4UL	11000	<LoD		< 0.40
Cadmium	C4SL	150	0.16		0.16
Chromium (III)	S4UL	910	13		13
Chromium (VI)	C4SL	21	<LoD		< 0.50
Copper	S4UL	7100	95		95
Cyanide - Free	ATK	34	<LoD		< 0.50
Lead	C4SL	310	280		280
Mercury	S4UL	56	0.32		0.32
Nickel	S4UL	180	24		24
Selenium	S4UL	430	0.56		0.56
Vanadium	S4UL	1200	19		19
Zinc	S4UL	40000	160		160
Inorganics - Asbestos					
Asbestos Type		N/A			-
Asbestos Screen		N/A			No Asbestos Detected
Inorganics - Soil Parameters					
Organic matter		N/A			16
Organics - PAH & Phenol					
Acenaphthene	S4UL	3000	<LoD		< 0.10
Acenaphthylene	S4UL	2900	<LoD		< 0.10
Anthracene	S4UL	31000	1.4		1.4
Benzo(a)anthracene	S4UL	11	3.5		3.5
Benzo(a)pyrene	C4SL	5.3	3.7		3.7
Benzo(b)fluoranthene	S4UL	3.9	4.5		4.5
Benzo(ghi)perylene	S4UL	360	2.7		2.7
Benzo(k)fluoranthene	S4UL	110	2.1		2.1
Chrysene	S4UL	30	3.8	3.8	
Dibenz(a,h)anthracene	S4UL	0.31	1.4	1.4	
Fluoranthene	S4UL	1500	7.2	7.2	
Fluorene	S4UL	2800	<LoD	< 0.10	
Indeno(1,2,3-cd)pyrene	S4UL	45	2.5	2.5	
Naphthalene	S4UL	2.3	0.67	0.67	
Phenanthrene	S4UL	1300	5.9	5.9	
Phenol	S4UL	440	<LoD	< 0.10	
Pyrene	S4UL	3700	6.1	6.1	
Organics - Banded TPH (unspeciated)					
EC >5-EC6 (unspeciated)	S4UL	42	<LoD	< 1.0	
EC >6-EC7 (unspeciated)	S4UL	100	<LoD	< 1.0	
EC >7-EC8 (unspeciated)	S4UL	100	<LoD	< 1.0	
EC >08-EC10 (unspeciated)	S4UL	27	<LoD	< 1.0	
EC >10-EC12 (unspeciated)	S4UL	130	<LoD	< 1.0	
EC >12-EC16 (unspeciated)	S4UL	1100	15	15	
EC >16-EC21 (unspeciated)	S4UL	1900	42	42	
EC >21-EC35 (unspeciated)	S4UL	1900	710	710	

Appendix G Waste Characterisation Assessment

Waste Classification Assessment Summary

Waste population	Made Ground - dark brown clay/sand/gravel with gravels comprising brick, concrete, coal, sandstone
Hazard assessment	Non-hazardous waste
List of waste code	17-05-04
List of waste description	Soil and stones other than those mentioned in 17-05-03

Hazard property	Assessment
HP1 - Explosive	Not hazardous by HP1
HP2 - Oxidising	Not hazardous by HP2
HP3 - Flammable	Not hazardous by HP3
HP4 - Irritant	Not hazardous by HP4
HP5 - STOT & aspiration toxicity	Not hazardous by HP5
HP6 - Acute toxicity	Not hazardous by HP6
HP7 - Carcinogenic	Not hazardous by HP7
HP8 - Corrosive	Not hazardous by HP8
HP9 - Infectious	Not hazardous by HP9
HP10 - Toxic for reproduction	Not hazardous by HP10
HP11 - Mutagenic	Not hazardous by HP11
HP12 - Release of an acute toxic gas	Not hazardous by HP12
HP13 - Sensitising	Not hazardous by HP13
HP14 - Ecotoxic	Not hazardous by HP14

Waste classification

Overall assessment	
Waste population	Made Ground - dark brown clay/sand/gravel with gravels comprising brick, concrete, coal, sandstone
Hazard assessment	Non-hazardous waste
List of Waste code	17-05-04
List of waste description	Soil and stones other than those mentioned in 17-05-03
Is the statistical approach non-parametric, method B utilized?	No
Moisture content correction factor	No correction made

Asbestos assessment		
Query	Value	Assessment
Are bulk ACMs visually identifiable?	No	Non-hazardous
Have free fibres been detected?	No	Non-hazardous
What is the free fibre concentration (%)?	N/A	Non-hazardous

Flammability assessment	
Comment	Assessment
The waste is not considered flammable as it is a solid waste without a free draining liquid phase, and the TPH concentration and composition is not considered to present a likely flammable hazard.	Non-hazardous

Hydrocarbon assessment	
Query	Assessment
Is the origin of the oil contamination known?	Unknown oil
B(a)P : TPH ratio (%)	Not required
B(a)P marker assessment	Not required

pH assessment		
Query	Value	Assessment
Are all substances present in the waste known?	No	See pH assessment below
pH - Min	8.00	Non-hazardous
pH - Max	8.00	Non-hazardous

Oxidising assessment	
Comment	Assessment
Cr (VI) is the only compound with an oxidising hazard statement (H271). On review, the concentration is considered too low to present a viable oxidising hazard in a waste soil	Non-hazardous

Ecotoxic assessment			
Equation	Sum	Criteria	Assessment
WM3, Eq. 2	0.00%	25%	Non-hazardous
WM3 Eq. 3	0.00%	25%	Non-hazardous
WM3 Eq. 4	0.00%	25%	Non-hazardous

Compound hazard assessments

[illegible]

Waste acceptance

Parameter	Inert waste landfill	Stable non-reactive hazardous waste in a non-hazardous landfill cell (SNRHW)	Hazardous waste landfill	Location	WAC01
				Depth (m)	0.00
				Date	23/04/24
Parameters determined on the waste					
Total organic carbon	3	5	6		9.5
Loss on ignition			10		6.9
BTEX	6				< 0.010
PCBs (7 congeners)	1				< 0.10
Mineral oil	500				520
PAH (17 congeners)	100				130
pH		6			8
Acid neutralisation capacity (pH 6)		To be evaluated	To be evaluated		0.018
Limit values (mg kg ⁻¹) for compliance test using BN 12457-3 at L/S 10 l					
Arsenic	0.5	2	25		0.053
Barium	20	100	300		0.22
Cadmium	0.04	1	5		< 0.00011
Chromium (III)	0.5	10	70		0.032
Copper	2	50	100		0.0041
Mercury	0.01	0.2	2		< 0.00005
Molybdenum	0.5	10	30		0.12
Nickel	0.4	10	40		0.029
Lead	0.5	10	50		0.017
Antimony	0.06	0.7	5		0.027
Selenium	0.1	0.5	7		0.007
Zinc	4	50	200		0.11
Chloride	800	15,000	25,000		< 10
Fluoride	10	150	500		2.2
Sulphate	1,000	20,000	50,000		67
Total dissolved solids	4,000	60,000	100,000		750
Phenol	1				< 0.50
Dissolved organic carbon	500	800	1000		< 50
Classifications					
Waste classification					Non-hazardous
Landfill type					Non-hazardous

- Key Notes:**
- 1) The values for total dissolved solids (TDS) can be used alternatively to the values for sulphate and chloride.
- 2) Soils with TOC values over the limit value may still be accepted provided the DOC value falls are below it's respective limit value.
- 3) In a hazardous waste, either the TOC or LOI must be used.
- 4) Where Notes 1, 2, and 3 can apply, the waste contractor or landfill operator should be contacted to determine acceptance.

Appendix H Statutory Undertakers Responses

Soiltechnics

**Soiltechnics
Cedar Barn,
Walgrave,
NN6 9PY**

FAO:**How to contact us:**

**United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP**

Telephone: 0370 7510101**E-mail: propertysearches@uuplc.co.uk**

**Your Ref: STW6378
Our Ref: UUPS-ORD-547599
Date: 08/02/2024**

Dear Sirs**Location: Back O'th Moss Heywood**

I acknowledge with thanks your request dated 07/02/2024 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack
Property Searches Manager

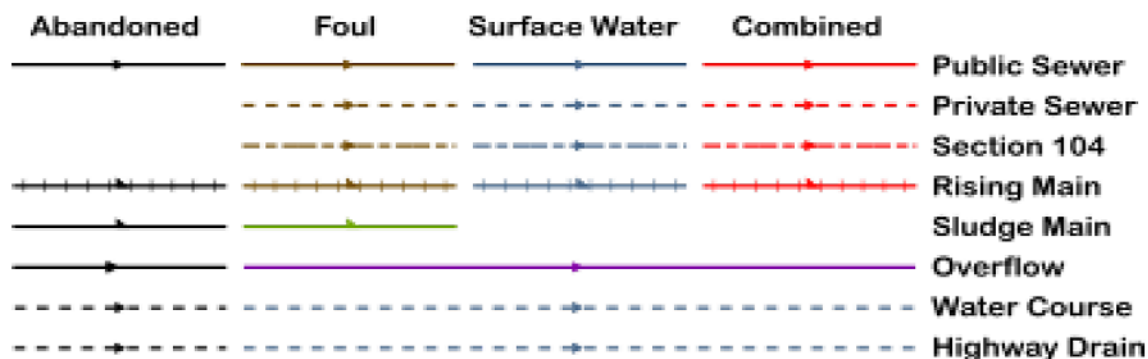
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

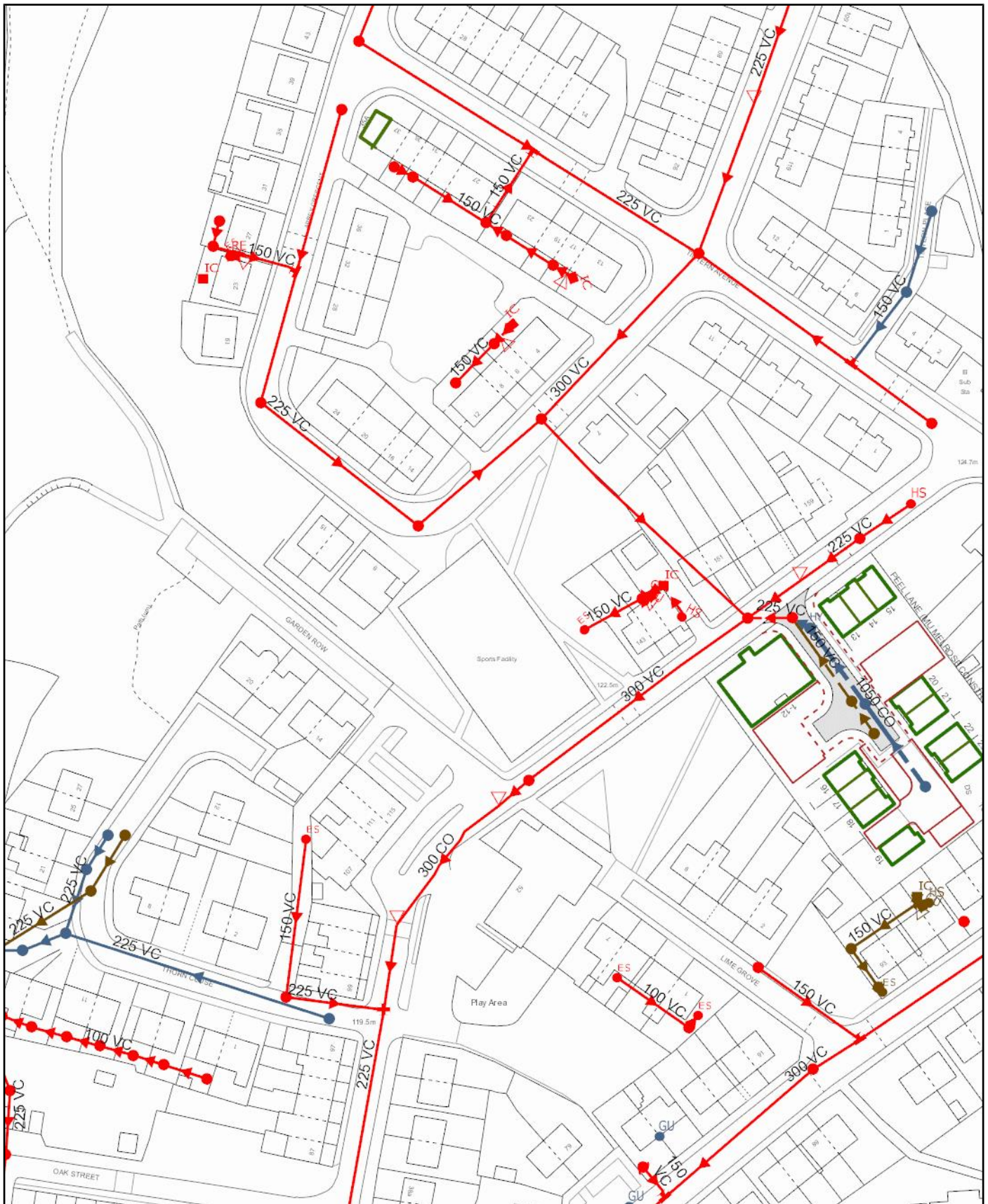
- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

Wastewater Symbolology



All point assets follow the standard colour convention: **red** – combined **brown** - foul
blue – surface water **purple** - overflow

Manhole	Side Entry Manhole
Head of System	Outfall
Extent of Survey	Screen Chamber
Rodding Eye	Inspection Chamber
Inlet	Bifurcation Chamber
Discharge Point	Lamp Hole
Vortex	T Junction / Saddle
Penstock	Catchpit
Washout Chamber	Valve Chamber
Valve	Vent Column
Air Valve	Vortex Chamber
Non Return Valve	Penstock Chamber
Soakaway	Network Storage Tank
Gully	Sewer Overflow
Cascade	Ww Treatment Works
Flow Meter	Ww Pumping Station
Hatch Box	Septic Tank
Oil Interceptor	Control Kiosk
Summit	
Drop Shaft	Change of Characteristic
Orifice Plate	



Scale: 1:1250
Date: 08/02/2024

SEWER RECORDS



Water for the North West

Address or Site Reference: Back O'th Moss Heywood
Printed by: Property Searches

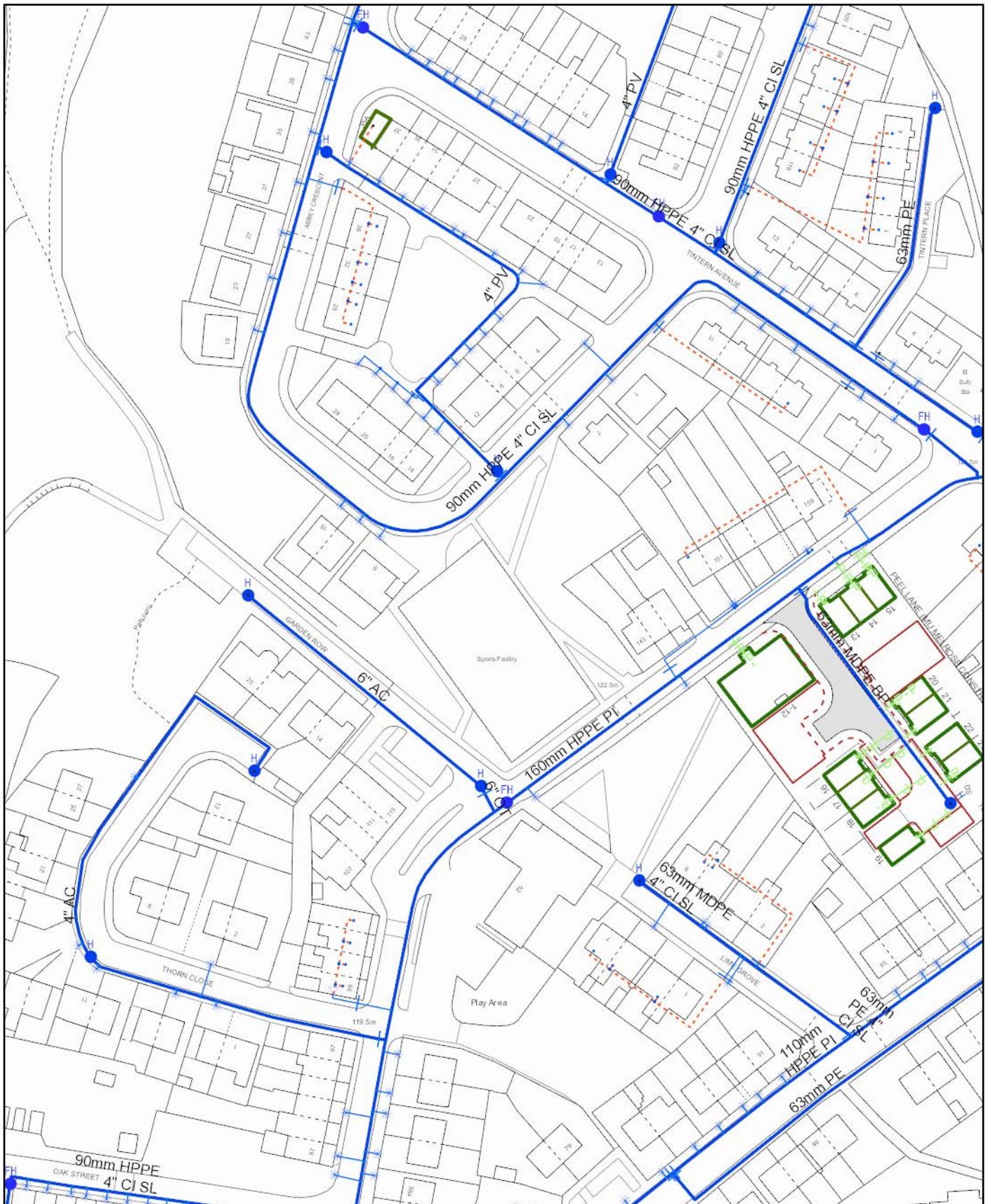
The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Clean Water Symbolology

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Concessionary Service
			Raw Water
			LDTM Raw Water
			LDTM Treated Water
			Air Valve
			AC Valve, open
			AC Valve, closed
			CC Valve, open
			CC Valve, closed
			Non Return Valve
			Pressure Management Valve
			OMS Valve
			Stop Tap
			Flow Meter
			Domestic Meter
			Commercial Meter
			Pump
			Hydrant
			Fire Hydrant
			Anode
			Chlorination Point
			De-chlorination Point
			Strainer Point
			Access Point
			Hatch Box
			IP Point
			Sampling Station
			Logger Box
			Bore Hole
			Inlet Point
			Bulk Supply Point
			End Cap
			Site Termination
			Change of Characteristic
			Condition Report
			<u>Property Types</u>
			Water Tower
			Valve House
			Booster Pumping Station
			Intake Pumping Station
			Water Treatment Works
			Supply Reservoir
			Service Reservoir
			Impounding Reservoir
			Pipe Bridge

Symbology for proposed assets is the same as above, but shown in **green**
 Symbology for abandoned assets is the same as above, but shown in **black**



Scale: 1:1250
Date: 08/02/2024

WATER MAINS RECORDS

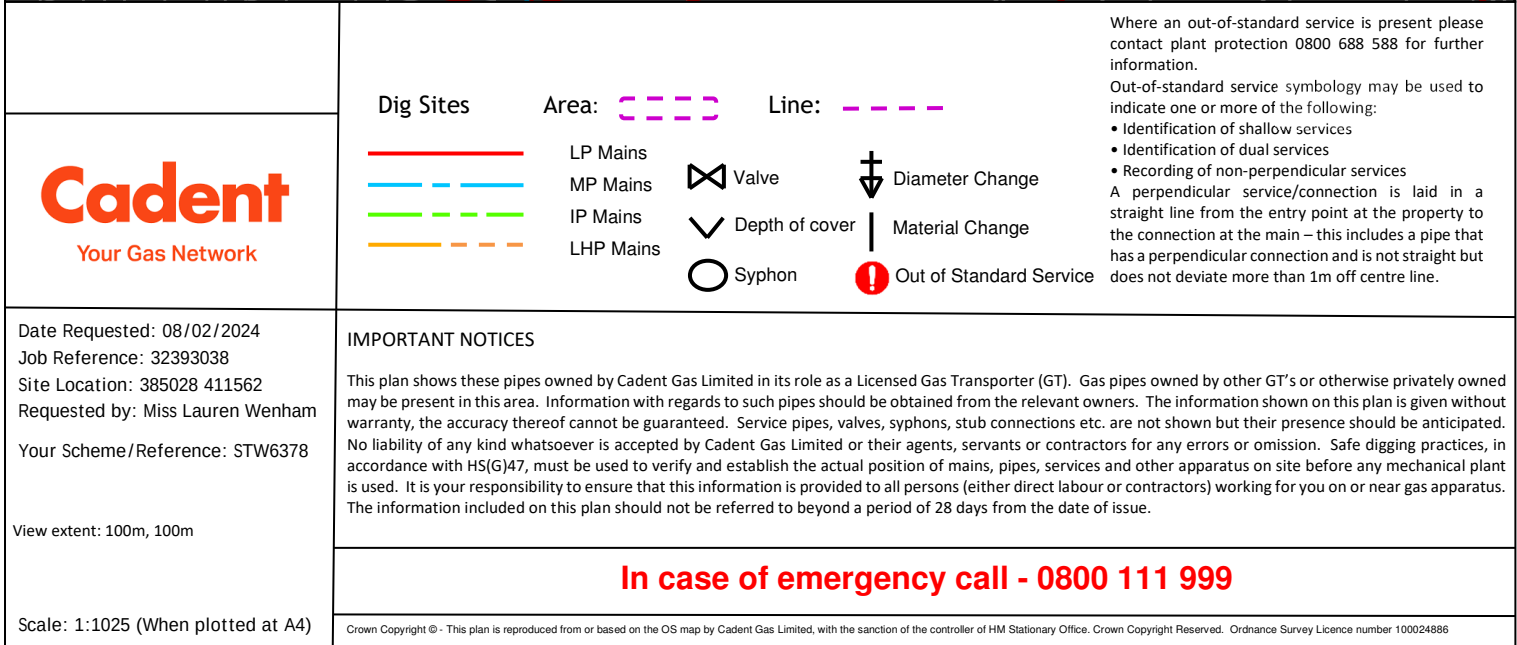


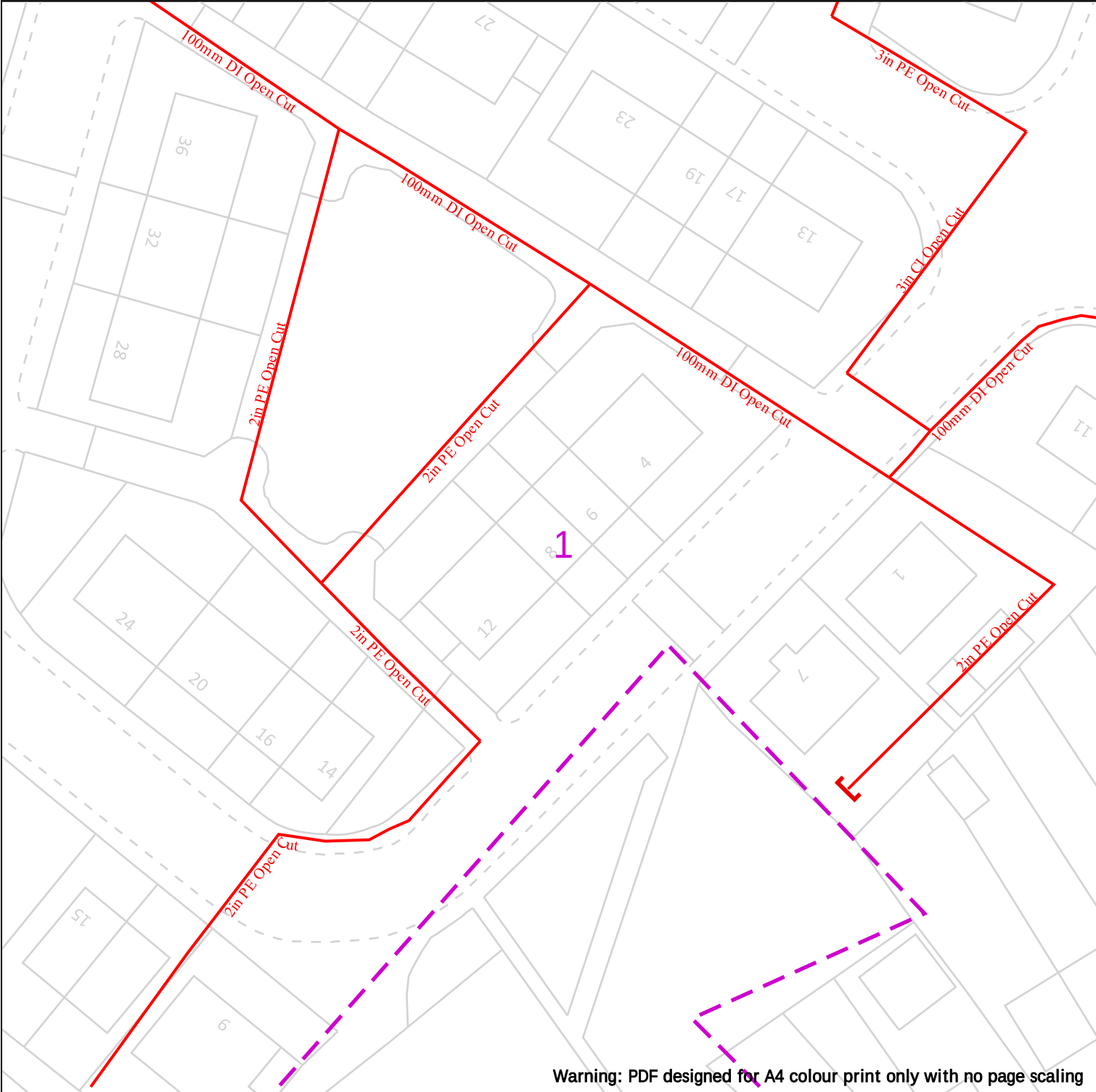
Water for the North West

Address or Site Reference: Back O'th Moss Heywood
Printed by: Property Searches

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Cadent
Your Gas Network

Date Requested: 08/02/2024
Job Reference: 32393038
Site Location: 385028 411562
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STW6378

View extent: 100m, 100m

Scale: 1:500 (When plotted at A4)



25m

Dig Sites	Area:	Line:
	LP Mains	
	MP Mains	
	IP Mains	
	LHP Mains	

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

Where an out-of-standard service is present please contact plant protection 0800 688 588 for further information.

Out-of-standard service symbology may be used to indicate one or more of the following:

- Identification of shallow services
- Identification of dual services
- Recording of non-perpendicular services

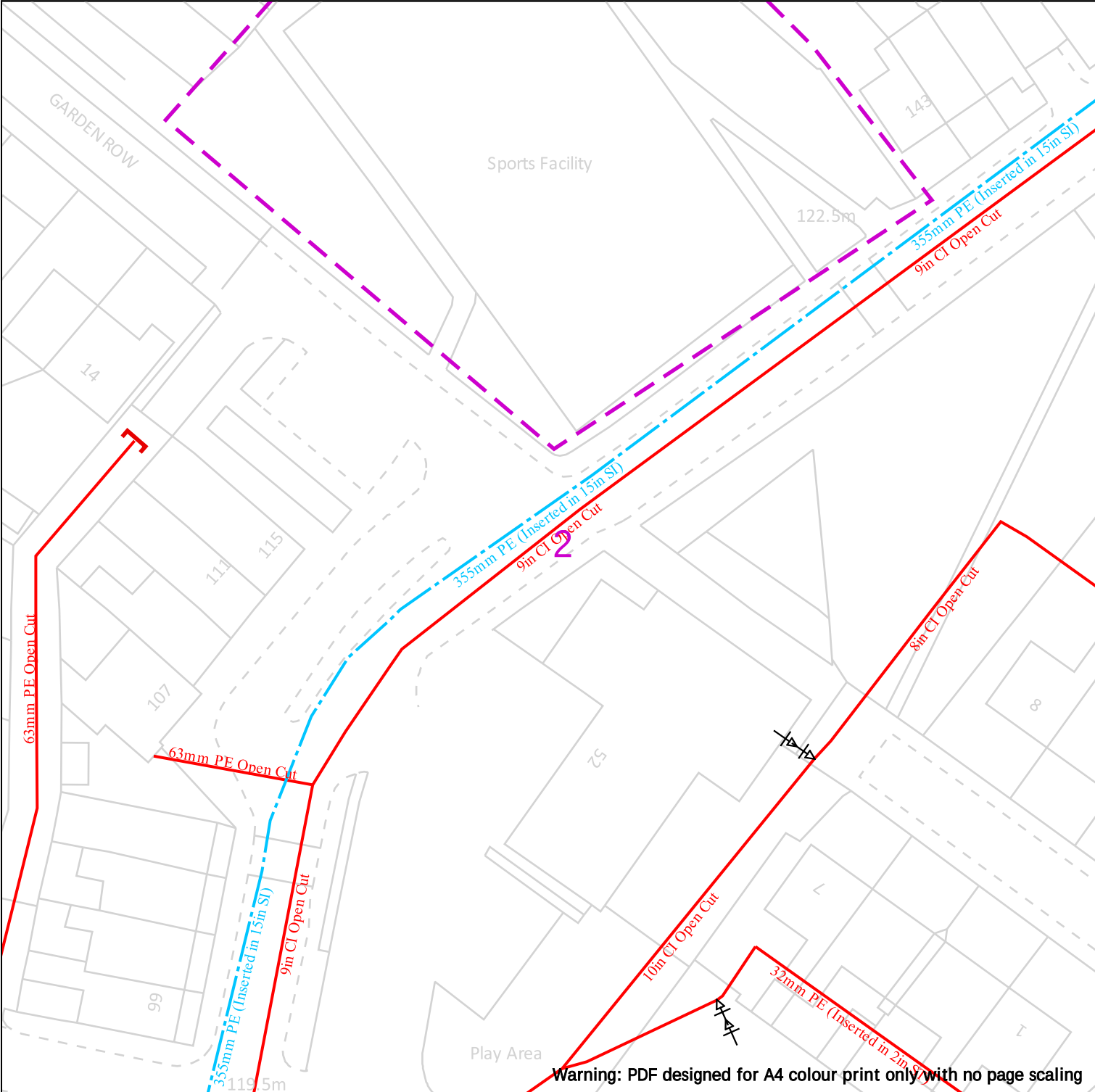
A perpendicular service/connection is laid in a straight line from the entry point at the property to the connection at the main – this includes a pipe that has a perpendicular connection and is not straight but does not deviate more than 1m off centre line.

IMPORTANT NOTICES

This plan shows these pipes owned by Cadent Gas Limited in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GT's or otherwise privately owned may be present in this area. Information with regards to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any errors or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

In case of emergency call - 0800 111 999

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Cadent
Your Gas Network

Date Requested: 08/02/2024
Job Reference: 32393038
Site Location: 385028 411562
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STW6378

View extent: 100m, 100m

Scale: 1:500 (When plotted at A4)

Dig Sites



Area:



Line:



LP Mains

MP Mains

IP Mains

LHP Mains

Valve

Depth of cover

Syphon

Diameter Change

Material Change

Out of Standard Service

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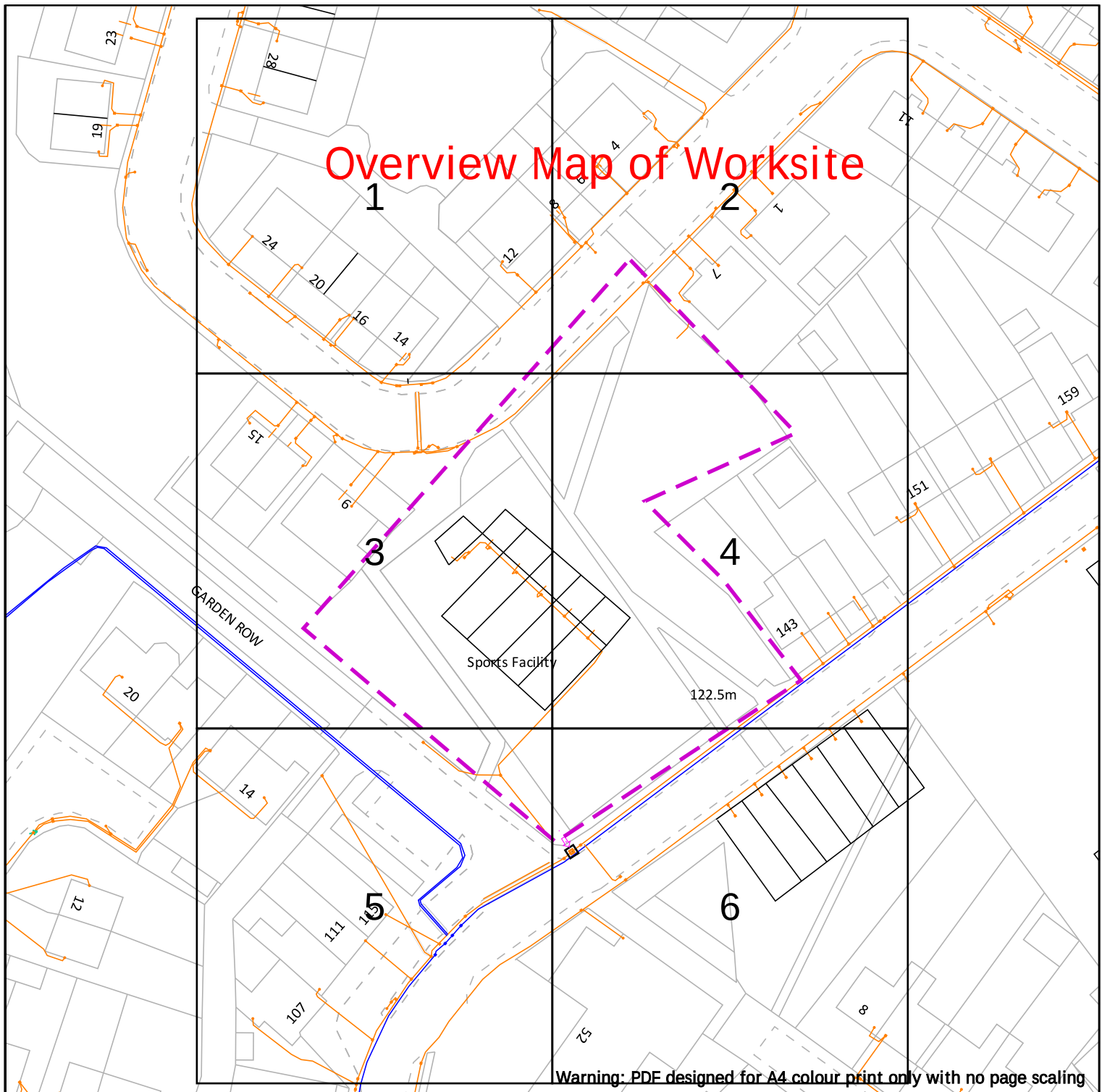
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Overview Map of Worksite



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Electricity North West
Borron Street
Portwood, Stockport
Cheshire, SK1 2 JD
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Operating Voltage

132kV
33kV
22kV-25kV
11kV
6kV-6.6kV
1kV-6kV
LV
Unknown Voltage

Colour Code

Black
Green
Yellow
Red
Blue
Violet
Orange
Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line:
Area:

Date Requested: 08/02/2024
Job Reference: 32393038
Site Location: 385028 411562
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STW6378

IMPORTANT INFO

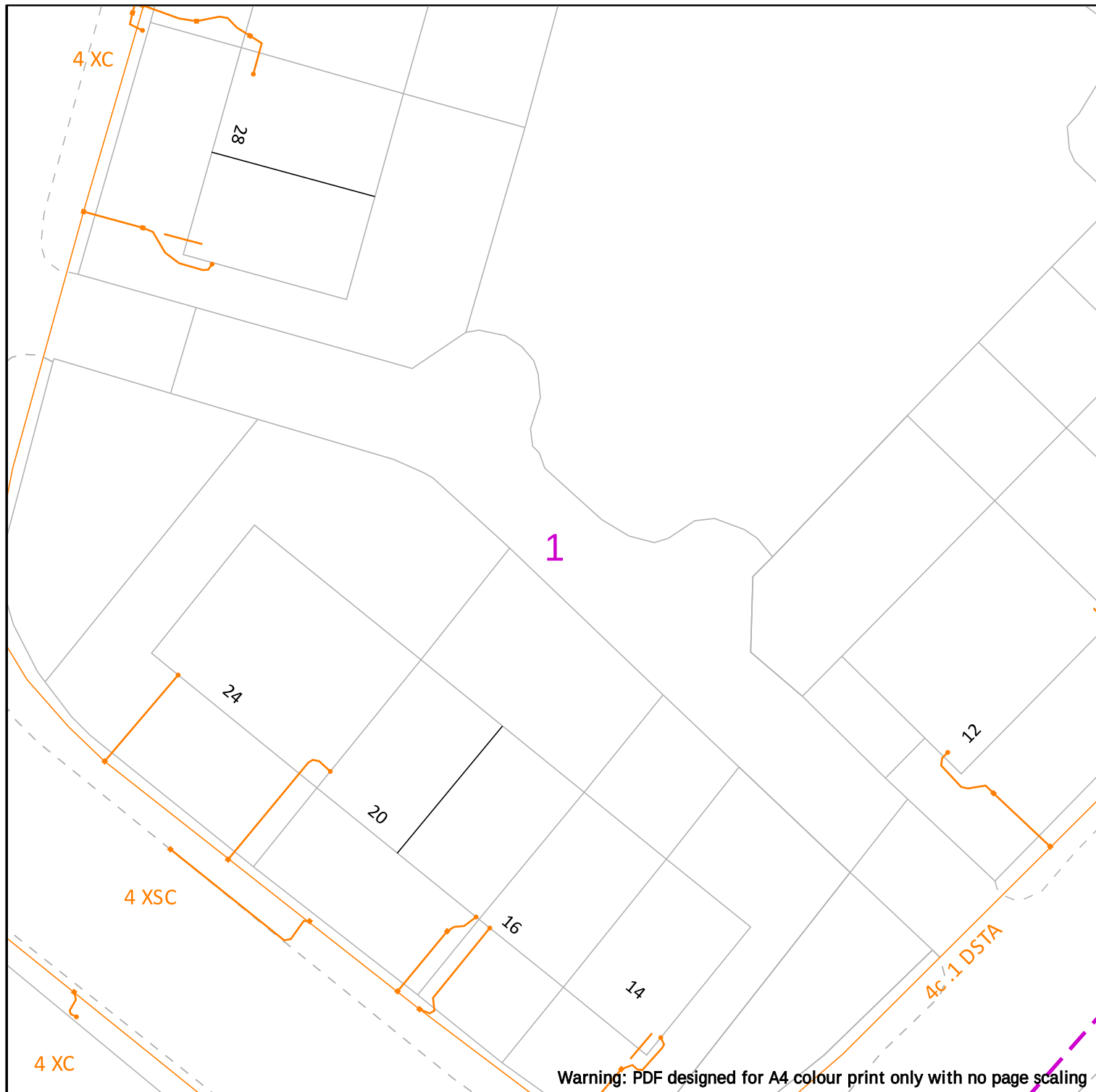
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Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoiding Danger from Overhead Power Lines".

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Scale: 1:769 (When plotted at A4)



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Electricity North West
Borron Street
Portwood, Stockport
Cheshire, SK1 2 JD
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Operating Voltage

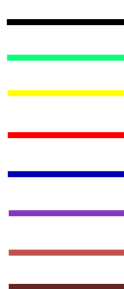
132kV
33kV
22kV-25kV
11kV
6kV-6.6kV
1kV-6kV
LV

Unknown Voltage

Colour Code

Black
Green
Yellow
Red
Blue
Violet
Orange
Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - - -

Area: [- - -]

IMPORTANT INFO

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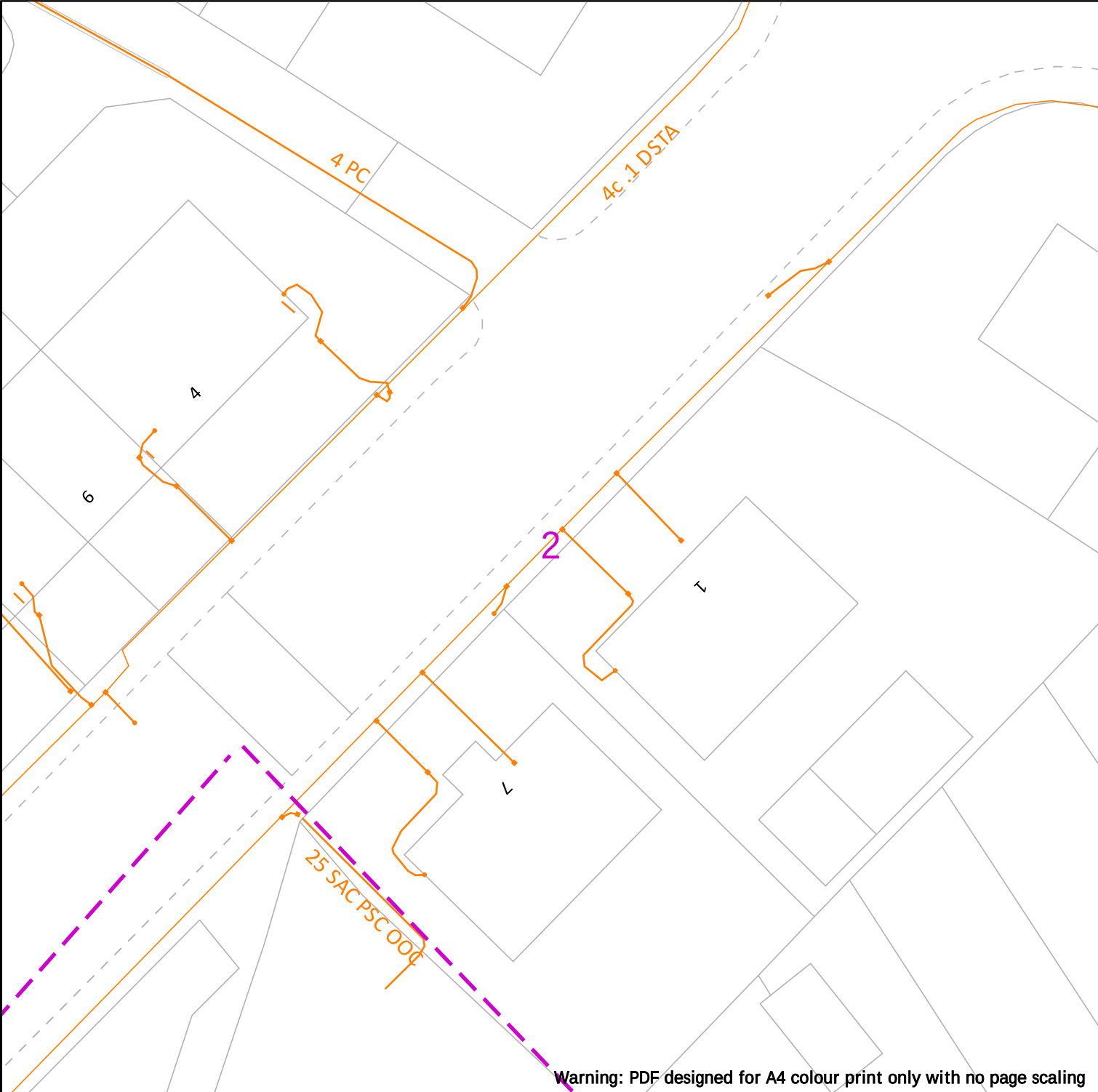
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Date Requested: 08/02/2024
Job Reference: 32393038
Site Location: 385028 411562
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STW6378

Scale: 1:250 (When plotted at A4)



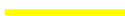
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Bringing energy to your door

Electricity North West
Borron Street
Portwood, Stockport
Cheshire, SK1 2 JD
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Date Requested: 08/02/2024
Job Reference: 32393038
Site Location: 385028 411562
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STW6378

Operating Voltage	Colour Code	Line Colour
132kV	Black	
33kV	Green	
22kV-25kV	Yellow	
11kV	Red	
6kV-6.6kV	Blue	
1kV-6kV	Violet	
LV	Orange	
Unknown Voltage	Brown	

IMPORTANT INFO

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In an emergency call 105,
24 hours a day

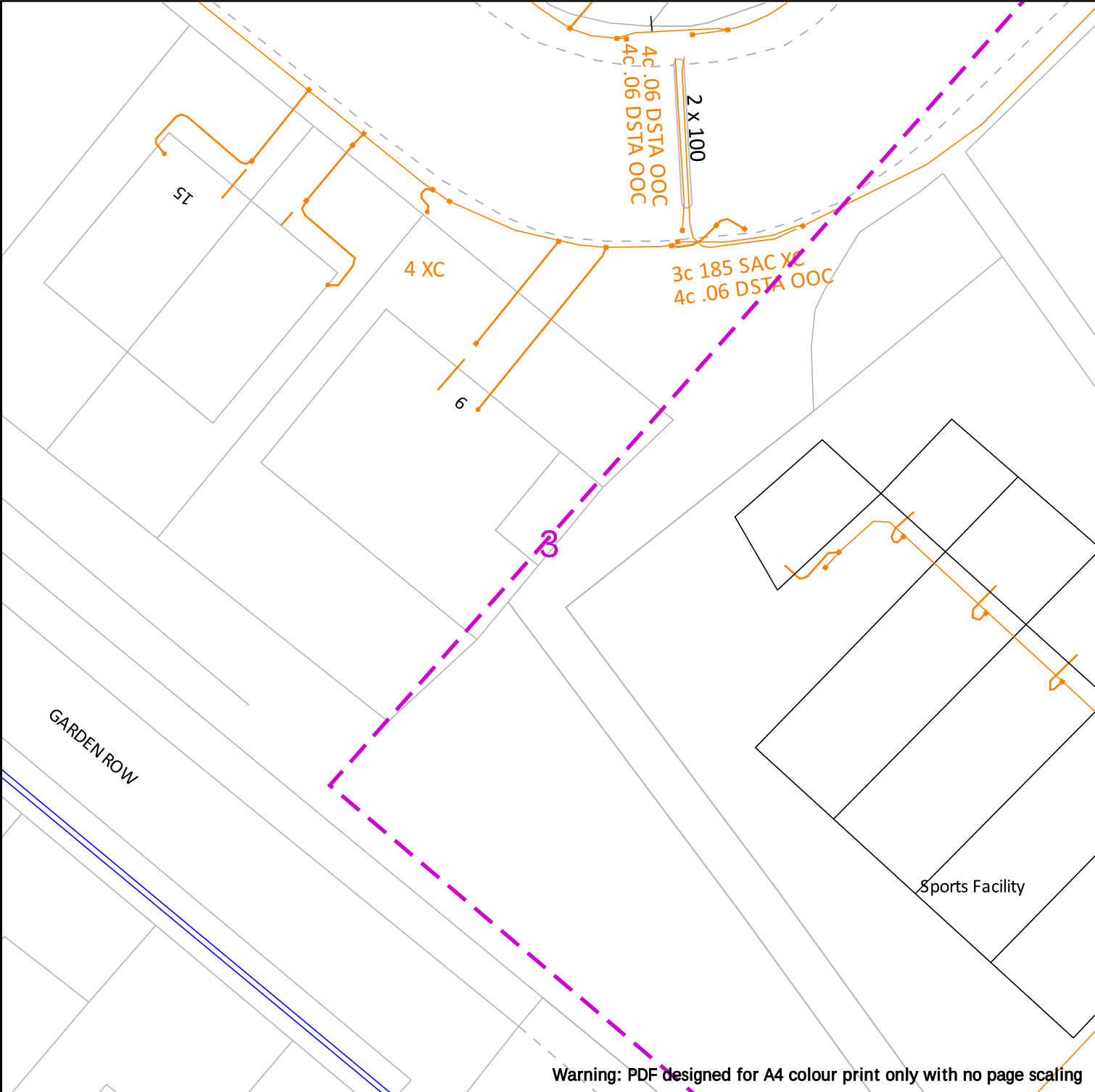
Dig Sites

Line: 

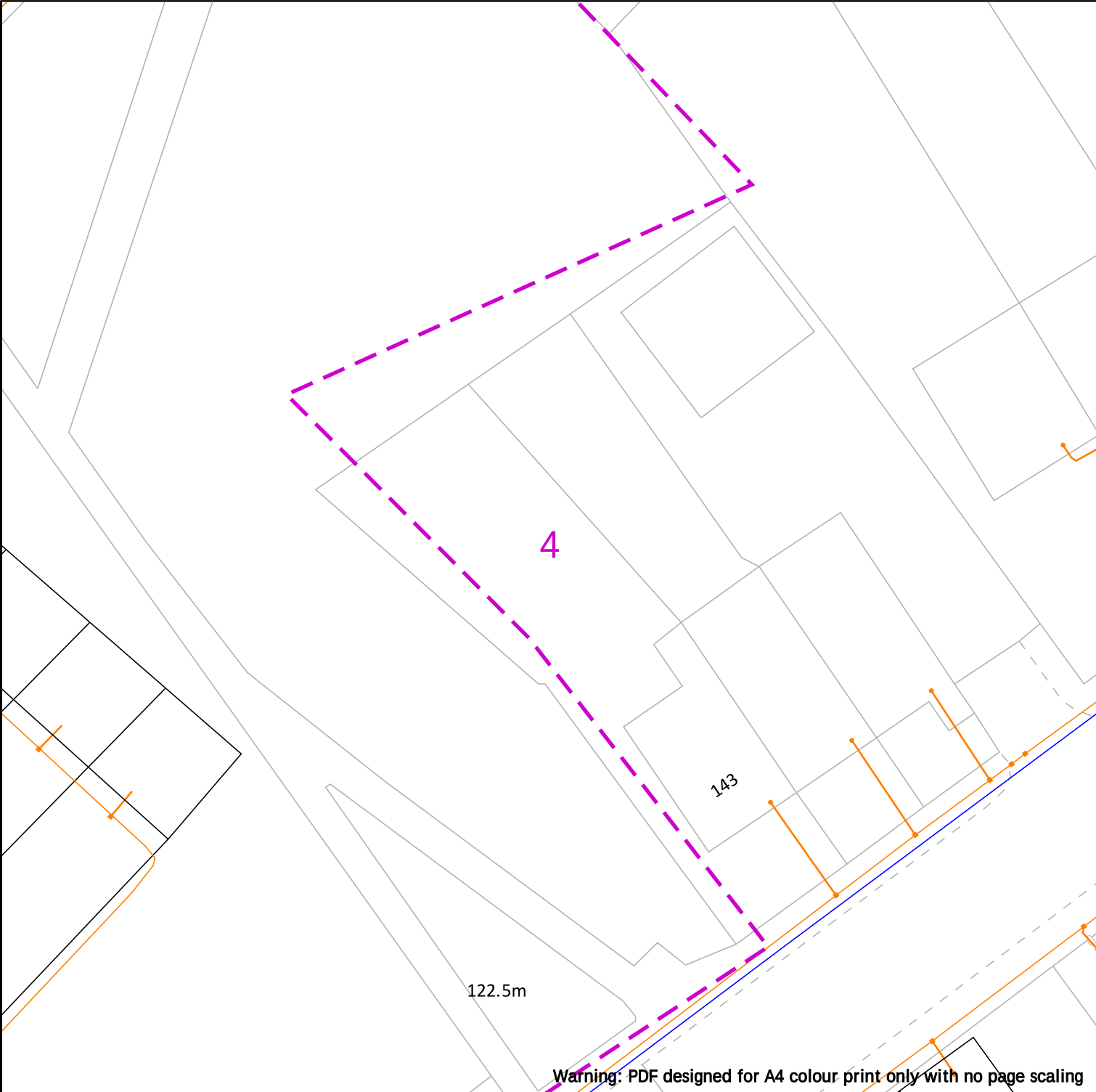
Area: 

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Scale: 1:250 (When plotted at A4)



 Bringing energy to your door Electricity North West Borron Street Portwood, Stockport Cheshire, SK1 2 JD Phone: 0800 195 4141 Email: planrequest@enwl.co.uk Date Requested: 08/02/2024 Job Reference: 32393038 Site Location: 385028 411562 Requested by: Miss Lauren Wenham Your Scheme/Reference: STW6378 Scale: 1:250 (When plotted at A4)	Operating Voltage 132kV 33kV 22kV-25kV 11kV 6kV-6.6kV 1kV-6kV LV Unknown Voltage Colour Code Black Green Yellow Red Blue Violet Orange Brown Line Colour        	In an emergency call 105, 24 hours a day Dig Sites Line:  Area: 
	IMPORTANT INFO Unless otherwise indicated the depth of Electricity North West Limited cables are in accordance with NJUG (450mm for Low Voltage & 600mm for 11kV cables) 33kV and 132kV cables are laid at depths as marked. The depth and positions of Electricity North West Limited equipment was accurate as shown when the equipment was installed. However third parties may have altered the level & other reference data. Therefore Electricity North West Limited accept no responsibility for the position of Electricity North West Limited equipment being different from shown. No person, body or company, shall be relieved from liability for damage caused to Electricity North West Limited equipment by reason of being located differently to the indications on this drawing or from any regulatory loss of income or incentive, or expense, which may be suffered by Electricity North West Limited and which is caused or contributed to by any loss of supply as a result of any damage caused to Electricity North West Limited's equipment. Service cables are not necessarily shown but must be assumed to exist to all premises, streetlights and signs. There may be other Electricity North West Limited apparatus in the vicinity which is not indicated on the cable records. Other apparatus may also be present which is owned by a third party other than Electricity North West Limited. Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoiding Danger from Overhead Power Lines". Electricity North West Limited, Borron Street, Portwood, Stockport, Cheshire, SK1 2JD Registered in England and Wales. Registered No 02366949 Reproduced from or based upon Ordnance Survey's map with the permission of His Majesty's Stationary Office. Crown Copyright Reserved. LICENCE No. 100017892. Unauthorised reproduction may lead to Prosecution or Civil Proceedings.	





Bringing energy to your door

Electricity North West
Borron Street
Portwood, Stockport
Cheshire, SK1 2 JD
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Date Requested: 08/02/2024
Job Reference: 32393038
Site Location: 385028 411562
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STW6378

Scale: 1:250 (When plotted at A4)

Operating Voltage	Colour Code	Line Colour	In an emergency call 105, 24 hours a day	Dig Sites
132kV	Black			Line: 
33kV	Green			Area: 
22kV-25kV	Yellow			
11kV	Red			
6kV-6.6kV	Blue			
1kV-6kV	Violet			
LV	Orange			
Unknown Voltage	Brown			

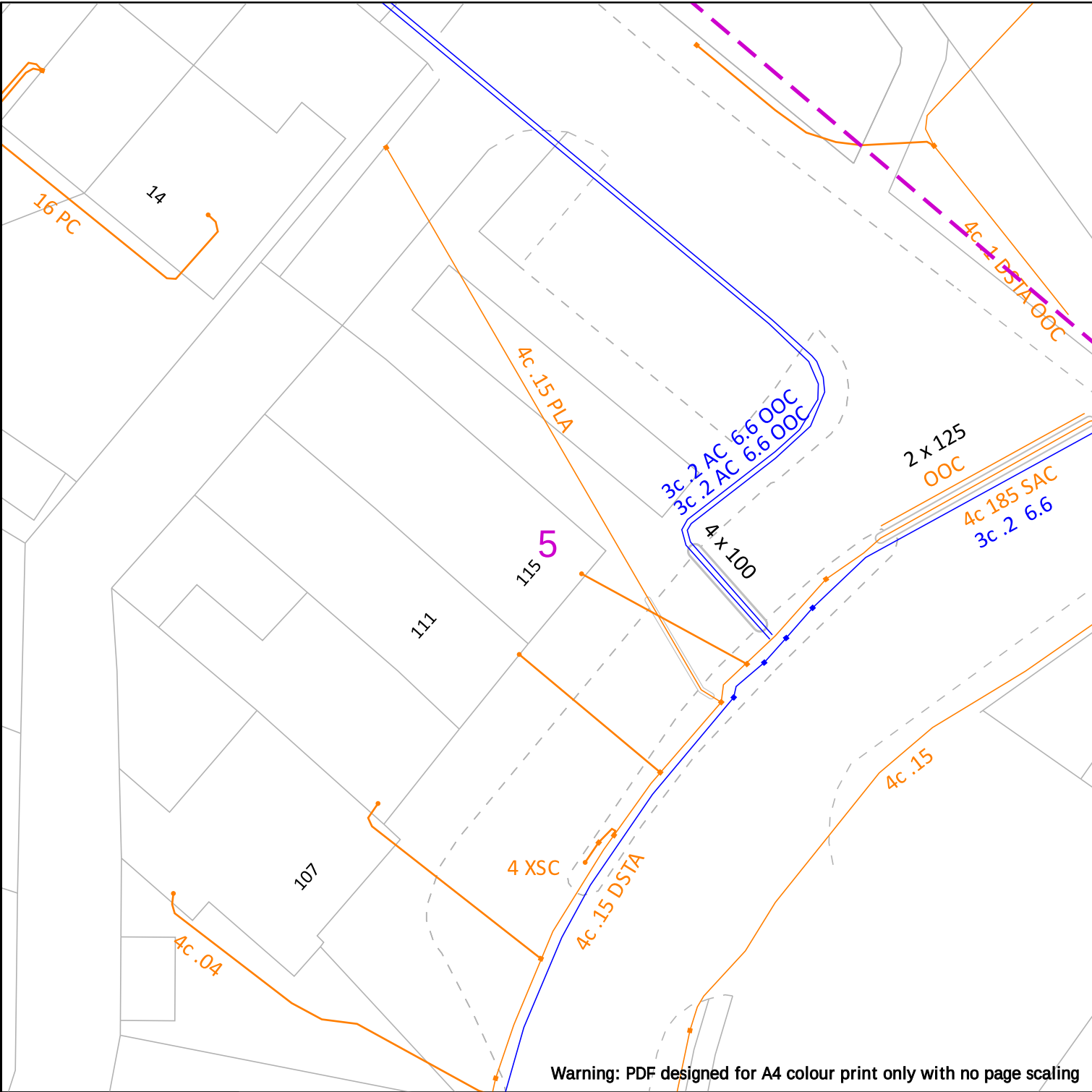
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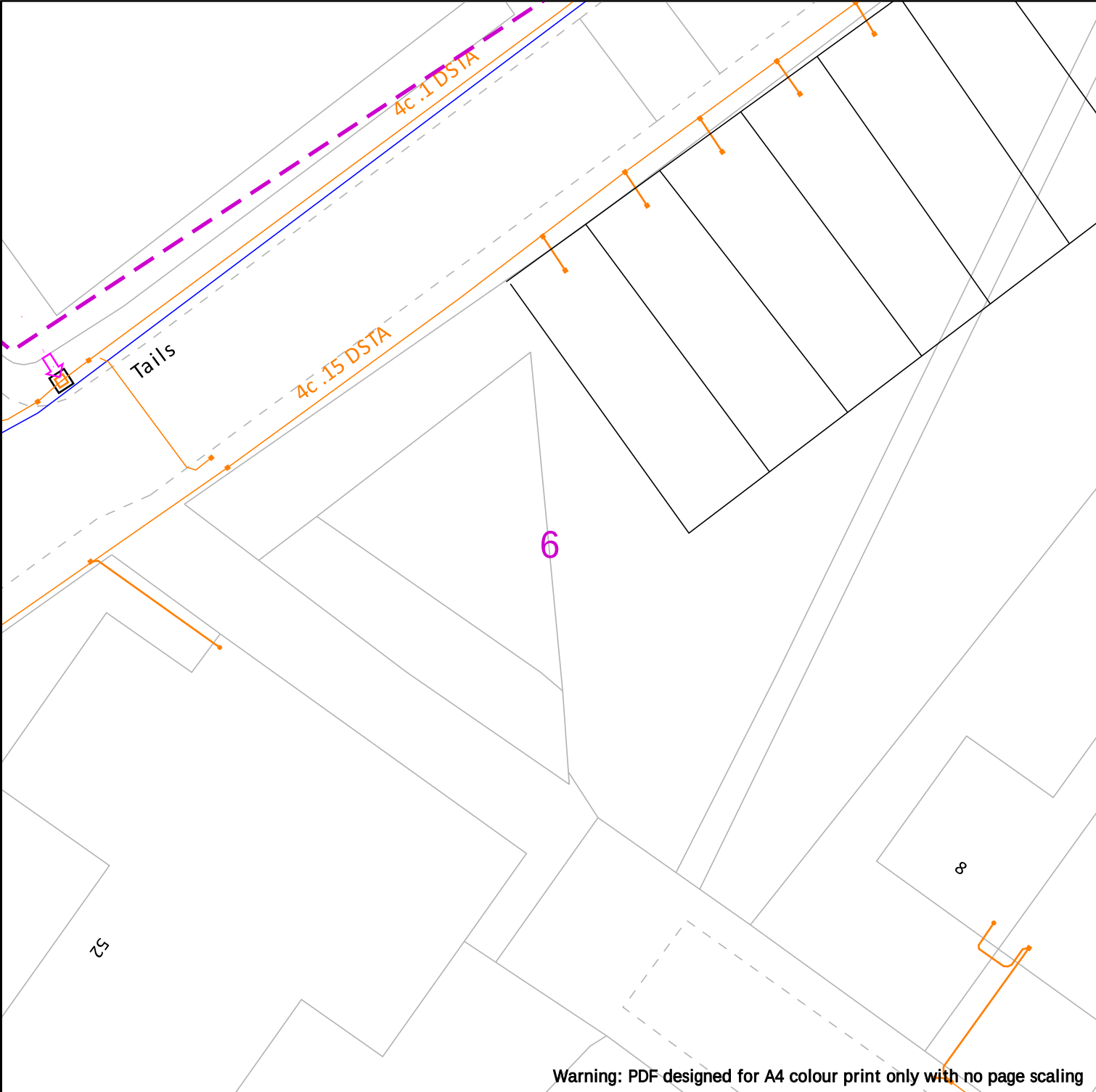
electricity north west Bringing energy to your door Electricity North West Borron Street Portwood, Stockport Cheshire, SK1 2 JD Phone: 0800 195 4141 Email: planrequest@enwl.co.uk Date Requested: 08/02/2024 Job Reference: 32393038 Site Location: 385028 411562 Requested by: Miss Lauren Wenham Your Scheme/Reference: STW6378 Scale: 1:250 (When plotted at A4)	Operating Voltage 132kV 33kV 22kV-25kV 11kV 6kV-6.6kV 1kV-6kV LV Unknown Voltage Colour Code Black Green Yellow Red Blue Violet Orange Brown Line Colour
---	--

In an emergency call 105,
24 hours a day

Dig Sites

Line:

Area:



 Bringing energy to your door	Operating Voltage	Colour Code	Line Colour	In an emergency call 105, 24 hours a day	Dig Sites
	132kV	Black			Line: 
Electricity North West Borron Street Portwood, Stockport Cheshire, SK1 2 JD Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	33kV	Green			Area: 
	22kV-25kV	Yellow			
	11kV	Red			
	6kV-6.6kV	Blue			
	1kV-6kV	Violet			
	LV	Orange			
Date Requested: 08/02/2024 Job Reference: 32393038 Site Location: 385028 411562 Requested by: Miss Lauren Wenham Your Scheme/Reference: STW6378	Unknown Voltage	Brown			
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Conditions and information regarding electricity mains

These general conditions and precautions apply to the electricity distribution system of Electricity North West Limited.

Please ensure that a copy of these conditions is passed to your representative and contractor on site.

1. There may be other Electricity North West Limited apparatus in the vicinity, which is not indicated on the cable records. Other apparatus may also be present which a third party owns other than Electricity North West Limited.
2. Before any machines are used, all of Electricity North West's underground apparatus should be located by manual excavation taking the appropriate safety precautions in accordance with the **Health and Safety Executive Guidance note HS(G)47 "Avoiding danger from underground services"**. This contains advice to site personnel when working near underground services.

Underground services, particularly electricity and gas, can be dangerous. Damage to electricity cables can cause a dangerous flash, leading to severe burns or even death. Gas leaks can cause fire or explosion.

Damage can result from excavation or penetration of the ground, e.g. by a road pin.

Underground services may be found in roads, footpaths and on sites. Always assume that they are present. Treat any services found anywhere as live.

Accidents have happened because people have mistaken one service for another, e.g. black plastic covered electricity cables look like black plastic water pipes and cast iron gas and water mains look alike. Check before you act.

3. Before starting work you must:
 - Make sure you have plans of the underground services in the area. This may not always be possible for emergency or unforeseen works. **Remember that service connection cables and pipes from the main to building or streetlight may not be shown.**
 - Use a cable and pipe locator to trace electricity cables and metal pipes.
 - Look for signs of service connection cables or pipes, e.g. a gas meter or service connection entry into a house or a streetlight.
 - Hand dig trial holes (as many as necessary) to confirm the position of services in close proximity to the area of work.

4. When you start work:

- Hand dig near buried services whenever possible. Spades and shovels are safer than picks, pins or forks.
- Remember that cables may be embedded in concrete. Electricity cables embedded in concrete **must** either be made dead before the concrete is broken out or another safe way of working agreed with the cable owner.
- Watch out for signs of services as work continues.
- Report damage to a cable, pipe or pipe coating however slight.
- Do not use hand held power tools within 0.5m of the marked position of an electricity cable, unless this is impracticable and the line of the cable has been identified by plans and positively confirmed by a locator.
- Do not use hand held power tools directly over the marked line of cable unless:
 - a) You have already found the cable at that position by careful hand digging beneath the surface and it is at a safe depth (at least 300mm) below the bottom of the surface to be broken, or
 - b) Physical means have been used to prevent the tool striking it.
- If an excavator is used near an electricity cable keep everyone clear of the bucket while it is digging. Buckets should not be used near cable – hand dig.
- Do not use exposed services as a convenient step or handhold.
- Do not handle or attempt to alter the position of an exposed service.
- Do not install plant close to an existing service.
- Do not build existing services into a manhole or other structure or encase them in concrete.

Please ensure that all site operators have this information and if any electrical apparatus is damaged, they/you should contact Electricity North West Limited on **0800 195 4141 (option 1)**.

5. **Overhead lines** are not necessarily shown on the Electricity North West Limited cable records but may be present. In the event of work being carried out adjacent to overhead lines (including access, storage etc.) please always ensure strict adherence to the requirements of the **Health and Safety Executive's Document GS6 "Avoiding Danger from Overhead Power Lines"**.

Extreme personal danger can result from contact, or near contact, with live conductors or overhead lines.

Treat all overhead lines and other electrical apparatus as live. If in doubt, get advice.

6. Electricity North West Limited must be consulted if work is to take place within 15 metres of overhead lines on steel towers or 9 metres of overhead lines on wood, concrete or steel pylons. (All distances should be measure at ground level from a position estimated by eye to be vertically under the outermost conductor at a tower or pole position) Any person involved in work in the vicinity of overhead lines should:
- Understand and follow the instructions given on safe working areas and methods of work.
 - Make sure that warning notices are in the cabs of machines working in the vicinity of an overhead line.
 - Make sure that barriers and warning notices are erected as required.
 - Not tip soil or stack material underneath overhead lines as this may reduce the clearance to an unsafe distance.
 - Make sure when handling or using platforms, scaffold, poles, piping, ladders, hand tools etc., that they are kept at a safe distance from overhead lines.
 - Not steady a suspended load, skip, hoist wire, slings etc., unless satisfied that there isn't any danger from overhead lines.
 - Remember that when mobile plant, such as a crane or excavator, is operating near overhead lines, the raising or slewing of the jib may introduce danger.
 - Always keep overhead lines in view when manoeuvring mobile plant.
 - Never operate a machine unless carefully guided by an experienced banksman.
 - Not approach or touch any broken or fallen conductors or any plant in contact with an overhead line before Electricity North West Limited confirms that conditions are safe. Warn others to keep well clear.

Machine operators should note that: if a machine comes into contact with an overhead line and cannot be disentangled by backing off, remain seated in the cab and warn others to keep clear of the machine until Electricity North West Limited confirms that conditions are safe. If it is essential to

leave the machine while it is in contact with the overhead line, for example if it catches fire, jump well clear – and **do not** attempt to climb down in the normal way nor touch any part of the machine when on the ground.

7. Electricity North West Limited provides approximate locations of its electricity mains or apparatus according to its records but these records are not necessarily accurate or complete and do not always show the position of private cables from mains to properties. No person or company shall be relieved from liability for any damage caused by reason of the actual positions and/or depths being different from those indicated.

8. Care should be taken when excavating near cables. Known road crossings are highlighted on the enclosed plans. Should any cable, or Electricity North West Limited apparatus indicated on the attached plans, be affected by your proposals please contact us as follows:

Electricity North west Limited
Borrton Street
Portwood, Stockport
Cheshire
SK1 2JD

Telephone: **0800 195 4141 (option 4)**

Details of diversion costs, if any, will be provided on request once your firm proposals have been submitted.

9. Please note that service cables may be affected by some of the works being carried out on site.

If any services do require temporary disconnection please phone **0800 195 4141 (option 2)** for domestic and commercial disconnection, so that arrangement can be made to disconnect before work commences on site.

10. Please note that cable records supplied may not be up to date, or may be incomplete, if the area concerned is a new site.

11. For information regarding wayleave or easement agreements contact WayleaveEnquiries@enwl.co.uk

12. The latest cable records are always available for inspection during normal working hours and you should satisfy yourself that the information you have is up to date at the time you commence work. This service is consistent with the requirement of Regulation 36 of the Electricity Supply Regulations and paragraph 79 of the New Road and Street Works Act.

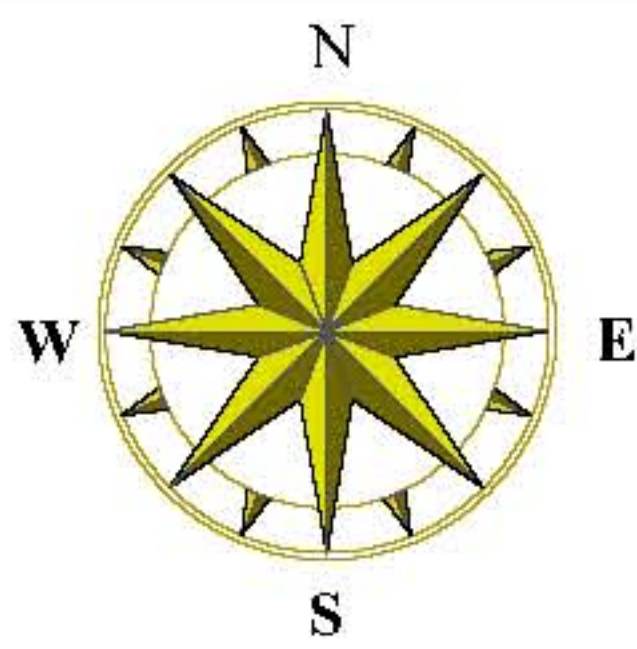


Bringing energy to your door

Electricity North West Limited
Borrton Street, Portwood
Stockport
SK1 2JD

www.enwl.co.uk

Registered in England and Wales
Registered Number 2366949



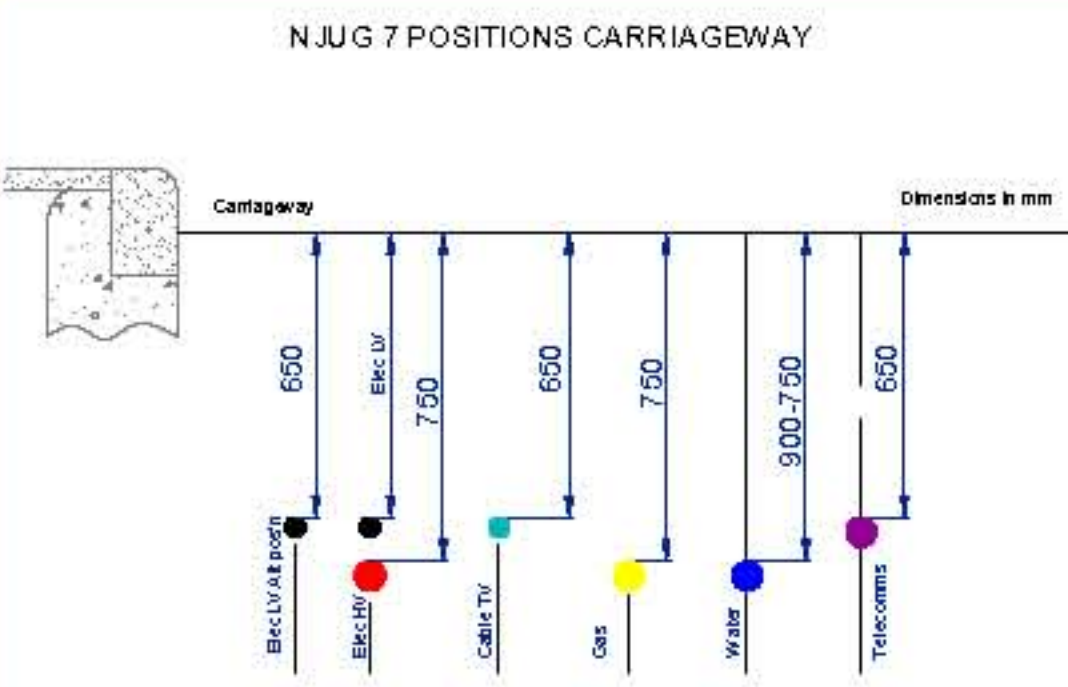
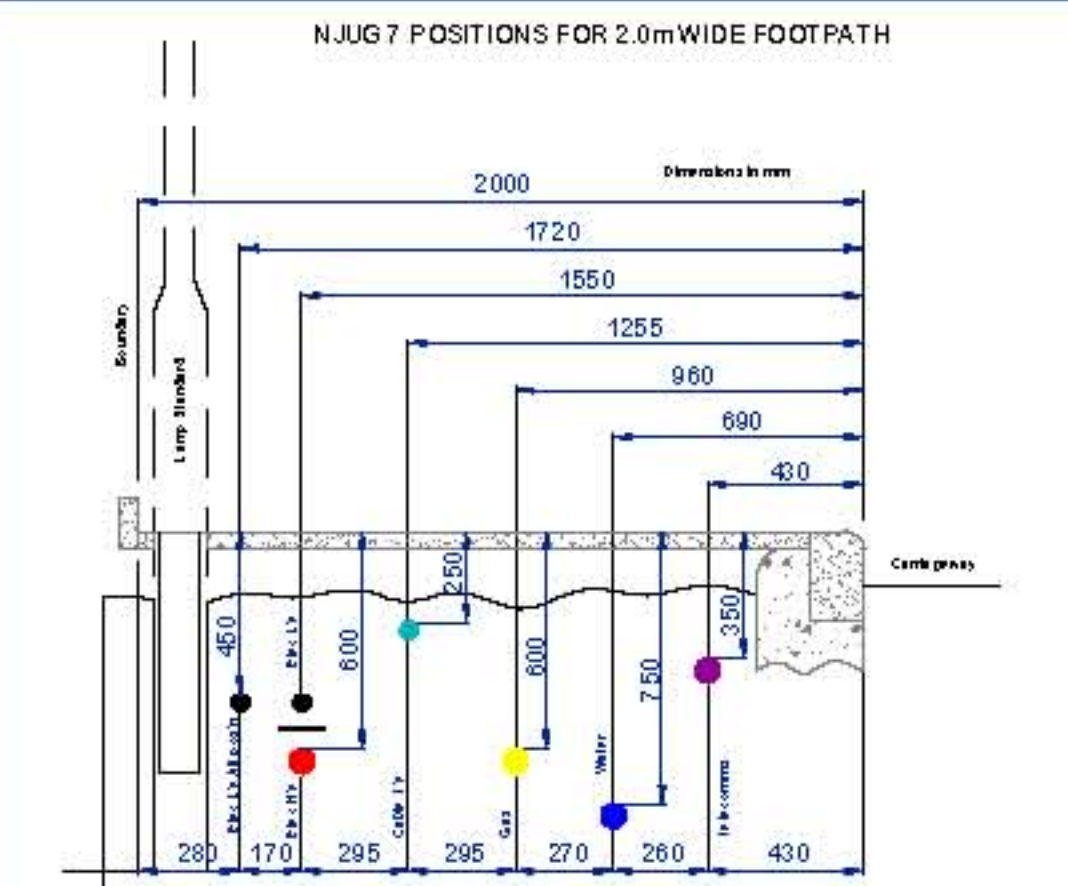
All services to be
32mm PE LP

Recessed meter boxes to be fitted.

All gas mains, services and ducts that shall contain gas pipes, must be overlaid with gas identifiable marker tape 150mm above the apparatus. Gas mains and services should have a minimum of 250mm clearance from other utilities

GAS DUCTS		PE					
GAS PIPE OUTSIDE Ø	DUCT INSIDE Ø	Type of Main	Diameter of Main (mm)	Minimum Building Proximity Distance (m)			
			≤75 mbar	>75 mbar ≤2 bar	>2 bar ≤6.5 bar	> 6.5 bar ≥7 bar	
20mm, 25mm & 32mm 63mm 90mm	50mm 100mm 150mm	PE Non-Insert ed	Up to 125	0.25	2	4	6
			126-355	1	2	4	6
			356-500	1	2	4	6
			501-1000	1	5	13	15
			Up to 125	0.25	1	2	3
125mm & 180mm 250mm 315mm	225mm 350mm 450mm	PE Inserted	126-355	0.5	1	2	3
			356-500	0.5	1	2	3
			501-1000	0.5	1	3	3
PIPE PRINCIPLE QUANTITIES		STEEL					
63mm PE 80 SDR 11	112mm	Type of Main	Wall Thickness of Main (mm)	Minimum Building Proximity Distance (m)			
90mm PE 80 SDR 17.6	23mm			≤75 mbar	>75 mbar ≤2 bar	>2 bar ≤7 bar	> 7 bar ≤16 bar
125mm PE 80 SDR 17.6	-		159.52	0.25	1	3	13
180mm PE 80 SDR 17.6	-	Steel	9.52x151.91	0.25	1	3	6

GAS PIPE DETAIL	
MATERIALS	DESCRIPTION
DI	Ductile Iron Main
CI	Cast Iron Main
ST	Steel main or service
MDPE (17.6)	Medium Density Polyethylene (SDR Rating) main or service
HDPE (11)	High Density Polyethylene (SDR Rating) main or service
SIZE	DESCRIPTION
12"	Metallic main or service - Imperial (nominal bore)*
150mm	Metallic main or service - Metric (nominal bore)
3"	Polyethylene main or service - Imperial (nominal bore)
90	Polyethylene main or service - Metric (outside Ø)
*note: For Steel, 12" denotes the pipe size where the designation changes from nominal bore to outside diameter	
PRESSURE	DESCRIPTION
LP	Low Pressure - up to 75 millibar gauge
MP	Medium Pressure - between 75 millibar and 2 bar gauge
IP	Intermediate Pressure - between 2 bar and 7 bar gauge
HP	High Pressure - above 7 bar gauge



PROPOSED GAS KEY:

PROPOSED GAS EASEMENT: 

PROPOSED MP GAS MAIN: 

PROPOSED LP GAS MAIN: 

PROPOSED IP GAS MAIN: 

EXISTING MP GAS MAIN: 

EXISTING LP GAS MAIN: 

EXISTING IP GAS MAIN: 

PROPOSED GAS MAIN IN DUCT: 

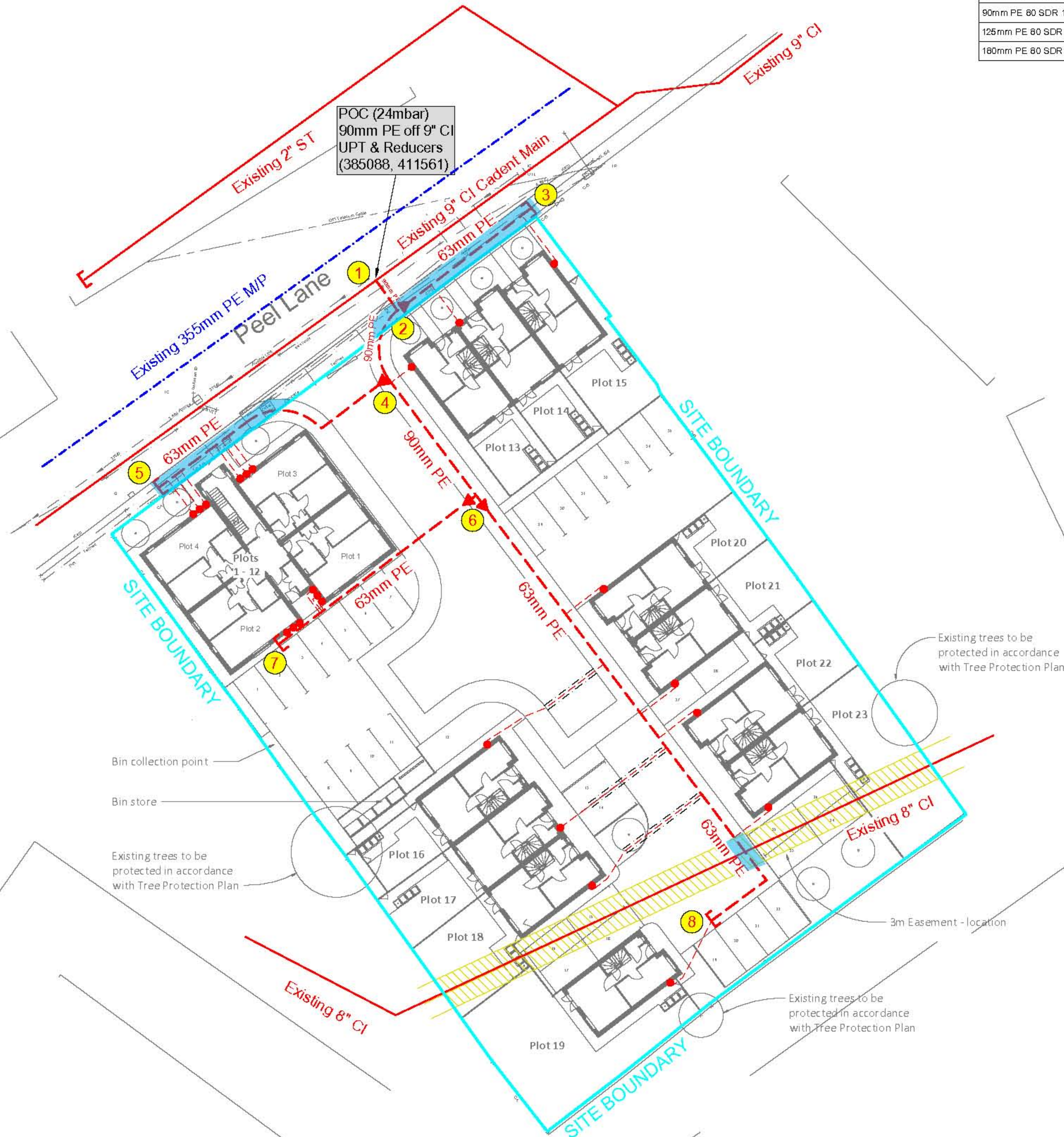
REDUCER: 

VALVE: 

CAPPED END: 

TRENCH CROSS SECTION MARKER: 

POSITION NODE: 



Where different and UIP partner continues to fit semi concealed meter boxes, GPL will also require from 1 May 2016 a photograph of the meter box after the landscaping level is complete showing the box is in the correct position relative to ground level.

Please refer to:
GG-SCM-LE-0139 Rev 01



Cadent
Your Gas
Network

Bluebird House
Mole Business Park
LEATHERHEAD

KT22 7BA
Tel: 01372 587500
FAX: 01372 377996
Emergency number: 0800 111 999

Cadent Gas Limited
Brick Kiln Street
Hinckley
Leicestershire
LE10 0NA
T 0845 3666758
F 0845 0700668
E networkdesign@cadentgas.com
Emergency number: 0800 111 999

Ref. No.
100028878

DEVELOPMENT

Peel Lane, Heywood, OL10 4UD

DRAWING

PROPOSED GAS DESIGN

Developer	Melrose Construction, Neptune Court, Blackpool, FY4 5LZ
Land Owner	-

DRAWING NUMBER	AP1475-GD	REVISION -
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CONTRACT NUMBER	AP1475	DESIGN BY <u>M. Zurawski</u>	SCALE <u>1:500 @ A</u>
		DRAWN BY <u>K. Lowe</u>	
		GRID REF: X: <u>385081</u> Y: <u>411554</u>	DATE <u>20/07/2020</u>

Rev	Description	Date	By
1.	-	-	-



©Aptus Utilities
Aptus Utilities
Units 19-20, Barrs Fold Road
Wingates Business Park
Bolton, BL5 3XP
Tel :01204 325000

This Plan shows only the pipes owned by E.P. Petroleum Ltd. in its role as a licensed CO₂ Transport (GTS) Gas sales whereby only GTS and Gas plantability owned, may be presented in the area. Information with relation to this plan should be obtained from the Controller of Information. Information shown on this plan is not for legal obligation or warranty. The accuracy thereof cannot be guaranteed. If the owner plans are not necessarily shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by E.P. Petroleum Ltd. its agents or vendors for any error or omission. Daily digging practices, as detailed in Health and Safety Bulletin H&S/C "Avoiding danger from underground services" must be fully observed and establish the actual position of mains, services and other plants on the surface before any Mechanical plant is used. It is your responsibility to ensure that the information is provided to all persons (either directed or contract labour) working for you on or near your operations. The information on this plan should not be referred to beyond 22 day following the date of issue.

REPRODUCED FROM THE COMPASSION SURVEY MAP WITHIN THE SANCTION OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE © CROWN COPYRIGHT RESERVED

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PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK IN THE VICINITY OF UNDERGROUND GAS PIPES

ADVICE TO SITE PERSONNEL

MANAGEMENT NOTE

Please ensure that a copy of this note is read by your site management and to your site operatives.

Early consultation with ESP Utilities Group prior to excavation is recommended to obtain the location of plant and precautions to be taken when working nearby.

This Guidance Note should be read in conjunction with the Health and Safety Executive guidance HSG47 "Avoiding danger from underground services".

Introduction

Damage to ESP Utilities Group's plant can result in uncontrolled gas escapes which may be dangerous. In addition these occurrences can cause expense, disruption of work and inconvenience to the public.

Various materials are used for gas mains and services. Cast Iron, Ductile Iron, Steel and Plastic pipes are the most widely found. Modern Plastic pipes are either bright yellow or orange in colour.

Cast Iron and Ductile Iron water pipes are very similar in appearance to Cast Iron and Ductile Iron gas pipes and if any Cast Iron or Ductile Iron pipe is uncovered, it should be treated as a gas pipe. ESP Utilities Group do not own any metallic gas pipes but their gas network infrastructures may be connected to Cast Iron, Ductile Iron or Steel pipes owned by Distribution Network Operators.

The following general precautions apply to Intermediate Pressure (2-7barg MOP), Medium Pressure (75mbarg-2barg MOP), Low Pressure (up to 75mbarg MOP) and other gas mains and services likely to be encountered in general site works and are referred to within this document as '**pipes**'.

Locating Gas Pipes

It should be assumed when working in urban and residential areas that gas mains and services are likely to be present. On request, ESP Utilities Group will give approximate locations of pipes derived from their records. The records do not normally show the position of service pipes but their probable line can be deducted from the gas meter position. ESP Utilities Group's staff will be pleased to assist in the location of gas plant and provide advice on any precautions that may be required. The records and advice are given in good faith but cannot be guaranteed until hand excavation has taken place. Proprietary pipe and cable locators are available although generally these will not locate plastic pipes.

Safe working Practices

To achieve safe working conditions adjacent to gas plant the following must be observed:

Observe any specific request made by ESP Utilities Group's staff.

Gas pipes must be located by hand digging before mechanical excavation. Once a gas pipe has been located, mechanical excavation must proceed **with care**. A mechanical excavator must not in any case be used within 0.5 metre of a gas pipe and greater safety distances may be advised by ESP Utilities Group depending on the mains maximum operating pressure (MOP).

Where heavy plant may have to cross the line of a gas pipe during construction work, the number of crossing points should be kept to a minimum. Crossing points should be clearly indicated and crossings at other places along the line of the pipe should be prevented.

Where the pipe is not adequately protected by an existing road, crossing points should be suitably reinforced with sleepers, steel plates or a specially constructed reinforced concrete raft as necessary. ESP Utilities Group staff will advise on the type of reinforcement necessary.

No explosives should be used within 30 metres of any gas pipe without prior consultation with ESP Utilities Group.

ESP Utilities Group must be consulted prior to carrying out excavation work within 10 metres of any above ground gas installation.

Where it is proposed to carry out piling or boring within 15 metres of any gas pipe, ESP Utilities Group should be consulted prior to the commencement of the works.

Access to gas plant must be maintained at all times during on site works.

Proximity of Other Plant

A minimum clearance of 300 millimetres (mm) should be allowed between any plant being installed and an existing gas main to facilitate repair, whether the adjacent plant be parallel to or crossing the gas pipe. No apparatus should be laid over and along the line of a gas pipe irrespective of clearance.

No manhole or chambers shall be built over or around a gas pipe and no work should be carried out which results in a reduction of cover or protection over a pipe, without consultation with ESP Utilities Group.

Support and Backfill

Where excavation of trenches adjacent to any pipe affects its support, the pipe must be supported to the satisfaction of ESP Utilities Group and must not be used as an anchor or support in any way. In some cases, it may be necessary to divert the gas pipe before work commences.

Where a trench is excavated crossing or parallel to the line of the gas pipe, the backfill should be adequately compacted, particularly beneath the pipe, to prevent any settlement which could subsequently cause damage to the pipe.

In special cases it may be necessary to provide permanent support to the gas pipe, before backfilling and reinstatement is carried out. Backfill material adjacent to gas plant must be selected fine material or sand, containing no stones, bricks or lumps of concrete, etc., placed to a minimum depth of 150mm around the pipes and well compacted by hand. No power compaction should take place until 300mm of selected fine fill has been suitably compacted.

If the road construction is in close proximity to the top of the gas pipe, a "cushion" of selected fine material such as sand must be used to prevent the traffic shock being transmitted to the gas pipe. The road construction depth must not be reduced without permission from the local Highway Authority.

No concrete or other hard material must be placed or left under or adjacent to any Cast Iron pipe as this may cause fracture of the pipe at a later date.

Concrete backfill should not be used closer than 300 mm to the pipe.

Damage to Coating

Where a gas pipe is coated with special wrapping and this is damaged, even to a minor extent ESP Utilities Group must be notified so that repairs can be made to prevent future corrosion and subsequent leakage.

Welding or "Hot Works"

When welding or other "hot works" involving naked flames are to be carried out in close proximity to gas plant and the presence of gas is suspected, ESP Utilities Group must be contacted before work commences to check the atmosphere. Even when a gas free atmosphere exists care must be taken when carrying out hot works in close proximity to gas plant in order to ensure that no damage occurs.

Particular care must be taken to avoid damage by heat or naked flame to plastic gas pipes or to the protective coating on other gas pipes.

Leakage from Gas Mains or Services

If damage or leakage is caused or an escape of gas is smelt or suspected the following action should be taken at once:

- ❖ Remove all personnel from the immediate vicinity of the escape;
- ❖ Contact the National Gas Emergency Service on: **0800 111 999**;
- ❖ Prevent any approach by the public, prohibit smoking, extinguish all naked flames or other source of ignition for at least 15 metres from the leakage;
- ❖ Assist gas personnel, Police or Fire Service as requested.

REMEMBER - IF IN DOUBT; SEEK ADVICE FROM ESP UTILITIES GROUP.

ESP Utilities Group can be contacted at:

Office Address: Bluebird House, Mole Business Park, Leatherhead, Surrey, KT22 7BA

Office Tel: 01372 587 500; **Fax:** 01372 377 996

Enquirer

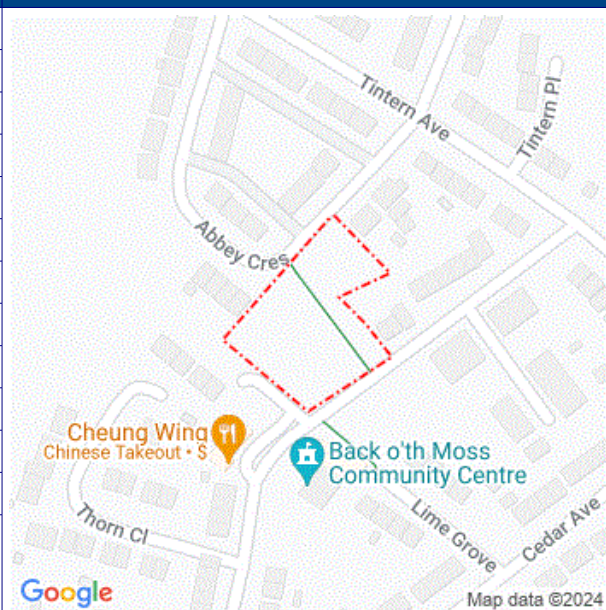
Name	Miss Lauren Wenham	Phone	01604 781877
Company	Soiltechnics Ltd	Mobile	Not Supplied
Address	Cedar Barn White Lodge Walgrave Northamptonshire NN6 9PY		
Email	admin@soiltechnics.net		

Enquiry Details

Enquiry type	Planned Works
Work category	Development Projects
Work type	Piling
Work type buffer*	150 metres
Start date	09/02/2024
End date	09/02/2024
Scheme/Reference	STW6378
Search location	XY= 385018, 411554
Confirmed location	385028 411562
Site size	0 metres square
Site Contact Name	Soiltechnics Limited
Site Phone No.	01604781877
Description of Works	n/a

* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen.

Site Map



Please note that the above map only displays the location of the proposed work site and will not display any of the Members' pipes and cables. It is imperative that this area accurately reflects the proposed work site.

Affected LSBUD members

(LSBUD Members who have assets registered on LSBUD within the vicinity of your search area.)

Asset Owner	Phone/Email	Emergency Only	Status
Cadent Gas	0800688588	0800111999	Await response
Electricity North West Limited	08001954141	08001954141	Await response
ESP Utilities Group	01372227560	01372227560	Await response

Status explanation

Await Response means that the asset owner will contact you. This is typically by sending the plan response but they may ask for further information before being able to do so, particularly if any payments or authorisations are required.

Email Additional Info means that the asset owner needs further information about your works to assess your enquiry before providing a response. Please provide any details you have available including plans, method statements etc. if available.

Important notices

It is very important that you correctly understand what the service does and the procedures in order for you to work safely. Please refer to the LSBUD Support Page (www.lsbud.co.uk/lineasearchbeforeudig-support) for further guidance.

This information includes how to provide additional information to the LSBUD Members who request it to provide a response to your enquiry.

Validity and search criteria. The results of this enquiry are based on the confirmed information you entered and are valid only as at the date and time of the enquiry. It is your responsibility to ensure that the Enquiry Details are correct, and LineasearchbeforeUdig (LSBUD) accepts no responsibility for any errors or omissions in the Enquiry Details or any consequences thereof. LSBUD Members update their asset information on a regular basis so you are advised to consider this when undertaking any works. It is your responsibility to choose the period of time after which you need to resubmit any enquiry but the maximum time (after which your enquiry will no longer be dealt with by the LSBUD Helpdesk and LSBUD Members) is 28 days. If any details of the enquiry change, particularly including, but not limited to, the location of the work, then a further enquiry must be made.

Terms and Conditions. Please note that this enquiry is subject always to our standard terms and conditions available at www.lsbud.co.uk ("Terms of Use") and the disclaimer at the end of this document. Please note that in the event of any conflict or ambiguity between the terms of this Enquiry Confirmation and the Terms of Use, the Terms of Use shall take precedence.

List of not affected LSBUD members (LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area.)

Angus Energy	AWE Pipeline	B & D Energy Limited
Balfour Beatty Investments Limited	BOC Limited (A Member of the Linde Group)	Box Broadband
BP Exploration Operating Company Limited	BPA	Cambridgeshire County Council Climate Change and Energy Services
CATS Pipeline c/o Wood Group PSN	Cemex	Centrica Storage Ltd
CNG Services Ltd	Concept Solutions People Ltd	ConocoPhillips (UK) Teesside Operator Ltd
D.S.Smith	Diamond Transmission Corporation	DIO (MOD Abandoned Pipelines)
DIO (MOD Live Pipelines)	Drax Power Limited	E.ON UK CHP Limited
EDF Energy Renewables Ltd	EirGrid	Eleclink Limited
Energy Assets Networks	ENI & Himor c/o Penspen Ltd	EnQuest NNS Limited
EP Langage Limited	ESB CCGT Power station (Carrington Gas Pipeline)	ESSAR
Esso Petroleum Company Limited	euNetworks Fiber UK Ltd	EXA Infrastructure
Exolum Pipeline System	Fulcrum Electricity Assets Limited	Fulcrum Pipelines Limited
Gamma	Gas Networks Ireland (UK)	Gateshead Energy Company
Gigaclear Ltd	Harbour Energy	Heathrow Airport LTD
Humbly Grove Energy	IGas Energy	INEOS FPS Pipelines
INEOS Manufacturing (Scotland and TSEP)	INOVYN ChlorVinyls Limited	INOVYN Enterprises Limited
Intergen (Coryton Energy or Spalding Energy)	Jurassic Fibre Ltd	Kensa Utilities
Last Mile	Mainline Pipelines Limited	Manchester Jetline Limited
Manx Cable Company	Marchwood Power Ltd (Gas Pipeline)	Melbourn Solar Limited
MUA Group Limited	National Gas Transmission	National Grid Electricity Distribution
National Grid Electricity Transmission	National Grid Ventures	Neos Networks
Northern Gas Networks Limited	Northumbrian Water Group	NPower CHP Pipelines
NTT Global Data Centers EMEA UK Ltd	NYnet Ltd	Ogi
Oikos Storage Limited	Ørsted	Palm Paper Ltd
Perenco UK Limited (Purbeck Southampton Pipeline)	Petroineos	Phillips 66
Portsmouth Water	Premier Transmission Ltd (SNIP)	Redundant Pipelines - LPDA
RWE - Great Yarmouth Pipeline (Bacton to Great Yarmouth Power Station)	RWEnpower (Little Barford and South Haven)	SABIC UK Petrochemicals
SAS Utility Services Ltd	Scottish and Southern Electricity Networks	Scottish Power Generation
Seabank Power Ltd	SES Water	SGN
Shell	Shell NOP	SP Energy Networks
Spring Fibre Limited	Squire Energy Networks	SSE Generation Ltd
SSE Transmission	SSE Utility Solutions Limited	Storengy

Tata Communications (c/o JSM Construction Ltd)	TfL – London Underground HV Cables (Road Side Cables)	Total Colnbrook Pipelines
Total Finaline Pipelines	Transmission Capital	Trojan Energy Limited
UK Power Networks	Uniper UK Ltd	University of Cambridge Granta Backbone Network
Vattenfall	Veolia ES SELCHP Limited	Veolia ES Sheffield Ltd
Voneus Limited	VPI Power Limited	Wales and West Utilities
West of Duddon Sands Transmission Ltd	West Sussex OpenNetwork (Cooperative National Infrastructure)	Westminster City Council
Zayo Group UK Ltd c/o JSM Group Ltd		

Non-LSBUD members (Asset owners not registered on LSBUD)

(The following Non-LSBUD Members may have assets in your search area. It is YOUR RESPONSIBILITY to contact them before proceeding.

Please be aware this list is not exhaustive and it is your responsibility to identify and contact all asset owners within your search area.)

Asset Owner	Preferred contact method	Phone	Status
BT	https://www.swns.bt.com/pls/mbe/welcome.home	08000232023	Not Notified
CityFibre	asset.team@cityfibre.com	033 3150 7282	Not Notified
Colt	plantenquiries@catelecomuk.com	01227768427	Not Notified
Equans	nrsua.uk@equans.com	0800 130 3600	Not Notified
GTC	https://pe.gtc-uk.co.uk/PlantEnqMembership	01359240363	Not Notified
Lumen Technologies	plantenquiries@ocugroup.com	02087314613	Not Notified
Mobile Broadband Network Limited	mbnl.plant.enquiries@turntown.com	01212 621 100	Not Notified
Sky UK Limited	nrsua@sky.uk	02070323234	Not Notified
Sota	sota.plantenquiries@ocugroup.com		Not Notified
United Utilities	WastewaterDeveloperServices@uuplc.co.uk	08707510101	Not Notified
Utility assets Ltd	assetrecords@utilityassets.co.uk		Not Notified
Verizon Business	osp-team@uk.verizonbusiness.com	01293611736	Not Notified
Virgin Media	http://www.digdat.co.uk	08708883116	Not Notified
Vodafone	osm.enquiries@atkinsglobal.com	01454662881	Not Notified

Disclaimer

Please refer to LSBUD's Terms of Use for full terms of use available at www.lsbud.co.uk

The results of this Enquiry are personal to the Enquirer and shall not be shared with or relied upon by any other party. The asset information on which the Enquiry results are based has been provided by LSBUD Members, therefore LSBUD will provide no guarantee that such information is accurate or reliable nor does it monitor such asset information for accuracy and reliability going forward. There may also be asset owners which do not participate in the enquiry service operated by LSBUD, including but not exclusively those set out above. Therefore, LSBUD cannot make any representation or give any guarantee or warranty as to the completeness of the information contained in the enquiry results or accept any responsibility for the accuracy of the mapping images used. LSBUD and its employees, agents and consultants accept no liability (save that nothing in this Enquiry Confirmation excludes or limits our liability for death or personal injury arising from our negligence, or our fraud or fraudulent misrepresentation, or any other liability that cannot be excluded or limited by English law) arising in respect thereof or in any other way for errors or omissions including responsibility to any person by reason of negligence.