Hampshire Water Transfer and Water Recycling Project

6.2 Environmental Statement Vol II Appendix 11.2 Geotechnical and geo-environmental reports - 8 of 18 documents - Geotechnical and Geo-environmental Interpretative Report for Ground Investigation in Section K (Phase 2 and Phase 3B/3C) Addendum to Summary Report

VOLUME NUMBER: 6

PLANNING INSPECTORATE SCHEME NUMBER: WA010002

APPLICATION DOCUMENT REFERENCE: 11.2

APFP REGULATION: 5(2)(a)

23 November 2026

Version 1

WATER for LIFE

from Southern Water

Document Control	
6.2 Environmental Statement Vol II Appendix 11.2 Geotechnical and geo-environmental reports - 8 of 18 documents - Geotechnical and Geo-environmental Interpretative Report for Ground Investigation in Section K (Phase 2 and Phase 3B/3C) Addendum to Summary Report	
Version History	
Date	**Status/Reason for Issue**
May 2026	DCO Submission
November 2026	Deadline 1

Drawing Change Log

Drawing Number	Drawing Title	Updated Revision	Changes
November 2026 – Ground Investigation Figures Update			
ES Vol II Appendix 11.2 document 8 - Figure 1 Ground Investigation Locations with PSCs			
Figure 1.1	Section K (NW) Ground Investigation Locations with PSCs	27/11/2024	• Ground investigation locations added to Figure 1.1
Figure 1.2	Section K (SE) Ground Investigation Locations with PSCs	27/11/2024	• Ground investigation locations added to Figure 1.2

Contents

1 Introduction and Objectives 1
1.1 Proposed Development 1
1.2 Terms of Reference 1
1.3 Ground Investigation Programme 1
1.4 Section K Ground Investigation Objectives 2
1.5 Report Format 3
2 Section K Description 4
2.1 Location and Description 4
2.2 Above Ground Plant 4
3 Phase 2 & Phase 3B/3C Ground Investigation 5
3.1 Rationale for Ground Investigation Locations 5
3.2 Section K Ground Investigations 6
3.3 Exploratory Holes and Monitoring Well Installations 8
3.4 Geo-Environmental Testing 9
3.5 Geotechnical Testing 9
4 Ground Model 10
4.1 Geological Setting 10
4.2 Ground Investigation Results 11
4.2.1 Encountered Ground 11
4.2.2 Groundwater Levels 14
4.2.3 Visual and/or Olfactory Contamination 15
5 Generic Quantitative Risk Assessment (GQRA) 17
5.1 Soil Results 17
5.1.1 Assessment of Potential Risk to Human Health Receptors 17
5.1.2 Notable Soil Contaminant Concentrations 17
5.1.3 Soil Sample Deviations 18
5.2 Soil Leachate and Groundwater Results 18
5.2.1 Comparison of Soil Leachate Results Against GAC 18
5.2.2 Comparisons of Groundwater Results Against GAC 18
5.3 Excavated Materials (Waste) Management 21
5.3.1 Hazardous Properties 21
5.3.2 Waste Acceptance Criteria (WAC) 21
5.4 Ground Gas Monitoring 22

5.4.1 Gas Thresholds 22
5.4.2 Gas Risk Assessment 22

6 Land Contamination Risk Assessment Model 26

6.1 Approach and Revised Conceptual Site Model 26

6.2 Potential Sources of Contamination 26
6.2.1. Locations where PSCs were Identified 26
6.2.2. Location where Unexpected Contamination was Identified 27
6.2.3. Proposed BPT-K 27

6.3 Identification of Potential Pathways 27

6.4 Identification of Potential Receptors 28

6.5 Risk Assessment 28

6.6 Summary 30
6.6.1 BPT-K AGP 30
6.6.2 Section K DoL 30

7 Geotechnical Testing and Assessment 33

7.1 Geotechnical Testing and Assessment Summary Tables for Section K boreholes 33

7.2 Standard Penetration Test (SPT) vs Depth Relationship for Section K boreholes 36

7.3 Undrained Shear Strength (C_u) vs Depth Relationship for Section K boreholes 38

7.4 Particle Size Distribution for Section K boreholes 40

7.5 Plasticity for Section K boreholes 41

7.6 Geotechnical Design Parameters for Section K boreholes 42

7.7 In-situ Electrical Resistivity Testing 43

8 Geotechnical Considerations 44

8.1 Ground Conditions 44

8.2 Foundation Design 44

8.3 Shallow Excavation 44
8.3.1 Excavation 44
8.3.2 Groundwater Control 45

8.4 Flotation 45

8.5 Trenchless construction 45

8.6 Ground Aggressivity 46
8.6.1 Concrete 46
8.6.2 Ferrous Metals 46

8.6 Break Pressure Tank – K (BPT-K) 47
8.7.1 Bearing Resistance 47
8.7.2 Settlement 47

8.8 Geotechnical Hazard Assessment 47

9 Conclusions 49

9.1 Geotechnical 49

9.2 Geo-environmental 49
9.2.1 BPT-K AGP 49
9.2.2 Section K DoL 50

10 Recommendations 51

10.1 Geotechnical 51

10.2 Geo-environmental 51

References 53

Figures 55

Appendices

Appendices
Appendix A: Section K Desk Study Information Specific to the Ground Investigation
Appendix B: Chemical Analysis List of Suites and Geo-Environmental Testing
Appendix C: Deviations Reported by Analytical Laboratory
Appendix D: Geo-Environmental Laboratory Analysis Summary Screening Tables
Appendix E: HazWasteOnline ™ Reports
Appendix F: Gas Monitoring Results
Appendix G: Guidance for the Assessment of Land Contamination
Appendix H: Risk Assessment Tables
Appendix I: Risk Assessment Methodology
Appendix J: Bearing Resistance and Settlement at BPT-K

1 Introduction and Objectives

1.1 Proposed Development

Water for Life Hampshire (WfLH) is a programme being undertaken by Southern Water Services Limited (hereafter referred to as 'the Applicant') to address the sustainability objectives of reduced abstractions on Hampshire's two main rivers, the River Test and River Itchen, and to ensure a resilient water supply for the Applicant's customers during times of drought. The Hampshire Water Transfer and Water Recycling Project (HWTWRP) (hereafter referred to as the 'Proposed Development') is the Strategic Resource Option project being delivered as part of the WfLH programme (Southern Water, 2024). An overview of the Proposed Development, at the time of this report production, is provided in the Applicant's HWTWRP Technical Document Technology Guide (Southern Water, 2024).

1.2 Terms of Reference

Strategic Solutions Partner (SSP) has been instructed by the Applicant as part of the Proposed Development to produce a Geotechnical and Geo-environmental Interpretative Report for ground investigations (GIs) completed for the construction of the proposed underground pipeline. The Proposed Development has been divided into 12 Sections by the Applicant these are referred to as Sections A to M (excluding I).

1.3 Ground Investigation Programme

The GI for the Proposed Development is being completed using a phased approach as shown in **Table 1.1**. This document reports the findings of the GI works completed during Phase 2 and Phase 3B/3C within Section K only.

Table 1.1: Ground investigation programme

GI Phase	Description
Phase 0	This, with Phases 1 and 3A, was completed between July 2022 and October 2023 by SOCOTEC for Clancy (Principal Contractor), as specified by SSP (AECOM), primarily for the purpose of tunnel and shaft design (Sections B, C, D and M only) and comprised 11 boreholes.
Phase 1	This, with Phases 0 and 3A, was completed between July 2022 and October 2023 by SOCOTEC for Clancy (Principal Contractor), as specified by SSP (AECOM), primarily for the purpose of tunnel and shaft design (Sections B, C, D, L and M only) and comprised 35 exploratory hole locations.
Phase 2	This is part of a wider phased GI conducted along the route between February 2023 and July 2023 by SOCOTEC for Clancy (Principal Contractor), as specified by SSP, primarily for the purpose of investigating areas for non-pipeline infrastructure, trenchless crossings and potential sources of contamination (PSCs).
Phase 3A	This, with Phases 0 and 1, was completed between July 2022 and October 2023 by SOCOTEC for Clancy (Principal Contractor), as specified by SSP (AECOM), primarily for the purpose of tunnel and shaft design (Sections B, C, D, L and M only) and comprised 14 exploratory hole locations.
Phase 3B/3C	This, with several Phase 2 GI locations was completed between May 2023 and May 2024 by SOCOTEC for Clancy (Principal Contractor), as specified by SSP, primarily for the purpose of investigating areas for non-pipeline infrastructure, trenchless crossings, PSCs and the linear route.

1.4 Section K Ground Investigation Objectives

The Phase 2 and Phase 3B/3C Section K GI investigated the following:

- Trenchless crossing locations.
- Areas of potential sources of contaminant (PSCs) as identified within HWTWRP Geotechnical and Geo-Environmental Desk Study Version 4 (SSP, 2024).
- The proposed non-pipeline Break Pressure Tank K (BPT-K) Above Ground Plant (AGP) location.
- Geological conditions along the linear route, confirmed at regular intervals, to prove the geological conditions to comply with Eurocode 7: Part 2 (BSI, 2007) recommendations.

The GI works comprised the following:

- Three exploratory holes at proposed launch / reception pits for a trenchless crossing beneath the River Hamble (2K5500SR and 2K5501SR), and another at Wintershill Hall land (3K5606SA).
- Four exploratory holes at the location of a potentially infilled former pond (2K5502DS, 2K5503DS, 2K5534DS and 2K5535DS).
- Eleven locations associated with a proposed non-pipeline infrastructure BPT-K Site immediately northeast of Wintershill Hall (CPT and boreholes 3K5521CT, 3K5525DR, 3K5527DR, 3K5540CT and 3K5541CT), and BRE365 infiltration tests (3K7541IT to 3K7546IT inclusive).
- Ten additional locations to prove the geology along the linear route to comply with recommended ground investigation spacings laid out in Eurocode 7: Part 2, comprising 2 No. dynamic sampler borehole locations (3K5511DS and 3K5531DS) and 8 No. hand pits (3K5513HP, 3K5515HP, 3K5529HP, 3K5530HP, 3K5604HP, 3K5607HP, 3K5608HP and 3K5610HP).

Uncompleted GI Works

Other PSCs identified within a 50 m radius of the proposed Draft Order Limits (DoL) of Section K have not been investigated during Phase 3B/3C, as agreed by the Applicant. These included farms, a former railway line and marshland. For these areas, it was considered that the potential for the presence of significant contamination is not high as defined in the Methodology for Identification of Ground Investigation (SSP, 2022b).

Ten further exploratory hole locations comprising 9 No. hand pits and 1 No. borehole were not completed due to land access issues (3K5507HP, 3K5508HP, 3K5509HP, 3K5519HP, 3K5532HP, 3K5600HP, 3K5601HP, 3K5602HP, and 3K5603HP and 3K5605SA). 3K5606SA is at a trenchless crossing launch / reception pit location originally paired with 3K5605SA, and located approximately 15 m southeast of Wintershill, but 3K5605SA was cancelled due to land access issues, timing of proposed drilling and the Applicant decisions.

Exploratory holes 3K5520CT and 3K5524CT were cancelled as there were issues with Site slopes along this section of the route. 3K5540CT at the top of the field, 3K5540CT at the base of field, and 3K5521CT were installed to represent this area.

1.5 Report Format

This report comprises both geotechnical and geo-environmental interpretation of data collated during the GI as outlined below:

Section 1 Introduction and report objectives.

Section 2 Description including the location and Site description.

Section 3 Summary of Ground Investigation

Section 4 Ground Model.

Section 5 GI results, data interpretation and geo-environmental risk assessment, and geo-environmental considerations for the outline proposed works.

Section 6 Development of the land contamination risk assessment model from the GI.

Section 7 Geotechnical Testing and Assessment including geotechnical summary tables and figures and design parameters.

Section 8 Geotechnical Considerations including hazard and mitigation table, discussions on ground conditions, foundation design, excavations, groundwater control, flotation, trenchless construction and concrete aggressivity.

Section 9 Conclusions

Section 10 Recommendations based on the results of the GI.

This report provides a summary of encountered ground conditions, existing GI results, geotechnical and geo-environmental interpretation of analysis undertaken to inform on potential future structures and route design, health and safety of construction and future ground workers (construction), and excavated materials (waste) management.

A land contamination risk assessment for other potential future receptors such as farmers/ farm workers / members of the public accessing and working within the Proposed Development is outside the scope of this report. Further ground investigation and human health risk assessment may be required to determine the risk to these and any other identified potential future receptors, particularly in regard to appropriate excavated materials management (e.g. proposed reuse of soils).

Assessment of the GI data collected across the other Proposed Development sections is included in separate relevant section reports, collated in the HWTWRP Geotechnical and Geo-environmental Interpretative Summary Report (Ref. 710166-SWS-XX-XX-RP-GE-00100).

2 Section K Description

2.1 Location and Description

Section K is shown in the **Figures** section of this report. The approximate 5.1 km length of Section K will consist of a 1200 mm diameter ductile iron (DI) pipeline in open-cut trenches between 3 – 6 m below ground level (bgl) and trenchless crossings across predominantly arable fields, illustrated in the **Figures** Section. The route starts at Botley Road (B3035) at a trenchless crossing expected to be between 9.7 m and 15 m bgl under the River Hamble then as open cut construction until Wintershill. Beneath Wintershill and Wintershill Hall estate land it is a trenchless crossing at approximately 6 m and 8 m bgl. The route continues as open-cut construction across Scivier's Lane, Alma Lane and Mortimers Lane (B3037), then joining with Section L to the east of Hawthorns Farm.

Section K starts at an elevation of approximately 23 m Ordnance Datum (OD) at Botley Road (National Grid Reference (NGR) 453970E, 115659N) and ends east of Hawthorns Farm (451922E, 119543N) at an elevation of approximately 46 m OD. The maximum elevation along Section K is approximately 75 m OD at Wintershill (NGR 452801E, 118518N).

Temporary launch and reception pits / shafts will be excavated; launch shaft dimensions will range between 9.0 m and 9.5 m diameter and reception shafts range between 5.0 m and 5.4 m diameter.

2.2 Above Ground Plant

Section K includes a proposed Break Pressure Tank – K (BPT-K) Above Ground Plant (AGP) Site within a field, approximately 20 m northeast of Wintershill Hall (452764E, 118429N). The proposed area for the AGP is approximately 80 m x 70 m and slopes down towards the northeast. At Wintershill Hall, elevations are approximately 76 – 77 m, decreasing to approximately 65 m OD. Preliminary dimensions of BPT-K and ancillary structures are as follows:

- BPT-K is split into two cells each of 15 m width x 20 m length x 4 m height. The base of the tank is 70 m OD.
- Access roads to the Site will be 6 m wide with a turning head assumed to be 20 m.
- Valve house with approximate dimensions 10.2 m length x 11.5 m width x 3.5 m height.

3 Phase 2 & Phase 3B/3C Ground Investigation

3.1 Rationale for Ground Investigation Locations

Phase 2 GI focussed on locations of critical infrastructure, trenchless crossings and areas of potential sources of contamination (PSCs) as identified within HWTWRP Geotechnical and Geo-Environmental Desk Study Version 4 (SSP, 2024). Phase 3B/3C investigations were completed to investigate PSCs, the linear route and for geotechnical testing to be undertaken. Further detail on the rationale for the Phase 2 and Phase 3B/3C GI is presented in **Table 3.1**.

Table 3.1: Rationale for Phase 2 & Phase 3B/3C Locations in Section K

Hole ID	Rationale for GI Location [1]
2K5500SR	To investigate excavation areas for trenchless crossing (Botley Road B3035 and River Hamble) and 65 m south of PSCs 121,122, and 123 (Infilled – Land – Channels).
2K5501SR	To investigate excavation areas for trenchless crossing (Botley Road B3035 and River Hamble) and PSC 119 (Infilled Land – Channel).
3K5511DS	To obtain information on the geology along the linear route to comply with Eurocode 7: Part 2 recommendations and to investigate PSC 530 – Worked Ground – Unspecified.
3K5604HP	To obtain information on the geology along the linear route to comply with Eurocode 7: Part 2 recommendations
3K5513HP	
3K5606SA	
3K5515HP	
3K5607HP	
3K5608HP	
3K7541IT – 3K7546IT (inclusive)	To complete BRE365 infiltration tests at the location of BPT-K.
3K5521CT	To gain information on ground and groundwater conditions at the location of BPT-K and nearby PSC 474 (Military – Wintershill Hall (former military / civilian base)), approximately 35 m south.
3K5540CT	
3K5541CT	
3K5525DR	
3K5527DR	
3K5529HP	To obtain information on the geology along the linear route to comply with Eurocode 7: Part 2 recommendations.
3K5530HP	
3K5609HP	
3K5531DS	
3K5610HP	
2K5502DS and 2K5503DS	To investigate PSC 132 (Infilled Land – Pond).
2K5534DS and 2K5535DS	

[1] PSCs within a 50 m buffer of the Section K DoL were identified by the desk study which warranted further investigation (SSP, 2023).

3.2 Section K Ground Investigations

GI was carried out at selected locations across Section K by SOCOTEC, between 1st March 2023 and 3rd May 2023. The GI scope was specified by SSP (SSP, 2022).

The following exploratory holes were completed during the Phase 2 GI:

- Two boreholes (2K5500SR and 2K5501SR) were completed by cable percussion boring extended by rotary core drilling to a depth of 20.2 m and 20.0 m bgl respectively.
- Exploratory holes 2K5502DS and 2K5503DS were scheduled to be dynamic sampler boreholes to 6.0 m bgl. However, these exploratory holes were completed as hand dug inspection pits instead to a maximum depth of 0.9 m due to multiple water strikes, pit collapse and soft ground conditions. As a deviation to the scope of works, two further attempts were made to drill to depth in proximity to these locations (2K5534DS and 2K5535DS), however these were also completed as inspection pits due to the same challenging ground conditions.

The following exploratory holes were completed during the Phase 3B/3C GI between 25th October 2023 and 7th May 2024 (SSP, 2023c), (SSP, 2023d):

- Three boreholes (3K5521CT, 3K5540CT and 3K5541CT) were completed by cone penetration testing (CPTs) to a drilled depth of between 3.93 m and 10.00 m bgl. The scheduled depth was 10 m bgl, however only 3.93 m bgl was achieved at 3K5541CT due to CPT rig instability at the hole location. The instability was caused when the vertical CPT rod alignment became bent beyond the tolerance threshold (deflection angle), leading to CPT tool refusal.
- Two dynamic sampler borehole locations (3K5511DS and 3K5531DS) were completed to 6.0 m bgl.
- Two boreholes (3K5525DR and 3K5527DR) were completed by dynamic sampling with rotary coring to depths between 8.0 m and 30.0 m bgl.
- Eight hand dug trial pits (3K5513HP, 3K5515HP, 3K5529HP, 3K5530HP, 3K5604HP, 3K5607HP, 3K5608HP and 3K5610HP) were completed to 1.2 m bgl.
- One borehole (3K5606SA) was completed by cable percussion boring to a depth of 20.45 m bgl.
- Six machine excavated trial pits (3K7541IT to 3K7546IT inclusive) were completed to a depth of 2.5 m bgl.

A plan showing the exploratory hole locations is presented in the **Figures** section. The scope of the GI also included: in-situ geotechnical tests, volatile headspace testing by Photo-ionisation Detector (PID), a falling head permeability test (2K5501SR), geotechnical and geo-environmental sampling, and follow-up groundwater and gas monitoring.

The details of the GI, tests and laboratory analysis are presented in the SOCOTEC Ground Investigation Final Factual report (SOCOTEC, 2023) (SOCOTEC, 2024). A description of GI locations is shown in **Table 3.2**.

Table 3.2: Description of GI Locations

GI Locations	National Grid Reference [1]	Location Description
2K5500SR	453871, 115639	Located within a field, approximately 10 m south of the Botley Road (B3035), approximately 1.7 km northeast of Curdridge village, Hampshire. River Hamble is located approximately 150 m north. A tributary to the River Hamble is located approximately 15 m southwest. The surrounding land use is rural.
2K5501SR	453899, 115871	Located within a field, approximately 180 m northeast of the Botley Road (B3035), approximately 1.8 km northeast of Curdridge village. River Hamble is located approximately 65 m south. A tributary to the River Hamble is located approximately 45 m west. A field drain may have been present within 10 m of the GI location. The surrounding land use is rural.
3K5511DS	453480, 117568	Located within a field, 5 m southwest of a track that extends approximately 430 m southwest of Wintershill.
3K5604HP	453275, 117637	Located in a field, approximately 280 m southeast of Wintershill.
3K5513HP	453046, 117766	Located within a field, approximately 80 m southwest of Wintershill.
3K5606SA	452978, 117981	Located in a field, approximately 480 m southeast of Wintershill Hall and 150 m northwest of Wintershill.
3K5515HP	452943, 118254	Located approximately 200 m southeast of Wintershill Hall, and approximately 200 m southwest of a track leading to Wintershill Hall.
3K5607HP	452945, 118490	Located in a field approximately 180 m northeast of Wintershill Hall.
3K5608HP	452852, 118630	Located in a field approximately 210 m northeast of Wintershill Hall.
3K7541IT	452792, 118483	Located in a field approximately 55 m northeast of Wintershill Hall.
3K7542IT	452816, 118500	Located in a field approximately 80 m northeast of Wintershill Hall.
3K7543IT	452808, 118512	Located in a field approximately 90 m northeast of Wintershill Hall.
3K7544IT	452770, 118474	Located in a field approximately 40 m northeast of Wintershill Hall.
3K7545IT	452757, 118596	Located in a field approximately 70 m northeast of Wintershill Hall.
3K7546IT	452770, 118531	Located in a field approximately 95 m northeast of Wintershill Hall.
3K5521CT	452798, 118518	Located approximately 95 m northeast of Wintershill Hall,
3K5540CT	452834, 118500	Located within a field approximately 95 m northeast of Wintershill Hall.
3K5541CT	452772, 118466	Located within a field approximately 35 m northeast of Wintershill Hall.
3K5525DR	452794, 118471	Located approximately 55 m northeast of Wintershill Hall.
3K5527DR	452779, 118529	Located approximately 100 m northeast of Wintershill Hall.
3K5529HP	452779, 118529	Located within a field approximately 230 m east of Sciviers Lane.
3K5530HP	452457, 118899	Located within a field approximately 130 m northeast of Sciviers Lane.
3K5609HP	452380, 118977	Located within a field approximately 140 m west of Sciviers Lane.
3K5531DS	452356, 119091	Located within a field approximately 75 m east of Sciviers Lane.
3K5610HP	452272, 119130	Located within a field approximately 10 m northwest of Sciviers Lane.
2K5502DS	452139, 119217	Located within a field adjacent to a watercourse, approximately 60 m southeast of Alma Lane, approximately 350 m south of Lower Upham village, Hampshire. The watercourse is a tributary to Ford Lake. The surrounding land use is rural.
2K5503DS	452127, 119223	
2K5534DS	452144, 119218	
2K5535DS	452151, 119213	

[1] provided in the Final factual GI report (SOCOTEC, 2023) (SOCOTEC, 2024).

3.3 Exploratory Holes and Monitoring Well Installations

The exploratory hole locations and borehole logs are presented in SOCOTEC's Ground Investigation Reports (SOCOTEC, 2023) (SOCOTEC, 2024). **Table 3.3** provides a summary of the installation response zones and the number of monitoring visits completed. A plan showing the exploratory hole locations is presented in the **Figures** section.

Groundwater / gas monitoring wells were installed in 2K5500SR (50 mm pipe diameter) and 2K5501SR (19 mm pipe diameter). A datalogger was installed in monitoring well 2K5500SR at 4.8 m bgl on 19th June 2023, during the second groundwater monitoring event.

Groundwater / gas monitoring wells were installed in 3K5525DR and 3K5606SA (50 mm pipe diameter).

Table 3.3: Summary of Groundwater and Ground Gas Monitoring

BH ID	Response Zones (m bgl)	Groundwater Level Monitoring Rounds	Gas Monitoring Rounds	Groundwater Samples Collected
2K5500SR	3.0 m to 7.0 m (River Terrace Deposits and London Clay)	13 No. (24/05/23 to 04/04/24)	12 No.	4 No. 16/05/23 18/07/23 12/09/23 30/07/24
2K5501SR	1.0 m to 2.0 m (Head Deposits)	14 No. (26/04/23 to 09/04/24*)	09/04/24 (no gas tap installed previous to this event)	2 No. 11/05/23 24/07/23
3K5525DR	0.75 to 5.25 m (Alluvium and London Clay Formation)	7 No. (30/11/23 to 09/04/24)	7 No. (30/11/23 to 09/04/24)	3 No. 30/11/23 10/01/24 08/03/24
3K5606SA	6.0 to 10.0 m (London Clay Formation)	7 No. (30/11/23 to 09/04/24)	7 No. (30/11/23 to 09/04/24)	3 No. 30/11/23 10/01/24 08/03/24

*For 2K5501SR no monitoring conducted on 10th October 2023 due to landowner restrictions.

3.4 Geo-Environmental Testing

Geo-environmental laboratory testing was scheduled by SSP on selected soil and groundwater samples recovered during the GI works. The testing was carried out by SOCOTEC at their UKAS-accredited environmental chemistry laboratory at Bretby, near Burton-on-Trent, in accordance with MCERTS accredited (where applicable) test methods as stated within the laboratory test reports. The scope of testing is listed in **Appendix B**. **Appendix B** shows that several requested chemical analyses was not included in either AGS format or Final Factual GI reports (SOCOTEC, 2023) (SOCOTEC, 2024).

3.5 Geotechnical Testing

Geotechnical testing was scheduled by SSP on selected soil samples recovered during the GI works. The testing was carried out by nominated UKAS-accredited geotechnical laboratories including: GEOLABS, near Watford, The Testing Lab (TTL) near Doncaster and Derwentside Environmental Testing Services Ltd (DETS) near Durham. Depending on the samples available, the testing comprised a combination of moisture content, Atterberg limits, density (linear), particle size distribution, saturation moisture content (chalk), unconfined compression strength, point load index testing, unconsolidated undrained triaxial, compaction, chalk crushing value, chalk carbonate content, BRE testing, organic matter content and loss on ignition. The tests completed are presented in the SOCOTEC final factual report (SOCOTEC, 2023) (SOCOTEC, 2024).

4 Ground Model

4.1 Geological Setting

Superficial deposits are absent for the majority of Section K, except southwest of Bishops Waltham near the River Hamble (Alluvium, Head Deposits and River Terrace Deposits), and near watercourses to the east and southeast of Wintershill (Alluvium); all of which are underlain by London Clay bedrock. Lambeth Group and White Chalk Subgroup would be at greater depth. Superficial Deposits extent is summarised in **Table 4.1.**

Table 4.1: Summary of Mapped Superficial Deposits at Ground Level

Chainages	Geology	Typical Description
24800 – 24900	Not present	-
24900 - 24960	Alluvium	Clay, silt and sand, locally organic with gravel.
24960 - 25130	Head Deposits	Variable deposits of sandy silty clay, locally gravelly; chalky and flinty in dry valleys.
25130 - 25160	River Terrace Deposits	Undifferentiated sand and gravel.
25160 - 25760	Not present	-
25760 - 25820	Head Deposits	Variable deposits of sandy silty clay, locally gravelly; chalky and flinty in dry valleys.
25820 - 26940	Not present	-
26940 - 26960	Alluvium	Clay, silt and sand, locally organic with gravel.
26960 - 29930	Not present	-

The chainages have been provided by the Applicant as of 12 March 2024 as part of the Summer 2024 Design Consultation Route.

Section K is underlain by London Clay Formation, with the bedrock extent is summarised in **Table 4.2.**

Table 4.2: Summary of Mapped Bedrock at Ground Level

Chainages	Geology	Typical Description
24800 - 29930	London Clay Formation	Grey and brown silty and sandy clays with sandy and pebbly beds.

The chainages have been provided by the Applicant as of 12 March 2024 as part of the Summer 2024 Design Consultation Route.

Two historic boreholes were drilled for water supply in the vicinity of Section K between years 1891 and 2000. These progressed to greater depths than the proposed works. Both boreholes encountered London Clay Formation to greater than 32 m bgl. The borehole logs generally agreed with the geological sequence anticipated from the geological mapping. A disturbed mixture of chalk and Reading Formation (the latter part of the Lambeth Group) was identified in one of the boreholes (SU51NW2), which appears to be a local feature - the borehole was thought to have been drilled into a sub-Tertiary chalk dissolution pipe (previously unknown about in 1891).

Further details, including available, archive borehole logs can be viewed with the HWTWRP Geotechnical and Geo-Environmental Desk Study Version 3 (SSP, 2023) and the GI factual reports produced by SOCOTEC (SOCOTEC, 2023) (SOCOTEC, 2024).

4.2 Ground Investigation Results

4.2.1 Encountered Ground

A brief summary of the ground conditions encountered during the ground investigation is provided in **Table 4.3,** which mostly correlate with the geological mapping. Exploratory hole logs are presented in SOCOTEC's Ground Investigation Reports (SOCOTEC, 2023) (SOCOTEC, 2024) to provide more details.

Chainages across the route for Section K are between 24750 and 29930 as shown in **Table 4.3**.

Superficial deposits including Alluvium, Head Deposits and River Terrace Deposits are not mapped where the exploratory holes are located. However, superficial deposits that are expected with less than a 1 – 2 m thickness are not always shown on geological maps.

The encountered ground matches the BGS boreholes summarised in the desk study to the top 1 m bgl within boreholes 2K5502DS, 2K5503DS, 2K5534DS and 2K5535DS before these locations were terminated earlier than scheduled depth due to water ingress within the inspection pits.

The desk study did not list a likelihood of Made Ground within Section K however, it is expected that some would be encountered near agricultural or suburban areas along the route.

At 3K5525DR, between 24.15 – 24.90 m bgl, silty sand is described, which may be associated with London Clay Division C (Portsmouth Sand Member) as encountered within Section J.

Table 4.3: Summary of Encountered Ground Conditions for Section K Exploratory Holes

Exploratory Hole ID:		2K5500SR	2K5501SR	2K5502DS	2K5503DS	2K5534DS	2K5535DS	3K5511DS	3K5513HP	3K5515HP	3K5525DR	3K5527DR	3K5529HP	3K5530HP	3K5531DS
Ground Level (m OD)		+23.16	+17.75	+43.83	+43.73	+43.81	+43.99	+36.00	+49.19	+56.02	+ 72.19	+67.23	+52.18	+49.20	+44.81
Chainage (m)		24750	24985	29500	29520	29520	29520	27970	27460	27980	28500	28500	28870	29020	29240
Strata	Typical Description	Depth range (m bgl)													
Topsoil	Grass over gravely sandy CLAY/SILT	-	0.00 – 0.12	0.00 – 0.15	0.00 – 0.18	0.00 – 0.17	0.00 – 0.15		0.00 – 0.20	0.00 – 0.30	0.00 – 0.20	0.00 – 0.15	0.00 – 0.30	0.00 - 0.30	0.00 - 0.15
Made Ground	Soft brown sandy gravelly CLAY. Gravel is chert, brick, (burnt wood at 3K5511DS), macadam (2K5500SR only). Sand is fine to coarse.	0.00 – 0.70	-	0.15 – 0.60	-	-	-	0 – 1.60	-	-	-	-	-	-	-
Alluvium	Soft and firm grey mottled black sandy SILT with organic odour (2K5502DS only). Sand is fine / Orange/brown sandy gravelly CLAY	-	-	0.60 – 0.70	0.18 – 0.90	0.17 – 0.70	0.15 – 0.70	-	-	-	0.20 – 3.00	0.15 – 2.50	-	-	-
Head Deposits	Firm orangish brown mottled grey sandy cobbly CLAY. Cobbles are of flint. / Grey sandy clayey GRAVEL of flint / Firm orangish brown mottled grey sandy CLAY.	-	0.12 – 2.00	-	-	-	-	-	-	0.30 – 0.70	-	-	0.30 -1.20	-	-
River Terrace Deposits	Soft greyish brown slightly sandy gravelly CLAY. Gravel is flint and chalk.	0.70 – 4.90	-	-	-	-	-	-	-	-	-	-	-	-	-
London Clay Formation	Firm to stiff becoming very stiff locally fissured slightly sandy silty CLAY with shell fragments (<25 mm diameter) and pyrite nodules (25 – 50 mm diameter). Locally soft to firm near the top of the stratum. At 3K5525DR, from 6.6-6.75 m, 1 cobble of strong limestone. At 2K5500SR, very stiff from 6.50 – 20.20 m For 2K5501SR, at 9.70 - 9.80 m, fine to coarse medium strong claystone. For 2K5501SR, from 16.70-16.80 m, strong dark greyish brown argillaceous fine to medium grained fossiliferous limestone with calcite voids. At 3K5525DR, at 24.1m, 1 No. well rounded fine gravel of claystone. from 24.15-24.90m, silty fine sand.	4.90 – 20.20	2.00 – 20.00	-	-	-	-	1.6 – 6.45	0.20 – 1.20	0.70 – 1.20	3.00 – 30.50	2.50 – 8.45		0.30 -1.20	0.15 – 6.00
Base of Hole (m bgl)		20.20	20.00	0.70	0.90	0.70	0.70	6.45	1.20	1.20	30.50	8.45	1.20	6.45	1.20

Exploratory Hole ID:		3K5604HP	3K5606SA	3K5607HP	3K5608HP	3K5609HP	3K5610HP	3K7541IT	3K7542IT	3K7543IT	3K7544IT	3K7545IT	3K7546IT
Ground Level (m OD)		+45.95	+45.16	+57.07	+52.03	+45.27	+45.18	+71.56	+66.38	+65.94	+74.65	+72.71	+67.70
Chainage (m)		27180	27700	28220	28370	29130	29350	28500	28500	28500	28500	28500	28500
Strata	Typical Description	Depth range (m bgl)											
Topsoil	Grass over gravely sandy CLAY	0.00 – 0.30	0.00 – 0.15	0.00 – 0.30	0.00 – 0.35	0.00 - 0.30	0.00 -0.30	0.00 – 0.25	0.00 – 0.20	0.0 0.30	0.00 – 0.25	0.00 – 0.25	0.00 - 0.30
Made Ground	Soft brown/orange sandy slightly gravelly CLAY. Gravel is chert, brick, tile, chalk, macadam (top 0.3 m at 2K5500SR). Sand is fine to medium.	-	-	-	-	-	-	-	0.20 – 0.55	-	-		
Alluvium	Soft grey mottled black sandy SILT with organic odour (2K5502DS only). Sand is fine / Orange/brown sandy gravelly CLAY	-	0. 15 – 2.00	-	-	-	-	-	0.55 – 1.20	0.30 – 0.75	-	0.25 – 1.45	0.30 – 1.30
Head Deposits	Firm orangish brown mottled grey sandy / gravelly / cobbly CLAY. Cobbles are of flint. / Grey sandy clayey GRAVEL of flint / Firm orangish brown mottled grey sandy CLAY.	-	-	0.30 – 0.80	0.35 – 1.20		0.30 - 0.90	0.25 – 0.90	-	-	0.25 – 0.70	-	-
London Clay Formation	Firm to stiff becoming very stiff locally fissured slightly sandy silty CLAY with shell fragments (<25 mm diameter) and pyrite nodules (25 – 50 mm diameter). Locally soft to firm near the top of the stratum. At 3K5525DR, from 6.6-6.75 m, 1 cobble of strong limestone. For 2K5500SR, very stiff from 6.50 – 20.20 m For 2K5501SR, at 9.70 - 9.80 m, fine to coarse medium strong claystone. For 2K5501SR, from 16.70-16.80 m, strong dark greyish brown argillaceous fine to medium grained fossiliferous limestone with calcite voids. At 3K5525DR, at 24.1m, 1 No. well rounded fine gravel of claystone. from 24.15-24.90m, silty fine sand.	0.30 – 1.20	2.00 – 20.45	0.75 – 1.20	-	0.30 – 1.20	0.90 – 1.20	0.90 – 2.50	1.20 – 2.50	0.75 – 2.50	0.70 – 2.50	1.45 – 2.50	1.30 – 2.50
Base of Hole (m bgl)		1.20	20.45	1.20	1.20	1.20	1.20	2.50	2.50	2.50	2.50	2.50	2.50

4.2.2 Groundwater Levels

Groundwater and ground gas monitoring took place in selected boreholes specified by SSP. Monitoring was carried out by SOCOTEC during and after the main fieldwork period. A summary of groundwater and ground gas monitoring installations is provided in **Table 4.4** along with the groundwater strikes, and groundwater spot monitoring data collected at monitoring well locations.

Table 4.4: Summary of Groundwater Strikes and Spot Monitoring Records

Exploratory Hole	Response zone (m bgl)	Strike During Drilling – Depth and Elevation	Stratum Within Which Strike Was Recorded	Spot Monitoring – Depth and Elevation	Data Logger – Minimum/ Maximum Depth
2K5500SR	3.0-7.0 (River Terrace Deposits and London Clay Formation)	6.10 m bgl (17.05 m Ordnance Datum (OD) rose to 6.30 m (16.86 m OD)	London Clay Formation	2.28 m to 2.97 m bgl (20.98 m to 20.19 m OD)	1.37 m to 2.5 m bgl 21.79 m to 20.66 m OD
2K5501SR	1.0-2.0 (Head deposits)	No Strike	N/A	0.00 m* to 0.95 m (17.75 m to 16.80 m OD)	None
2K5502DS	No Installation	0.7 m bgl (43.13 m OD) rose to 0.5 m after 20 mins (43.33 m OD)	Made Ground/Alluvium	N/A	
2K5503DS		0.9 m bgl (42.83 m OD) Rose to 0.8 m after 20 mins (42.93 m OD)	Alluvium		
2K5534DS		No Strike	N/A		
2K5535DS		0.7 m bgl (43.28 m OD) rose to 0.5 m (43.49 m OD)	Alluvium		
3K5513HP		1.20 m (47.99 m OD) Seepage slow inflow	London Clay Formation		
3K5515HP		0.70 m (55.32 m OD)	Head Deposits/ London Clay Formation		
3K5525DR	0.75 to 5.25 m (Alluvium and London Clay Formation)	No Strike	N/A	1.09 m to 1.78 m (41.10 m to 40.41 m OD)	
3K5529HP	No Installation	1.20 m (50.98 m OD) Seepage	London Clay Formation	N/A	
3K5606SA	6.0-10.0 (London Clay Formation)	No strike	N/A	1.17 m to 1.99 m bgl (43.99 to 43.17 m OD)	
3K5608HP	No Installation	0.90 m (51.13 m OD)	Head Deposits	N/A	

* 2K5501SR was flooded on 26/04/23 and a groundwater level reading was recorded at 0.00 m bgl on 19/06/23.

The ground conditions and groundwater results are mostly consistent with the anticipated ground conditions from the desk study and BGS boreholes. Superficial Deposits comprise predominantly Head Deposits with Alluvium, which are probably more extensive than mapped. The outlier is the description of soft clay within the

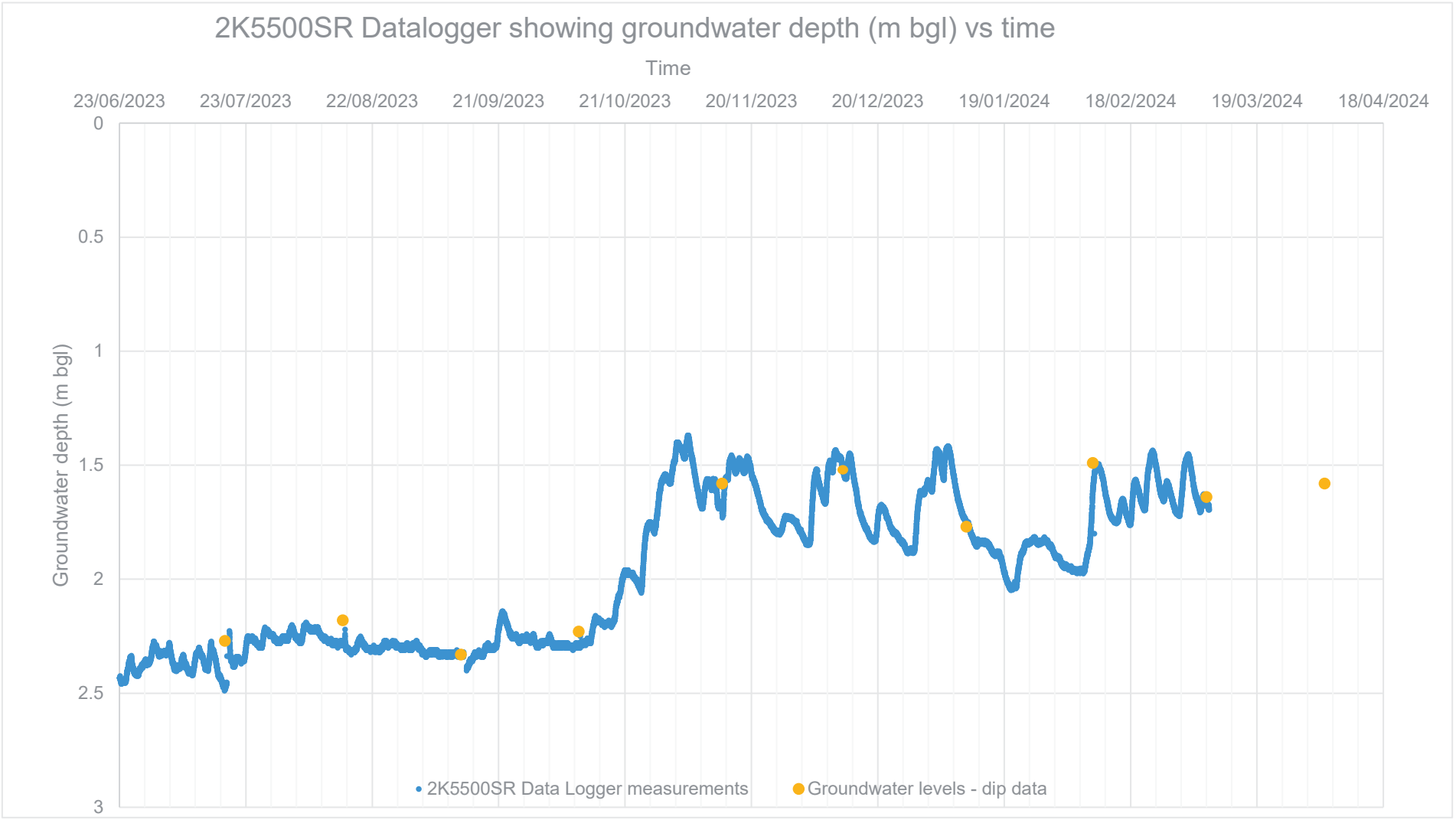
River Terrace Deposits, which potentially could be Alluvium as both deposits were geologically mapped at the same location (at 1:50,000 scale). River Terrace Deposits do contain lenses of clay.

Graph 4.1 shows the groundwater levels for 2K5500SR near the proposed trenchless crossing of the River Hamble – this was monitored by downhole dataloggers placed 1m above the base of the slotted pipe. Data from March 2024 onwards will be provided to the Applicant separately as soon as the borehole has been decommissioned.

4.2.3 Visual and/or Olfactory Contamination

No visual and/or olfactory evidence of contamination recorded on the exploratory hole logs.

Graph 4.1 (extract): Datalogger groundwater levels for 2K5500SR between June 2023 and March 2024



5 Generic Quantitative Risk Assessment (GQRA)

This report section assesses the soil, soil leachate, groundwater and gas data collected within the DoL for Section K only.

In accordance with the guidance given in 'Land Contamination Risk Management' (LCRM) (Environment Agency, 2023) the results of the geo-environmental laboratory testing undertaken on the samples of soil and groundwater recovered during the 2023 and 2024 SOCOTEC GI have been compared to current published generic assessment criteria (GAC) to identify potential hazards to the plausible receptors.

The 6 No. soil samples from Phase 2 GI locations included 1 No. sample of topsoil, 1 No. soil sample of Made Ground, and 4 No. of natural ground (River Terrace Deposits, Head Deposits and London Clay).

The 36 No. soil samples from Phase 3B/3C GI locations included 8 No. soil samples of topsoil, 3 No. soil samples of Made Ground, and 25 No. of natural ground (London Clay, Head Deposits and Alluvium).

5.1 Soil Results

5.1.1 Assessment of Potential Risk to Human Health Receptors

There were no recorded exceedances of the human health GAC (commercial land use) for 2K5500SR, 2K5501SR, and all phase 3B/3C exploratory holes. Details of the GAC used for screening are provided in **Appendix G**.

Asbestos cement (Chrysotile) was detected in soil sample 2K5500SR at 0.5 m bgl; details are included in **Table 5.1**. There was no other identified asbestos in soil samples tested.

5.1.2 Notable Soil Contaminant Concentrations

GAC are not available for all determinands analysed. Concentrations which appear to be elevated compared to other chemical results recorded during the GI are included in **Table 5.1.**

Table 5.1: Notable Contaminant Soil Concentrations

Exploratory Hole ID	Depth (m bgl)	Determinand	Concentration (mg/kg)
2K5500SR	0.5 Made Ground	Asbestos	**0.147% Chrysotile (asbestos cement)**
	4.5 River Terrace Deposits	Lead	**124**
		Mineral oil >C_6-C_{40}	**101**
3K5515DS	0.2 Topsoil	TPH >C_{10}-C_{40}	**534**
3K5606SA	0.5 Alluvium	Copper	**566**

5.1.3 Soil Sample Deviations

Soil sample deviations were recorded for samples stated in **Appendix C**. This was due to the acceptable (holding) time between the sampling date and laboratory analysis being exceeded[1].

5.2 Soil Leachate and Groundwater Results

Soil leachate and groundwater concentrations have been compared to the Drinking Water Inspectorate Drinking Water Standard (DWS) guidance (Drinking Water Inspectorate, 2024) and the withdrawn Water Supply (Water Quality) Regulations 1989 (WQS) for petroleum hydrocarbons (Legislation.gov.uk, 2024)

5.2.1 Comparison of Soil Leachate Results Against GAC

Of the six-soil leachate tests (2:1 ratio) requested from Phase 2 GI soil samples, only one result has been reported, 2K5501SR at 6.0 m bgl (London Clay). Comparison of the results for this sample against the GAC recorded an ammonium (NH_4) concentration of 692.8 µg/l which exceeded the UK Drinking Water Standard (DWS) of 500 µg/l.

The results of the chemical analysis for soil leachate samples 2K5500SR at 0.5 m, 2K5500SR at 1.0 m, 2K5501SR at 1.0 m, 2K5503DS at 0.1 m and 2K5503DS at 1.0 m are not included in the SOCOTEC final report or in accompanying AGS data format. No leachate results were obtained for 3K5511DS due to an insufficient sample volume available.

The Total Ammonia (N) concentration at 601 µg/l for 2K5501SR at 6.0m bgl exceeds the Water Framework Directive (WFD) for ammonia GAC of 200-600 µg/l. This exceedance is not considered significant because the concentration detected is only 1 µg/l above the GAC and the laboratory margin of error on analysis is likely be greater than 1 µg/l. No other exceedances were detected. Further details on the selection of GAC protective of aquatic ecosystems (controlled waters) are provided in **Appendix G.**

Potential contaminants for which the Method Detection Limit (MDL) exceeded the corresponding GAC are presented in **Appendix C**. Testing with an MDL lower than the EQS for the PAHs listed is typically not offered by standard commercial laboratories. It is noted that the analytical laboratory reported a TPH concentration of <314 µg/l. This result is greater than the MDL (110 µg/l). The laboratory advised that a reduced volume could only be leached from the soil sample; therefore, the MDL has been raised.

5.2.2 Comparisons of Groundwater Results Against GAC

Contaminant concentrations in excess of the GAC for the 13 No. groundwater samples collected from Phase 2 and Phase 3B/3C are shown in **Table 5.2** and **Table 5.3**.

[1] Holding times are derived based on 'stability'; the ability of a property to remain unchanged, within a stated uncertainty, under given storage conditions and a specific timeframe. If a reported result is within the holding time it is known that the degree of change (if it occurs) is not statistically meaningful. If the sample result is reported as 'deviating' the degree of change is unknown and, therefore, may have affected the result. The result must, therefore, be treated as potentially indicative.

Table 5.2: Groundwater Exceedances of Freshwater EQS

BH ID	Sampling Date	Determinand	Concentration (µg/l)	GAC (µg/l)
2K5500SR	16/05/23	Chromium (VI)	**5**	3.4
	18/07/23	Fluoranthene	**0.79**	0.0063
		Benzo(ghi)perylene	**0.26**	0.0082
	12/09/23	Fluoranthene	**0.12**	0.0063
	18/07/23	Total Ammonia (N)	**601.2**	200 – 600*
	12/09/23		**502.4**	
	16/05/23		**897.6**	
	30/07/24		**798.8**	
2K5501SR	11/05/23	Total Ammonia (N)	**337.6**	200 – 600*
	11/05/23	Nickel	**65**	4
		Zinc	**35**	10.9
		Fluoranthene	**0.52**	0.0063
		Phenol	**9**	7.7
	24/07/23	Nickel	**30**	4
		Mercury	**0.08**	0.07
		Phenol	**34.6**	7.7
	12/03/24	Total Ammonia (N)	**296.5**	200 – 600*
3K5606SA	10/01/24	Total Ammonia (N)	**700**	200 – 600*
	30/11/23		**798**	
	08/03/24		**700**	
	30/11/23	Fluoranthene	**0.02**	0.0063
	08/03/24		**0.25**	
	10/01/24	Sulphate (SO_4)	**588,000**	250000
	30/11/23		**575,000**	
	08/03/24		**602,000**	
3K5525DR	08/03/24	Phenol	**0.7**	0.5

*Based on the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 for good to high river quality.

Table 5.3: Groundwater Exceedances of DWS and WQS

BH ID	Sampling Date	Determinand	Concentration (µg/l)	GAC (µg/l)
2K500SR	18/07/23	TPH (C_{10}-C_{40})[2]	**420**	10[1]
	12/09/23		**110**	
	18/07/23	Ammonium (NH_4)	**772.9**	500
	12/09/23		**645.9**	
	16/05/23		**1,154.1**	
	30/07/24		**1,027.1**	
		TPH (C_{10}-C_{40})[2]	**<2200**	10[1]
2K5501SR	11/05/23	TPH (C_6-C_{40})[2]	**42,200**	10[1]
	24/07/23	GRO (C_6-C_{10})	**242**	
		TPH (C_6-C_{40})[2]	**3,160**	
	12/03/24		**<2,200**	
	09/04/24	TPH aliphatic (C_8-C_{40})[2]	**480**	
	12/03/24	Arsenic	**16**	10
		Sodium	**33,500**	200,000
	09/04/24	Nickel	**21**	20
	12/03/24		**23**	
3K5606SA	10/01/24	Ammonium (NH_4)	**900**	500
		Sulphate (SO_4)	**588,000**	250000
	10/01/24	TPH (C_6-C_{40})[2]	**110**	10[1]
	30/11/23		**290**	
	08/03//24		**7,210**	
	30/11/23	Ammonium (NH_4)	**1,027.1**	500
		Sulphate (SO_4)	**575,000**	250000
	08/03/24	Ammonium (NH_4)	**900**	500
		Sulphate (SO_4)	**602,000**	250000
3K5525DR	10/01/24	Chloride	**338,000**	250000
	30/11/23		**444,000**	
	08/03/24	TPH (C_6-C_{40})[2]	**<2,200[3]**	10[1]
	10/01/24		**120**	
	30/11/23		**<11,000[3]**	

[1] Withdrawn Water Supply (Water Quality) Regulations 1989 GAC.
[2] TPH clean-up was not carried out.
[3] The laboratory stated that the sample was extracted on a x100 dilution for TPH and PAH which has resulted in a raised method detection limit.

Analytes with a laboratory MDL greater than the EQS used for the assessment are shown in **Appendix C**. While the laboratory did not detect these determinands in the sample, they may be present at a concentration above the GAC; however, in the absence of detected concentrations, these are not considered true exceedances.

Groundwater sample deviations and potential contaminants for which the laboratory MDL exceeded the corresponding GAC are presented in **Appendix C**. It is noted that testing with an MDL lower than the GAC for the PAHs listed is typically not offered by standard commercial laboratories.

Further details on the selection of water assessment criteria protective of human health and aquatic ecosystems (controlled waters) is provided in **Appendix G**.

5.3 Excavated Materials (Waste) Management

5.3.1 Hazardous Properties

Soil analytical results for the 42 No. soil samples described above have been screened for hazardous properties as identified in Technical Guidance WM3 - Waste Classification - Guidance on the Classification and Assessment of Waste First Edition Version 1.2 (Environment Agency, 2021). This screen was carried out using HazWasteOnline (HazWasteOnline (a), 2024) (HazWasteOnline (b), 2024). The results are provided in **Appendix E. Table 5.4** below displays the findings from the HazWasteOnline Assessment.

Table 5.4: Waste Classification – Hazardous Soils

BH ID	Sample Depth and Stratum (m bgl)	Determinand	Concentration (% w/w)	Hazardous Properties
2K5500SR	0.5 m (Made Ground)	Asbestos cement (chrysotile)	**0.147%**	H7 Carcinogenic

The remainder of the soil matrix for soil sample 2K5500SR at 0.5 m is classified as non-hazardous. All other Section K soil samples analysed as part of Phase 2 and Phase 3B/3C are classified as non-hazardous material.

5.3.2 Waste Acceptance Criteria (WAC)

WAC testing was completed in accordance with BSEN 12457/2 on three soil samples (one Made Ground, one River Terrace Deposits and one Head deposits) retrieved from 2K5500SR and 2K5501SR (Phase 2) and nine samples (three Made Ground, two Alluvium deposits and four London Clay Formation) retrieved from 3K5511DS, 3K5527DR, 3K5530HP, 3K5606SA, 3K5609HP and 3K7542IT (Phase 3B/3C).

Results were screened against inert waste landfill WAC limit values. A summary of exceedances is provided below:

- Sample 2K5500SR at 4.5 m bgl (River Terrace Deposits) marginally exceeded the inert threshold for antimony (0.08 mg/kg vs limit of 0.06 mg/kg).
- Samples 3K5530HP and 3K5609HP at 1.0 m bgl London Clay Formation) exceeded the inert threshold for fluoride (15 mg/kg vs limit of 10 mg/kg).

Although asbestos was detected at a concentration in excess of the hazardous properties threshold (0.1%) in the Made Ground of 2K5500SR at 0.5 m bgl, given the remainder of the soil matrix is non-hazardous / inert, this stratum could potentially be disposed of in an asbestos cell at a non-hazardous landfill.

No WAC testing was completed from soil samples taken from the location of PSC 132 Infilled Land – Pond (2K5502DS, 2K5503DS, 2K5534DS and 2K5535DS).
It is important to note that specific inert landfills may have stricter and/or additional limits imposed for waste soil disposal, therefore the above assessment shall be treated as indicative only. Suitability of material for disposal must be discussed with the landfill operator in advance. It is likely that additional soil sampling with

chemical and WAC testing will be required beyond this preliminary ground investigation to inform on suitable disposal routes. Topsoil is not normally accepted at landfill due to its high organic content.

5.4 Ground Gas Monitoring

Ground gas monitoring results for monitoring wells 2K5500SR, 2K5501SR, 3K5525DR and 3K5606SA are tabulated in SOCOTEC's Ground Investigation Reports (SOCOTEC, 2023) (SOCOTEC, 2024). There were seven gas monitoring events between May 2023 and November 2023 for 2K5501SR, in addition to seven further rounds of monitoring up to April 2024 for select parameters only. 2K5501SR was monitored on a single occasion during April 2024. Monitoring of the Phase 3B/3C installations took place between November 2023 and April 2024.

The November 2023 monitoring event was completed during falling atmospheric pressure. Peak concentrations (minimum for oxygen) during each monitoring round are presented in **Table 5.5** and in the summary tables in **Appendix F**. On each of these monitoring occasions, the groundwater level was above the top of the installation response zone for Phase 2 exploratory holes and 3K5606SA was flooded.

In view of the flooded wells, the data from these monitoring rounds have been assessed as indicative, due to "The response zone of the gas monitoring standpipe should be wholly or partly above groundwater level to provide valid data... [and] gas standpipes with flooded response zones might exhibit measurements of elevated methane or carbon dioxide… due to dissolved gases or the presence of biodegradable material in the groundwater" (BSI, 2015a).

Although there are no permanent building structures proposed for these areas of the scheme, the ground gas data recorded at this location should be considered at the preconstruction phase as temporary deep excavations are planned as reception pits for the trenchless crossing of the River Hamble.

Peak concentrations (minimum for oxygen) are presented in the summary **Table 5.5**.

5.4.1 Gas Thresholds

Peak concentrations recorded in monitoring wells have been compared to the following gas threshold concentrations:

- BSI (The British Standards Institution) Health and Safety in tunnelling in the construction industry - Code of Practice [BS 6164:2019] (BSI, 2019).
- EH40/2005 (fourth edition 2020) Workplace Exposure Limits (WELs) (HSE, 2020).

Exceedances of these thresholds are shown in **Table 5.6**.

5.4.2 Gas Risk Assessment

Given that BPT-K location is expected to contain building structures, a ground gas risk assessment is required to determine the risks to new buildings. A Gas Screening Value (GSV) has been calculated according to BS8485:2015+A1:2019 (BSI, 2015a).

GSV (litres of gas/hour) = max borehole flow rate (l/h) x max gas concentration of CH_4 or CO_2 (%).

Using the recorded peak CO_2 concentration of 2.6% vol and the worst-case flow rate of 46.3 l/hr recorded at 3K5525DR (screened across Alluvium and London Clay Formation), the GSV is calculated to be 1.2038 l/h which corresponds to a Moderate risk classification (Characteristic Situation (CS) 3), whereby gas protection measures would be required in buildings. However, given the inconsistent gas flow readings recorded ranging

from -19.3 l/hr to 46.3 l/hr, additional gas flow monitoring should be considered at this location to further characterise the gas regime.

Table 5.5: Ground Gas Monitoring Results Summary

Peak Gas Concentrations (minimum for Oxygen)								
Borehole / Purpose	**Response Zone and Stratum**	**CH_4 %vol**	**CO_2 %vol**	**O_2 %vol**	**CO ppm**	**H_2S ppm**	**VOC ppmv**	**Max Gas Flow Rate (pk) l/hr**
2K5500SR Trenchless crossing / 65 m south of PSCs 121,122, and 123 (Infilled – Land – Channels).	3.0 to 7.0 m (River Terrace Deposits and London Clay Formation)	0.8	0.6	8.8	4	1	0.9	20.9*
2K5501SR Trenchless crossing / investigate PSC 119 infilled Ground – Channel)	1.0 to 2.0 m (Head Deposits)	8.7	2.3	16.2	<0.1	25	6.4	<0.1
3K5525DR BPT-K Location / investigate PSC 474 - Wintershill Hall c.35 m south	0.75 to 5.25 m (Alluvium and London Clay Formation)	0.2	2.6	1.0	4	<10	0.6	46.3
3K5606SA Open cut / c.140 m north of Wintershill Road	6.0 to 10.0 m (London Clay Formation)	0.2	3.2	9.6	10	<10	0.8	54.1

CH_4 - Methane, CO_2 – Carbon Dioxide, O_2 – Oxygen, CO – Carbon Monoxide, H_2S – Hydrogen Sulphide, VOC – Volatile Organic Compounds, ppmv - Part per Million Volume
*Pump flow failed

Table 5.6: Exceedances of Gas Thresholds

Area	BH ID	CH_4	CO_2	O_2	CO	H_2S	VOC
Location / Substance (threshold)		4.4% (LEL) to 17% (UEL)	0.5% (LTL) 1.5% (STL)	<19% by volume	20 ppm (LTL) 100 ppm (STL)	5 ppm (LTL) 10 ppm (STL)	Approx. 10000 ppmv[1] (LEL)1
2K5500SR	2K5500SR	N/A	Yes (LTL only)	Yes	N/A	N/A	N/A
2K5501SR	2K55001SR	Yes (LEL)	Yes	Yes	N/A	Yes (STL)	N/A
3K5525DR	3K5525DR	N/A	Yes	Yes	N/A	N/A	N/A
3K5606SA	3K5606SA	N/A	Yes	Yes	N/A	N/A	N/A

Notes: N/A = not applicable due to no exceedance, LEL – Lower explosive limit, UEL – Upper explosive limit, STL – Short Term Limit (15-minute reference period), LTL [1] – Long Term Limit (8-hour reference period)

6 Land Contamination Risk Assessment Model

6.1 Approach and Revised Conceptual Site Model

The land contamination risk assessment presented in this section is a revised risk assessment and has been undertaken in accordance with the procedure outlined in LCRM (Environment Agency, 2023). This revised risk assessment uses information collated as part of the Phase 2 and Phase 3B/3C GIs, and builds on the existing preliminary risk assessment completed as part of the desk study. The revised risk assessment will allow for recommendations to be made based on the identification and assessment of potential contaminant linkages. A summary of the guidance for the assessment of land contamination and the approach developed and adopted by SSP is presented in the Summary Report HWTWRP Geotechnical and Geo-environmental Interpretative Summary Report (Ref. 710166-SWS-XX-XX-RP-GE-00100).

6.2 Potential Sources of Contamination

A summary of the on Site and off-Site potential sources of contamination (PSCs) identified and associated potential contaminants of concern (PCOC) are presented in **Table A1.1 and A1.2** for the route, and in a standalone desk study for the BPT-K Site, presented in **Appendix A.** The PSCs and GI data are discussed below.

6.2.1 Locations where PSCs were Identified

Infilled Land - Pond (PSC 132)

- Exploratory holes (2K5502DS, 2K5503DS, 2K5534DS and 2K5535DS) were completed at the location of a former pond (PSC 132) and comprised four hand dug inspection pits terminated at a maximum depth of 0.9 m bgl. The GI had proposed drilling to 6 m bgl, but due to the presence of a high-water table, soft ground conditions and pit collapse this did not occur.
- Made Ground was only encountered at one location to 0.6 m bgl, below which were Alluvial deposits. Alluvial deposits were encountered directly below topsoil in all other GI locations.
- Although chemical analysis was scheduled on collected soil samples from these hand pits, no analytical results have been reported (SOCOTEC, 2023). The lack of chemical analysis provides uncertainty to the concentrations of PCOCs within this specific area of the proposed DoL.
- Exploratory hole 2K55001SR associated with a former pond (PSC 132) could not be investigated further during Phase 2 GI due to the encountered ground conditions.

Infilled Land – Made Ground (asbestos) (PSC 514) and PSCs 119 (on Site) 121, 122 and 123 (Infilled Land – Channels)

- Information collected during the Phase 2 GI from exploratory holes 2K5500SR (which targeted a trenchless crossing and is located c. 65 m south of PSCs 121, 122 and 123) and 2K5501SR (which targeted a trenchless crossing point and PSC 119) did not record exceedances of GAC for the PCOCs tested in soils.
- Asbestos cement (chrysotile) was identified in the Made Ground of 2K5500SR at 0.5 m bgl (0.147%) (PSC 514) at a concentration in excess of the hazardous properties' threshold of 0.1%. No visual identification of asbestos was noted on the borehole log. Made Ground was encountered to 0.7 m bgl at this location. The borehole is within a field and close to the Botley Road (B3035).
- The results of a single soil leachate sample were retrieved (2K5501SR at 6.0 m bgl (London Clay). Exceedances of the adopted GAC were detected for ammonia and total ammonia (N); however, these exceedances are not significant as the potential analytical error by the lab is greater than 1.0 µg/l.
- Groundwater samples taken from monitoring wells at these trenchless locations detected concentrations of contaminants above the adopted GAC for metals (nickel, arsenic, zinc, mercury,

chromium (VI)), phenols, sulphate, total ammonia (N), sodium, chloride, ammonium, fluoranthene, TPH (C_6-C_{40}), aliphatic TPH (C_8-C_{40}) and GRO (C_6-C_{10}) and benzo(ghi)perylene. The highest TPH (C_6-C_4) concentration was recorded in 2K5501SR at 42,200 µg/l on 11th May 2023 (first groundwater sample). The source of TPH is unconfirmed, however, high concentrations of TPH in groundwater could be related to the absence of a TPH clean up on the samples.

- Ground gas monitoring recorded peak concentrations of methane at 8.7 % vol (2K5501SR), carbon dioxide at 2.3 % vol (2K5501SR), carbon monoxide at 4 ppm (2K5500SR) and hydrogen sulphide at 25 ppm (2K5501SR), with a minimum concentration of oxygen at 8.8% vol (SK5500SR).

Worked Ground – unspecified (PSC 530)

- 3K5511DS targeted the location of Worked Ground – unspecified - PSC 530. Made Ground was encountered to a depth of 1.60 m bgl.
- There were no exceedances of GAC in soils chemically tested from this location.
- Soil leachate testing was not completed and there was no groundwater or ground gas monitoring.

6.2.2 Location where Unexpected Contamination was Identified

- 3K5606SA excavated to obtain information on geology along the route, located approximately 140 m north of Wintershill Road.
- Groundwater was sampled and chemically tested from 3K5606SA on three occasions. The response zone for this well was across the London Clay Formation. Exceedances of the adopted GAC were recorded for fluoranthene, sulphate, TPH (C_6-C_{40}) (maximum concentration of 7,210 µg/l), total ammonia (N) and ammonium (NH_4). It is noted that the TPH analysis was not subject to clean-up at the laboratory which may explain the high concentrations.
- The peak carbon dioxide concentration at 3.2 % vol for 3K5606SA exceeds the 0.5 %vol (LTL) and 1.5 %vol (STL) gas thresholds. Low levels of oxygen were also detected at a minimum concentration of 9.6 % vol.

6.2.3 Proposed BPT-K

- Six exploratory holes were completed at the proposed BPT-K Site, with five of these also investigating nearby Wintershill Hall (former military / civilian base) (PSC 474) approximately 35 m south.
- There were no exceedances of GAC in soils chemically tested from the locations.
- Groundwater was sampled and chemically tested from 3K5525DR on three occasions. The response zone for this well was across Alluvium and London Clay Formation. Exceedances of the adopted GAC were recorded for phenol, TPH (C_6-C_{40}) (maximum concentration of <11,000 µg/l) and chloride. It is noted that the TPH analysis was not subject to clean-up at the laboratory which may explain the high concentrations.
- The peak carbon dioxide concentration of 2.6 % vol at 3K5525DR exceeds the 0.5 % vol (LTL) and 1.5 % vol (STL) gas thresholds. The GSV for 3K5525DR is 1.2037 l/h, which corresponds to a moderate risk (CS3) whereby gas protection measures would be required for new buildings. Although gas readings were not significantly high and may be typical of gas concentrations generated from Alluvial deposits, the maximum flow rate of 46.3 l/hr is significant and contributes to the CS calculation. Due to inconsistent gas flow readings recorded at this location, ranging from -19.3 l/hr to 46.3 l/hr, further investigation should be considered to inform on the ground gas regime.

6.3 Identification of Potential Pathways

During and post construction of the new DoL for Section K and BPT-K, the following potential exposure pathways are considered:

- Dermal contact, ingestion and inhalation of dusts, fibres, gases and vapours.
- Gas and vapour migration and accumulation into future buildings and buried services (BPT-K), and accumulation in voids and below ground chambers/receptor pits.
- Surface water runoff from stockpiles to surface watercourses and migration through groundwater.
- Leaching through unsaturated soil to underlying groundwater.
- Migration of contamination through proposed pipe bedding.

6.4 Identification of Potential Receptors

Based on the proposed construction works, end use and surrounding land uses, risks to the following potential receptors previously identified in the desk study PRA have been further assessed following Phase 2 and 3B/3C GI data:

- Construction workers.
- Future Site users (workers and maintenance workers).
- Adjacent land users (applicable to PSCs within DoL only).
- On Site existing and future property (buildings and buried services within BPT-K).
- Surface water (River Hamble, Bow Lake and unnamed drains).
- Groundwater (Secondary A aquifers (River Terrace Deposits and Alluvium).
- Ecological receptors (flora and fauna) including Kimber Copse Ancient Woodlands (within 250 m of the DoL).

The proposed DoL has not been included as a potential receptor to contaminants that could be present in soils or groundwaters because the pipe material selection, which will be made during design, will prevent impact from existing PSCs.

6.5 Risk Assessment

The above CSM has been used to undertake a generic quantitative risk assessment. The method of risk evaluation adopted is consistent with LCRM (Environment Agency, 2023) and is being carried out in accordance with CIRIA C552 (CIRIA C552, 2001). Further details regarding the generic risk assessment methodology used are included in **Appendix I**.

The risk estimation is based on the evaluation of both desk study information collated for the DoL with the Phase 2 and 3B/3C GI data and is presented in **Tables H1** to **H6 (Appendix H)**. Definitions for probability and consequence of **Appendix I**. The findings of the revised risk assessment are summarised in **Tables 6.1**.

Table 6.1 summarises the risk classification (without mitigation measures) for the investigated PSCs, the BPT-K site and exploratory hole locations where unexpected contamination was encountered. The risk classification ratings are taken from the risk assessment tables (**Appendix H**). Where more than one pathway has been evaluated, the pathway with the highest risk rating is presented in **Table 6.1**. For example, the risk rating for construction, maintenance workers and future site users is High for an inhalation pathway and is shown in **Table 6.1**. The dermal contact and ingestion pathway risk rating is low as presented in Appendix H and is, therefore, not presented in **Table 6.1** but is expanded upon further in **Appendix H**.

Table 6.1: Summary of Risk Classification for Construction and Maintenance Activities for Areas Investigated in Section K

PSC No.	Location within Section K	PSCs	Risk Classification (without mitigation measures) for Potential Receptors [1]					
			Construction, maintenance workers and future Site users	Adjacent Land Users	On Site existing and future property (buildings and buried services)	Surface Water	Groundwater	Ecology
Section K DoL								
119	Close to receptor pit for trenchless crossing	**Infilled Land - Channel:** Potential for Made Ground/infill of unknown material (on Site). Limited GI data collected to investigate PSC fully.	Moderate/Low	Moderate/Low	Low	Moderate	Moderate	Very Low
132	Close to receptor pit for trenchless crossing	**Infilled Land - Pond:** Potential for Made Ground/infill of unknown material (on Site). Limited GI data collected to investigate PSC fully.	Moderate/Low	Low	Very Low	Moderate/Low	Low	Very Low
None	Land South of Botley Road trenchless crossing.	**Asbestos in Land South of Botley Road (2K5500SR)** Asbestos cement (Chrysotile) identified in Made Ground.	High *(Inhalation of dust/fibres pathway)*	Moderate *(Inhalation of dust/fibres pathway)*	Low	Moderate	Moderate	Very Low
530	c. 430 m southwest of Wintershill	**Worked Ground – unspecified (3K5511DS):** Potential for Made Ground/infill of unknown material (on Site)	Moderate/Low *(Inhalation pathway)*	Low	Low	Moderate/Low	Moderate/Low	Very Low
None	3K5606SA, c.140 m north of Wintershill Road.	Exceedances of groundwater GAC for fluoranthene, sulphate, TPH, total ammonia (N) and ammonium (NH_4). Carbon dioxide exceeds STL gas thresholds, coupled with low oxygen levels.	Moderate/Low *(Inhalation pathway)*	Low	Low	Moderate/Low	Very Low	Very Low
BPT-K								
474	35 m south of BPT-K Site	**Wintershill Hall (former military/civilian base)** (off-Site).	Moderate *(Inhalation pathway)*	N/A (due to absence of an on Site PSC)	Moderate *(Gas migration and accumulation)*	N/A (due to absence of surface water receptors within 250 m)	Very Low	N/A (due to absence of ecological receptors within 250 m)

[1] based on available analytical data
N/A not assessed

6.6 Summary

6.6.1 BPT-K AGP

The Phase 3B/3C GI at the BPT-K AGP location focussed on assessing ground conditions as well as investigating nearby PSC 474 – Wintershill Hall (military and civilian base). Geo-environmental soil and groundwater sampling and testing, and ground gas monitoring was undertaken. Based on the generic quantitative risk assessment the following risks were determined:

- There were no concentrations of contaminants detected in excess of Commercial GAC protective of human health in soils, nor any asbestos detected in soils at the BPT-K AGP location.
- Peak carbon dioxide concentrations detected during monitoring (2.6 % vol) were above the STL and LTL gas thresholds (3K5525DR, response zone across Alluvium and London Clay Formation). The gas screening value calculated to determine the risk from gas ingress into new buildings indicated a Moderate risk (CS3 classification) whereby gas protection measures would be required in new buildings. The gas source detected during the GI is unconfirmed. Additional monitoring to confirm the ground gas regime at the BPT-K AGP should be considered given the inconsistent gas flow readings.
- Overall, a Moderate risk classification has been identified for impact to construction, maintenance workers and future site users from inhalation of ground gases. Low risks have been identified for impact to construction, maintenance workers, and future site users from direct dermal contact, ingestion, and inhalation of dusts.
- Risks to adjacent land users have been dismissed given that PSCs have not been identified on Site of the BPT-K AGP. Furthermore, risks to surface water bodies / watercourses and ecological receptors have been dismissed based on the absence of these receptors on Site at the BPT-K AGP location.
- Although some PCOCs were detected in groundwater and soil leachate sampled from the BPT-K AGP location at concentrations above the GAC, risks to groundwater have been identified to be Very Low due to the underlying unproductive stratum (London Clay).

6.6.2 Section K DoL

Phase 2 GI

The Phase 2 GI at Section K DoL focused on PSC 132 – Infilled Land – Pond and PSC 119 Infilled Land – Channel, in addition to nearby potentially infilled channels (PSCs 121, 122, and 123). Trenchless crossing locations and linear locations were also targeted.

The GI borehole locations at the infilled pond (PSC 132) were all hand pits and terminated at 0.9 m bgl due to the presence of a high-water table, which led to soft ground conditions and pit collapse. Made Ground was only encountered at one Phase 2 location to 0.6 m bgl below which were Alluvium deposits. An organic odour between 0.6 m and 0.7 m bgl in the Alluvium underlying the Made Ground was noted in one borehole log (2K5502DS). This was assumed to be natural; it corresponds to the description grey mottled black sandy silt (organic matter). Alluvium deposits were also encountered directly below topsoil in all other GI locations. Although no significant thickness of Made Ground material was encountered, the absence of chemical analysis means that there is uncertainty as to the concentrations of PCOCs within this specific area of the DoL.

Based on the risk assessment, a risk classification of Moderate/Low impact to adjacent surface watercourses has been identified based on the potential for PCOCs to be present in concentrations that would exceed the GAC. A Moderate / Low risk rating for impact to human health for construction and maintenance workers via direct contact and inhalation of gases and vapours has been identified based on the potential for infilled land to be present and in the absence of further GI data including gas monitoring. All other identified potential contaminant linkages were either identified as Low or Very Low risk.

There were no exceedances of PCOCs in soils at locations investigated at the trenchless crossing points north and south of the River Hamble (2K5500SR and 2K5501SR). Asbestos (chrysotile) cement (PSC 514) was identified in 2K5500SR at 0.5 m bgl in Made Ground at a concentration classified as hazardous. As the remainder of the soil matrix tested is classified as non-hazardous, the Made Ground stratum containing asbestos could potentially be disposed in an asbestos cell at a non-hazardous landfill.

Contaminant concentrations in groundwater above the GAC for metals (nickel, zinc, mercury and chromium (VI)), phenol, fluoranthene and benzo(ghi)perylene were detected. TPH (C_6-C_{40}) concentrations above the (withdrawn) GAC of 10 µg/l were detected at both locations at least once during the monitoring period with the highest concentration recorded in 2K5501SR (42,200 µg/l) on 11th May 2023. Although there is no measurement of free product at the wells, this concentration is significant and may indicate the presence of free product. The source of TPH in groundwater is unconfirmed. If during construction dewatering is required, PCOCs in groundwater will need to be considered prior to disposal.

Ground gases were recorded at concentrations above their detection limits at the monitoring well south of the Botley Road. Groundwater levels were recorded above the top of the installation response zone (flooded) during all ground gas monitoring rounds therefore the data should be considered to be indicative. Although there is no permanent building structures proposed for this area of the scheme, the ground gas data recorded at this location should be considered at the preconstruction phase as temporary deep excavations are planned as reception pits for the trenchless crossing of the River Hamble.

A risk classification of a High for potential impact to human health of construction workers and future site users have been identified at the area where asbestos (Chrysotile) was recorded in Made Ground at the GI location south of Botley Road (a possible location for a temporary reception pit). A Moderate risk rating for at this location for adjacent Site users has also been identified based on the presence of asbestos. A risk classification of a Moderate for impacts to groundwater and surface water has been identified based on the presence of adjacent watercourses which may be in hydraulic continuity with groundwater beneath the Site, and the presence of PCOCs detected in groundwater samples.

A risk classification of a Moderate/Low for potential impact to human health of construction workers, adjacent Site users and future Site users have been identified for the area of land in the proximity PSC 119 (north of trenchless crossing) based on the potential exposure to identified PCOCs in groundwater. No gas monitoring was completed in this area, and although no Made Ground / fill material was encountered during the GI, there is the potential for the presence of ground gas from infilled channels in the surrounding area (PSC 119, 121, 122 and 123).

All other identified potential contaminant linkages were either identified as Low or Very Low risk.

Phase 3 GI

Exploratory hole 3K5511DS was completed as part of the Phase 3B/3C GI and targeted the location of Worked Ground – unspecified (PSC 530). Made Ground was encountered to a depth of 1.60 m bgl, potentially confirming the presence of worked ground. There were no exceedances of GAC in soils chemically tested at this location. Soil leachate testing was not completed. A monitoring well was not installed into the borehole. A Low risk classification has been identified for potential impact to the health of construction workers, maintenance workers and future site users, and adjacent Site users. In the absence of groundwater and soil leachate data, Moderate/Low risks were identified to surface water and groundwater receptors considering the presence of an on Site drainage channel and the underlying Secondary A Aquifer (Alluvium). All other identified potential contaminant linkages were either identified as Low or Very Low.

Exploratory hole 3K5606SA, located approximately 140 m north of Wintershill Road, did not target a PSC. There were no exceedances of soil GAC at this location, however, exceedances of groundwater GAC were

detected including TPH (C_6-C_{40}) at a maximum concentration of 7,210 µg/l. It is noted that the TPH analysis was not subject to clean-up at the laboratory which may explain the high concentration. If during construction dewatering is required, PCOCs in groundwater will need to be considered prior to disposal. Ground gas levels at this location included a peak carbon dioxide concentration of 3.2 % vol which exceeds the 0.5 %vol (LTL) and 1.5 %vol (STL) gas thresholds. Low levels of oxygen were also detected with a minimum concentration of 9.6 % vol.

A risk classification of a Moderate / Low for potential impact to the health of construction workers, maintenance workers and future site users via inhalation pathways has been assigned to the location of 3K5606SA. Despite the notable TPH concentrations in groundwater, a Very Low risk classification has been identified to groundwater based on the underlying unproductive stratum (London Clay) and absence of superficial aquifers. Risks to surface water have been identified as Moderate/Low based on the presence of a nearby watercourse which could be potentially impacted through surface water run-off from stockpiled soils (in the absence of soil leachate results to inform on leachable contaminant concentrations). All other identified potential contaminant linkages were either identified as Low or Very Low risk.

7 Geotechnical Testing and Assessment

7.1 Geotechnical Testing and Assessment Summary Tables for Section K boreholes

The below **Table 7.1** shows the varying geotechnical tests per strata specific to Section K. Section K geotechnical testing results are similar to adjacent Section H and Section L, that also encounter similar superficial deposits and bedrock. Results for boreholes in Section L and Section K are comparable regarding classification, SPT results, and geochemical testing results for superficial deposits (Alluvium, Head Deposits, River Terrace Deposits) and London Clay Formation.

Table 7.1: Geotechnical Testing and Assessment Summary for Section K boreholes

Geotechnical Property																										
Strata	**Moisture (%)**			**Plasticity (%)**			**Particle Size Distribution (Average of values)**		**Triaxial Shear Strength (kPa)**				**SPT Results (uncorrected N value)**			**Uniaxial Compressive Strength, UCS (MPa)**	**Compaction – Max Dry Density (Mg/m³) (Optimum Moisture content, %)**			**Linear (Bulk) Density (kg/m³)**						
Made Ground (MGR)	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**	**Particle Size**	(%)	None				**Min**	**Av**	**Max**	Not Applicable	**Min**	**Av**	**Max**	None						
	18	28	38	7	20	33	**Cobbles**	0					7	7	7		1.83 (12)	1.83 (12)	1.83 (12)							
							Gravel :	38																		
							Sand :	11																		
							Silt :	36																		
							Clay	15																		
Total No. of tests	**2**			**2**			**2**		**0**				**1**			**0**	**1**			**0**						
Alluvium (ALV)	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**	**Particle Size**	(%)	**Min**	**Av**	**Max**		**Min**	**Av**	**Max**	Not Applicable	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**				
							Cobbles	0																		
							Gravel :	13																		
	17	34	77	36	44	73	**Sand :**	7	65	76	87		8	12	15		1.48 (18)	1.63 (22)	1.69 (29)	1.91	1.93	1.97				
							Fines : (clay & silt)	80																		
Total No. of tests	**9**			**6**			**5**		**2**				**2**			**0**	**6**			**4**						
Head Deposits (HEAD)	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**	**Particle Size**	(%)	**Min**	**Av**	**Max**		**Min**	**Av**	**Max**	Not Applicable	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**				
							Cobbles	8																		
							Gravel :	45																		
	28	29	30	42			**Sand :**	20	None				4	4	4		1.50 (22)	1.56 (24)	1.62 (26)	1.95	1.95	1.95				
							Silt :	15																		

Geotechnical Property																										
Strata	**Moisture (%)**			**Plasticity (%)**			**Particle Size Distribution (Average of values)**		**Triaxial Shear Strength (kPa)**			**SPT Results (uncorrected N value)**			**Uniaxial Compressive Strength, UCS (MPa)**			**Compaction – Max Dry Density (Mg/m^3) (Optimum Moisture content, %)**			**Linear (Bulk) Density (kg/m^3)**		
							Clay	13																
Total No. of tests	**2**			**1**			**1**		**0**			**1**			**0**			**2**			**1**		
River Terrace Deposits (RTD)	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**	**Particle Size**	(%)	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**	Not Applicable			**Min**	**Av**	**Max**	None		
							Cobbles	0																
							Gravel :	32																
	24	24	24	11	11	11	**Sand :**	19	None			4	4	5				1.81 (14)	1.81 (14)	1.81 (14)			
							Silt :	33																
							Clay :	16																
Total No. of tests	1			**1**			1		0			4			0			1			0		
London Clay Formation (LC)	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**	**Particle Size**	(%)	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**	**Min**	**Av**	**Max**
							Cobbles	0																
							Gravel :	1																
	19	27	35	23	35	46	**Sand :**	13	29	142 *	240	9	21*	38	0.05	0.13	0.24	1.47 (29)	1.47 (29)	1.47 (29)	1.989	2.00	2.12
							Silt :	47																
							Clay :	40																
Total No. of tests	17			17			6		9			25			16			1			21		

* Increasing with depth

Laboratory California Bearing Ratio (CBR) testing was also conducted:

- Alluvium : 0.2 – 0.5 m (5 tests): CBR Top : 0.7 – 7.2% (Average : 3.2%) CBR Base : 1.8 – 3.8% (Average : 2.6%)
- Head Deposits : 0.3 m (1 test): CBR Top : 7.3% CBR Base : 4.7%

Two tests were carried out on material that has since been re-classified and therefore the results are not considered further. There were no CBR tests done on River Terrace Deposits or London Clay Formation.

Five oedometer consolidation tests carried out on rotary core sub-samples from boreholes: 3K5525DR and 3K5527DR covering a range of loading and unloading cycles, the full results are available in the factual report by SOCOTEC (SOCOTEC, 2024).

Table 7.2: Additional Geochemical Testing

	Geochemical Testing				
Geology	**Organic Matter Content (%)**	**BRE SD1 values[1]**			
Made Ground (MGR)	2.4	**Test type**	**Min**	**Max**	**Characteristic Value**
		Water soluble SO4 (mg/l)	Below limit of detection	18	< 500
		Acid soluble SO4 (%)	0.01	0.04	0.04
		Total Sulphur (%)	0.01	0.02	0.02
		Total Potential Sulphate (%)	0.03	0.06	< 0.24
		pH	7.38	8.30	7.38
No. Tests	1		2		
Alluvium (ALV)	0.4 - 10.22 (Average 5.31)	**Test type**	**Min**	**Max**	**Characteristic Value**
		Water soluble SO4 (mg/l)	20	28	< 500
		Acid soluble SO4 (%)	0.02	0.04	0.04
		Total Sulphur (%)	0.02	0.02	0.02
		Total Potential Sulphate (%)	0.06	0.06	< 0.24
		pH	8.17	8.23	8.17
No. Tests	2		2		
Head Deposits (HEAD)	Not Available	**Test type**	**Min**	**Max**	**Characteristic Value**
		Water soluble SO4 (mg/l)	10	30	< 500
		Acid soluble SO4 (%)	0.03	0.09	0.09
		Total Sulphur (%)	0.07	0.08	0.08
		Total Potential Sulphate (%)	0.21	0.24	0.24
		pH	7.3	7.5	7.3
No. Tests	0		3		
River Terrace Deposits (RTD)	0.84	**Test type**	**Min**	**Max**	**Characteristic Value**
		Water soluble SO4 (mg/l)	20	20	< 500
		Acid soluble SO4 (%)	0.04	0.04	0.04
		Total Sulphur (%)	0.05	0.05	0.05
		Total Potential Sulphate (%)	0.15	0.15	< 0.24
		pH	8.6	8.6	8.6
No. Tests	1		1		
London Clay Formation (LC)	0.27 – 2.34 (Average = 1.12)	**Test type**	**Min**	**Max**	**Characteristic Value**
		Water soluble SO4 (mg/l)	20	400	< 500
		Acid soluble SO4 (%)	0.01	0.21	0.19
		Total Sulphur (%)	Below limit of detection	0.93	0.77
		Total Potential Sulphate (%)	Below limit of detection	2.79	1.3 – 2.4
		pH	7.7	8.7	8.6
No. Tests	4		11		

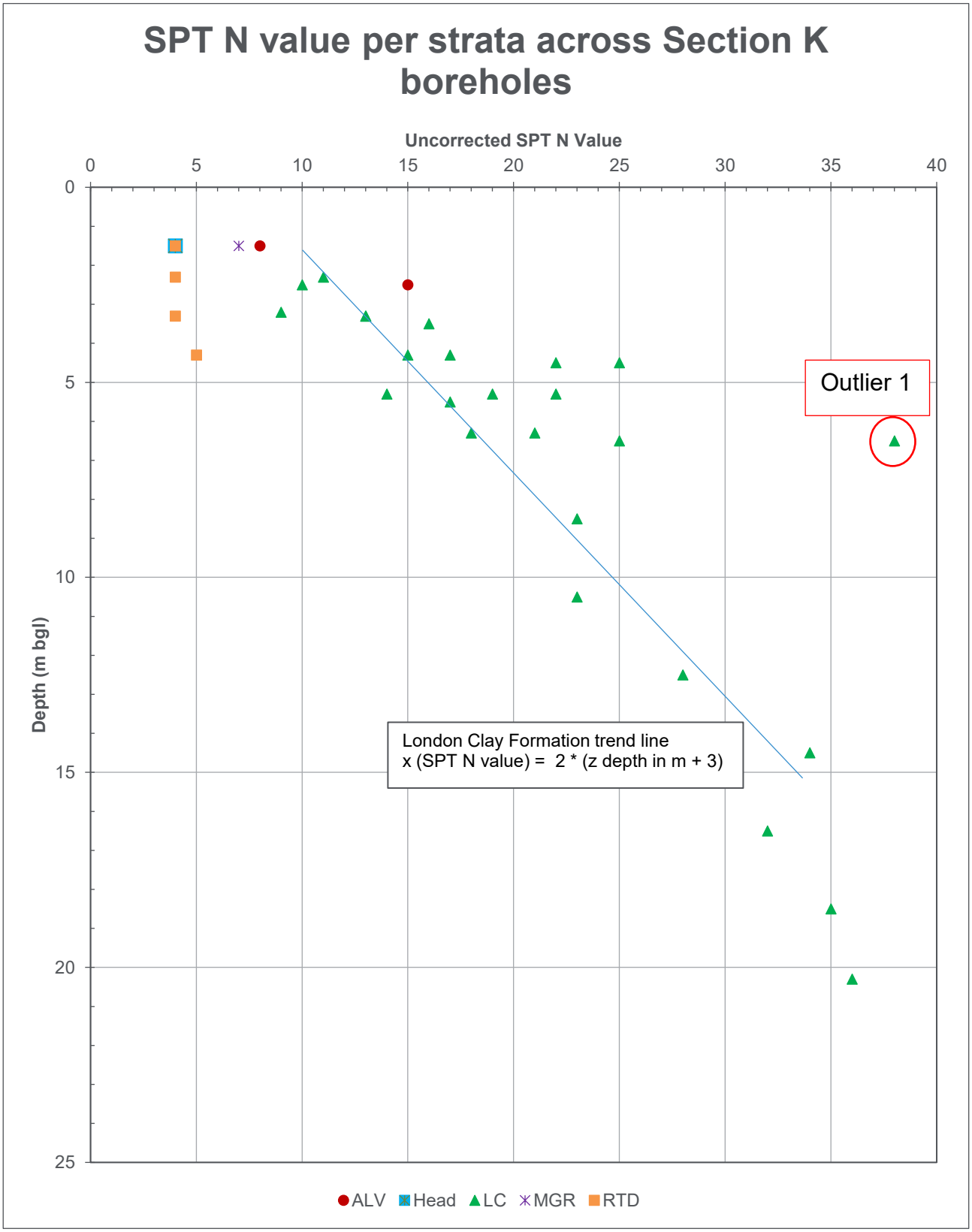
[1] Total Potential Sulphate is calculated from section *C5.1.2* (BRE, 2005) (SOCOTEC, 2024)

7.2 Standard Penetration Test (SPT) vs Depth Relationship for Section K boreholes

Graph 7.1 shows uncorrected SPT N value vs depth for each stratum (Made Ground, Alluvium, Head Deposits, River Terrace Deposits and London Clay Formation).

Both Made Ground (MGR) and Head Deposits (HEAD) only have 1No. SPT test carried out, consequently, both MGR and HEAD do not show a relationship with SPT N value and depth. London Clay Formation (LC) shows a positive relationship in **Graph 7.1** that indicates SPT N values increasing with depth. Outlier 1 shows LC with a SPT N value of 38; this may be a result of a thin limestone/claystone cobble which was encountered at 6.60-6.75m, as described in the borehole log, so the SPT N value may be artificially higher as a result and should be ignored. There were only 2 No. SPT N test values within Alluvium so a relationship cannot be identified in **Graph 7.1**.

Graph 7.1 SPT vs Depth per strata across Section K boreholes



7.3 Undrained Shear Strength (C_u) vs Depth Relationship for Section K boreholes

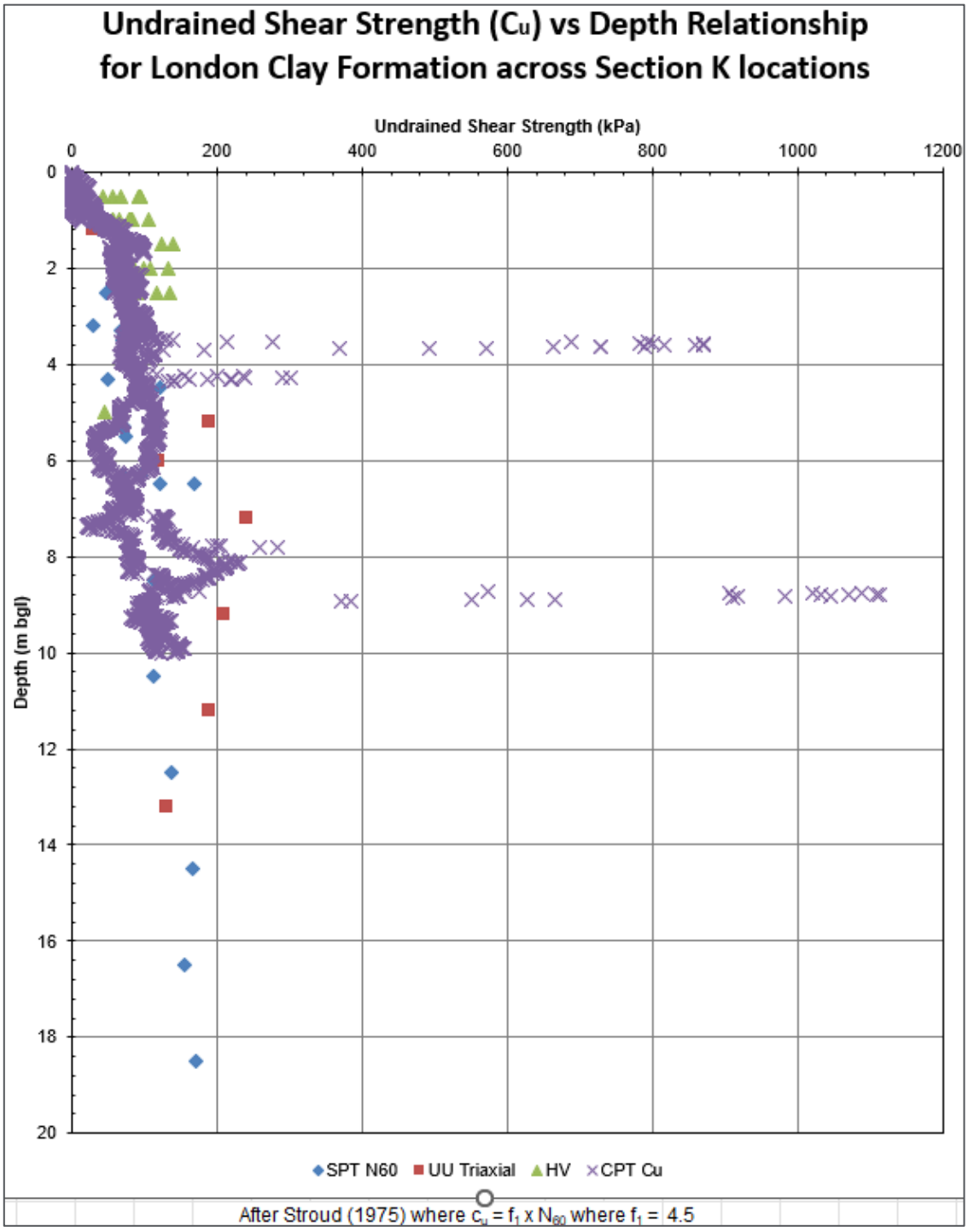
Graph 7.2 shows Undrained Shear Strength vs depth for London Clay Formation from a combination of directly measured shear strength by triaxial testing, and derived from SPT. The limited data available for Alluvium, Head Deposits, Made Ground and River Terrace Deposits is insufficient to define a relationship between Undrained Shear Strength C_u value and depth for those materials.

London Clay Formation (LC) shows a range in undrained strength c_u values from 29 kPa to 240 kPa from laboratory triaxial tests and SPT derived results. (Note the C_u of 240 kPa at 7.2 m bgl at 3K5606SA may be as a result of encountering a claystone band (stiffer than the surrounding very stiff clay) not visible in the separate bulk samples recovered near this depth). SPT N_{60} values show a positive relationship with depth. Hand vane (HV) results in green triangles show too much scatter to be reliable.

Three CPT tests within LC also indicate increasing c_u with depth, similar to SPT results from 0 – 10 m bgl; 2No. holes (3K5521CT and 3K5540CT) were completed to 10 m scheduled depth, and 1No. hole terminated at 3.93 m bgl because there was a sudden inclination of the rods thought to be a result of the CPT probe hitting an obstruction. Obstructions may include coarse gravel or cobble fragments that have a much higher density than the surrounding LC (e.g. perhaps relating to isolated or persistent claystone beds). In the CPT tests which did achieve scheduled depth there were much higher undrained strength results (900 – 1100 kPa) within isolated bands, likely attributed to very dense sand horizons (or perhaps also claystone beds) within LC - at approximately 3.6 m and 8.8 m bgl - there are no boreholes immediately adjacent to allow visual assessment to confirm what these relate to.

Made Ground undrained strength c_u recorded 2 values between 34 – 37 kPa from 0.5 m and 1.2 m bgl respectively. Alluvium c_u recorded 35 values between 40 – 87 kPa from 0.5 m and 2.5 m bgl with a wide scatter proving inadvisable to determine a positive/negative relationship with depth. Head Deposits undrained strength c_u recorded 11 values between 55 – 110 kPa from 0.5 m and 1.2 m bgl without a determinable relationship. River Terrace Deposits undrained strength c_u recorded 4 values between 20 – 26 kPa from 1.2 m to 4 m bgl without any determinable relationship with depth.

Graph 7.2 Undrained Shear Strength C_u vs Depth for London Clay Formation across Section K boreholes



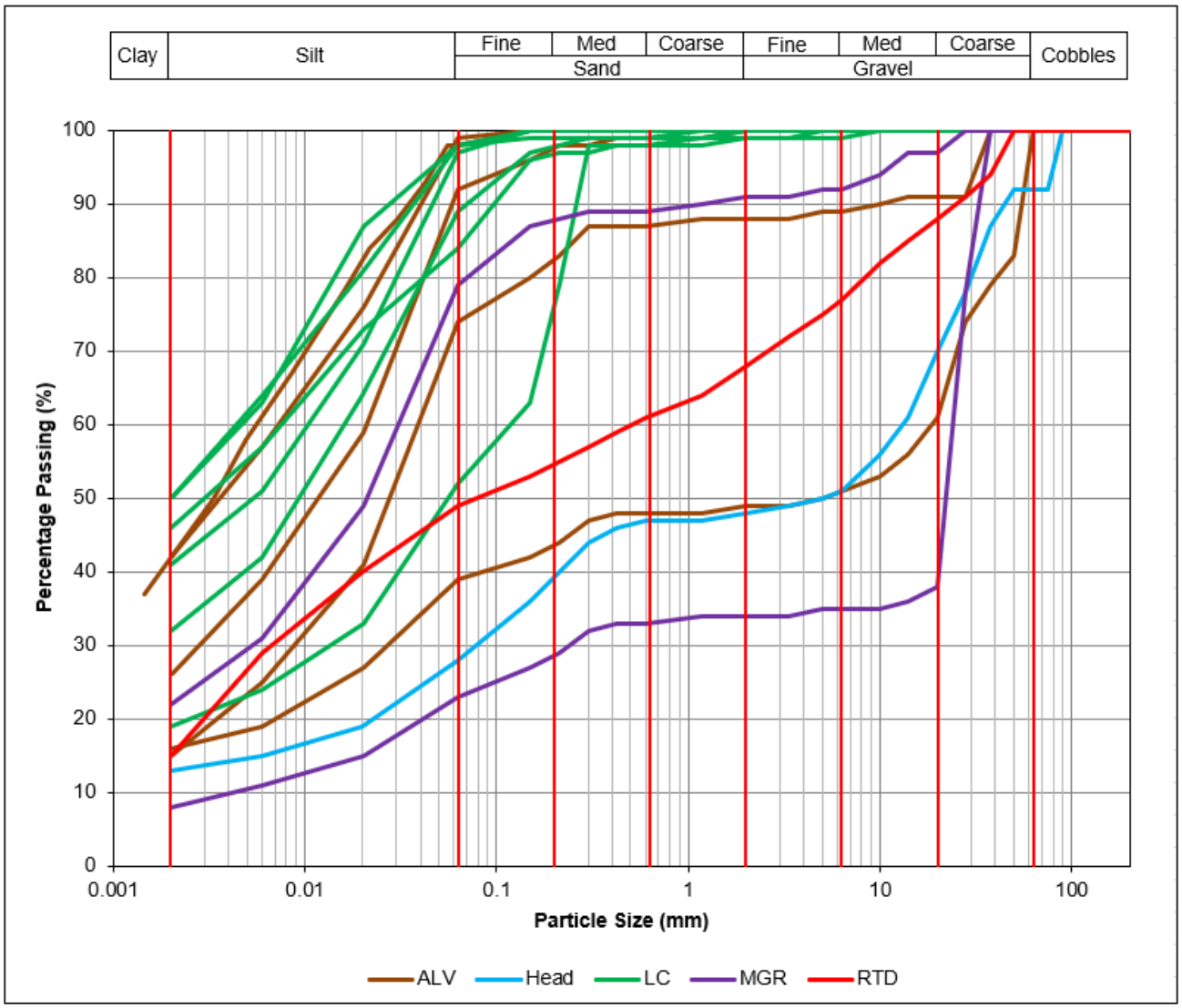
7.4 Particle Size Distribution for Section K boreholes

Graph 7.3 shows Particle Size Distribution per strata across Section K. **Graph 7.3** shows particle size distribution curves for Alluvium and River Terrace Deposits as compatible with the soil descriptions on the borehole logs (i.e. predominantly clay). Whereas with Made Ground and Head deposits PSD plots show silty sandy gravel, which differs from the soil descriptions. Made Ground soil is described as gravelly clay and Head Deposits are highly variable described as gravelly/cobbly clay and clayey gravel.

However, all four of these deposits are variable, containing mixtures of granular and cohesive strata, with which the samples recovered from the boreholes are not necessarily representative. Therefore, the particle size distribution (PSD) results should not be relied upon entirely in this section.

PSD results for London Clay Formation show it to classify as a silty clay, matching the descriptions on the borehole records. .

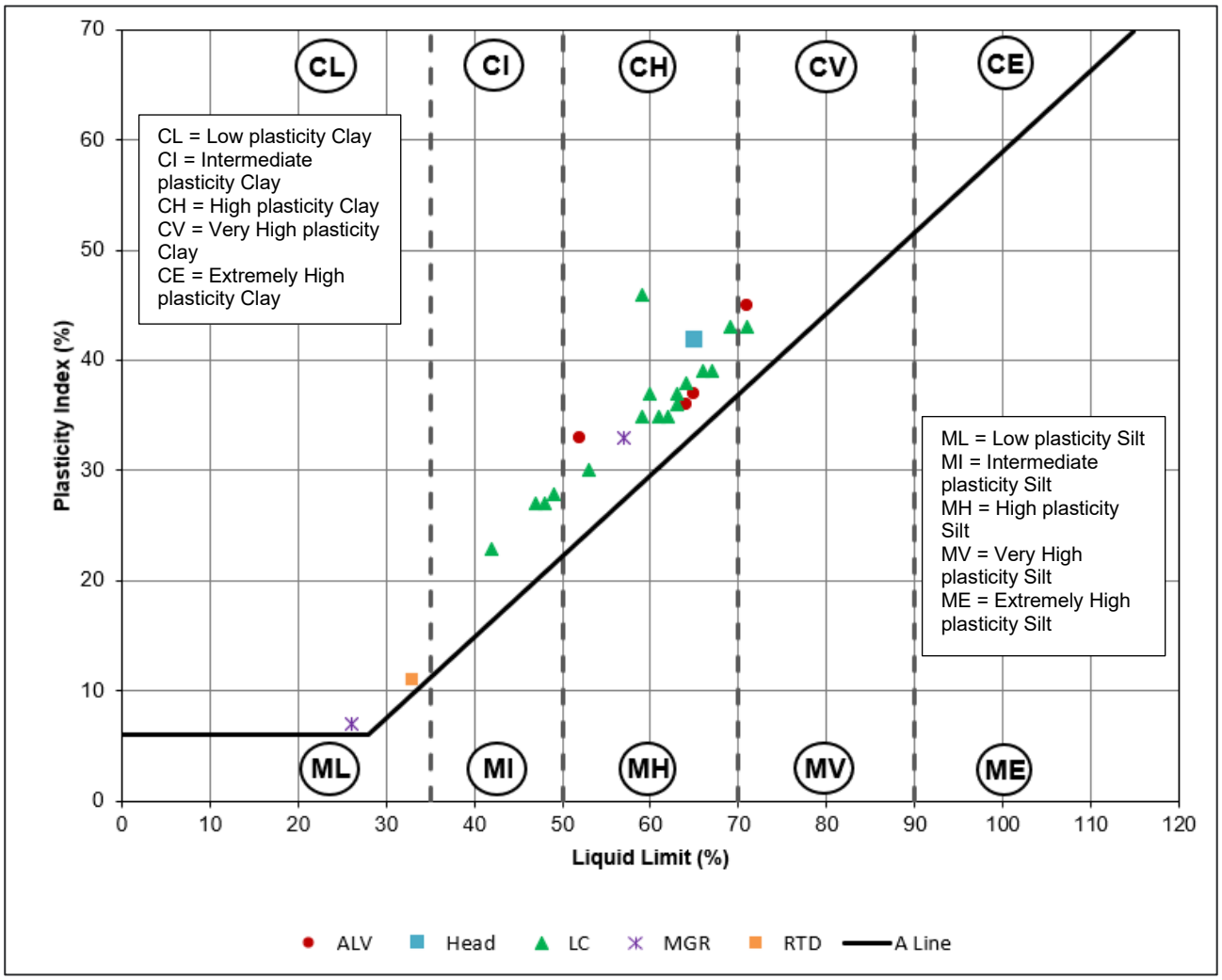
Graph 7.3 Particle Size Distribution per strata across Section K boreholes



7.5 Plasticity for Section K boreholes

Graph 7.4 shows Made Ground and River Terrace Deposits as a low plasticity clay with London Clay Formation ranging between intermediate and very high plasticity clay. Alluvium ranges between high and very high plasticity clay. Head Deposits shows 1 result suggesting high plasticity clay.

Graph 7.4 Plasticity per strata across Section K boreholes



7.6 Geotechnical Design Parameters for Section K boreholes

Based on the soil descriptions and results obtained from the in-situ and laboratory tests, the characteristic values for each stratum have been derived and are shown in **Table 7.3**.

Table 7.3: Geotechnical Design Parameters for Section K boreholes

	Geotechnical Design Parameters									
Strata	**Native Soil Modulus, E'_3 (MN/m^2) [a]**	**Elastic Modulus E_u [b2]**	**Bulk weight density, γ (kN/m^3) [c]**	**Constant volume angle of shearing resistance, φ (°) [c]**	**Undrained Shear Strength, C_u (kPa) [b1]**	**Coefficient of Volume Compressibility, m_v (m^2/MN) [b1]**	**Uniaxial Compressive Strength (MPa)**	**Concrete Aggressivity [d]**	**Earthworks [b2]**	**From PSD results Embedment class with 'as-dug' soils [e]**
Made Ground	Soft clay: 1.5	Short Term: 2 MPa Long Term: 1 MPa	15 – 19	Based on plasticity index average result of 20 %, φ = 26°	20	1.5	Not Applicable	DS-1 AC-1	1 V : 2 – 2.5 H	Variable – unsuitable for re-use
Alluvium (ALV)	Soft clay: 1.5	Short Term: 2 MPa Long Term: 1 MPa	15 – 19	Based on average plasticity result of 44 %, φ = 21°	20	1.5	Not Applicable	DS-1 AC-1	1 V : 3 H	Fine grained, liquid limit >50 %, organic. Unsuitable for re-use
Head Deposits (HEAD)	Firm clay: 3	Short Term: 5 MPa Long Term: 4 MPa	16 – 20	Not available. From nearest sections: based on average plasticity result of 27 %, φ = 24°	40	0.3	Not Applicable	DS-2 AC-2	1 V : 2 – 2.5 H	Potentially selected material suitable as S4 bedding subject to further classification testing including liquid limit and PSD. Locally would be unsuitable due to large clast size (cobbly).
River Terrace Deposits (RTD)	Soft clay: 1.5	Short Term: 2 MPa Long Term: 1 MPa	15 – 19	Based on 1 plasticity result of 11 %, φ = 29°	20	1.0	Not Applicable	DS-1 AC-1	1 V : 1.5 – 2 H	Potentially suitable as S4 bedding – subject to further classification testing including liquid limit and PSD
London Clay Formation (LC)	Firm to very stiff clay: 6	Short Term: 400Cu [b1] Long Term: 240Cu [b1] (most detrimental value to be used for design)	18 – 23	Based on average plasticity result of 35 %, φ = 23°	75	0.1	0.05 – 0.24	DS-4 AC-4	1 V: 2 – 2.5H	Fine grained, liquid limit generally >50 %. Unsuitable for re-use

[a] (BSI, 2020) Table 13
[b1] (Tomlinson, 2001) Table 2.5,Table 2.11, Figure 2.33, Section 2.6.6
[b2] (Look, 2007) Table 11.7, Table 11.8, Figure 14.1, Table 14.10
[c] (BSI, 2015) Figure 2 and Section 4.3.1.4.8
[d] (BRE, 2005) Table C1
[e] (BSI, 2020) Table 24
Table 24 of BS9295:2020 corresponds to Table A.3 from the Water Industry Specification for Bedding and Side fill Materials for buried pipelines WIS 4-08-02 February 1994: Issue 1 document.

7.7 In-situ Electrical Resistivity Testing

In situ apparent resistivity testing was undertaken in Section K hand pit locations, the results are presented in **Table 7.4.**

Table 7.4 Insitu Electrical Resistivity for Section K

BH ID	Electrode spacing (m)			
	4.0	3.0	2.0	1.0
	Apparent Resistivity (mean) (Ω.m)			
3K5513HP	10	11	11	14
3K5515HP	16	16	19	15
3K5529HP	9	13	14	16
3K5604HP	8	9	9	11
3K5607HP	8	10	9	11
3K5608HP	7	8	9	12
3K5610HP	11	11	12	17
3K5630HP	12	16	16	24

A characteristic apparent resistivity value of 7 Ωm should be taken, which indicates that the ground is highly aggressive towards ferrous metals.

8 Geotechnical Considerations

8.1 Ground Conditions

The ground conditions recorded at the GI locations are generally in line with geological mapping for the area.

- Made Ground comprising soft brown/orange sandy slightly gravelly clay has been recorded locally up to 1.60 m bgl (chainages 24750, 27970, 28500, 29500).
- Superficial deposits comprising a mixture of either soft grey mottled black sandy silt with organic odour / soft brown sandy gravelly clay (Alluvium) to 2.5 m bgl (chainages 27700, 28500 and 29500), sandy cobbly clay / grey sandy clayey gravel (Head Deposits) to 2.0 m bgl (various chainages between 24985 till 29350) and soft brown gravelly sandy clay (River Terrace Deposits) are likely to be encountered locally within the upper 4.9 m bgl (chainage 24750).
- London Clay Formation bedrock was encountered to a maximum depth of 30.50 m bgl at 3K5525DR consisting of firm to stiff becoming very stiff clay, locally fissured with sand horizons, shell fragments and pyrite nodules (chainage 24750 till 29930).

Across Section K, superficial deposits are mapped as absent, though records indicate there is a widespread thin covering of Head Deposits (up to around 1.2m), overlying London Clay Formation which is likely to be the founding strata for the 1200 mm diameter ductile iron (DI) pipe in the open-cut sections at between 3 and 6 m bgl. On occasions near watercourses, Alluvium, River Terrace Deposits, and perhaps also thicker sequences of Head Deposits are likely be encountered.

Trenchless crossings such as northwest of Wintershill (near 3K5606SA) at approximately 6 m and 8 m bgl and the River Hamble (near 2K5500SR and 2K5501SR) between 9.7 m and 15 m bgl are expected to be founded within the London Clay Formation bedrock as it was encountered from 2.0 – 4.9 m bgl to the base of each 20 m borehole.

8.2 Foundation Design

For the approximate 5.1 km length of pipeline proposed across Section K; bearing resistance or settlement issues are not anticipated – the pipeline is expected to result in a net reduction in ground bearing pressure at formation level.

However, particularly where soft / organic alluvium is encountered, it is recommended that prior to pipeline construction the soft alluvium is removed and replaced with granular imported fill and/or the pipe bedding is enlarged to account for poor ground support.

8.3 Shallow Excavation

8.3.1 Excavation

Shallow excavations for the proposed open-cut route are expected to be constructed between 3 m to 6m bgl, all within Made Ground, superficial deposits and London Clay Formation bedrock. Excavations are expected to be within the capability of conventional plant.

Full excavation support would likely be required in superficial deposits, particularly where encountered near watercourses or infilled ponds. Four of the inspection pits terminated a maximum depth of 0.9 m bgl due to water strikes, collapse and soft ground being encountered between 0.5 and 0.9 m bgl (these locations

previously targeted an area of infilled ponds for a PSC during the Phase 2 ground investigation). These materials may be highly mobile below the water table.

Where space permits (e.g. in open land), it may be possible to construct the shallow pipework within unsupported battered trenches though sides of the excavation may be prone to drying out and weathering which could cause sides to slip if left open for long periods of time (CIRIA, 1992).

8.3.2 Groundwater Control

Based on the GI records, significant groundwater entries are likely to be encountered in excavations close to watercourses; groundwater was encountered during drilling, and within monthly monitoring at between ground level (+17.75 m OD) and 2.97 m bgl (+20.19 m OD) in the south of Section K (2K5500SR and 2K5501SR). Towards the centre of Section K route (3K5606SA), groundwater varied between 1.17 m to 1.99 m bgl (+43.99 to +43.17 m OD); at 3K5525DR groundwater levels fluctuated between 1.09 m to 1.78 m (41.10 to 40.41 m OD). These groundwater entries are expected to be controllable by conventional sump pumping.

High water levels have been encountered during monitoring, which should be taken into account prior to construction. Groundwater levels and water levels obtained from a downhole data logger at five-minute intervals (within 2K5500SR only), ranged between 1.37 m bgl (+21.79 m OD) to 4.43 m bgl (+18.73 m OD) Geological mapping indicates superficial deposits comprising Alluvium, Head Deposits and River Terrace Deposits within 100 m from the River Hamble especially very close to the river edge nearest to the route. Further exploratory holes are recommended along the River Hamble valley as there is high likelihood of groundwater at surface due to the granular materials present. It is possible that a more substantial dewatering scheme and/or groundwater exclusion by sheet piles may be required.

There are a number of exploratory hole locations that did not encounter groundwater during excavation and / or drilling works including: 3K7541IT to 3K7546IT inclusive, 3K5511DS, 3K5531DS, 3K5530HP, 3K5604HP, 3K5607HP, 3K5609HP and 3K5610HP.

8.4 Flotation

There were no instances of artesian groundwater conditions above ground level during investigation.

The structures should be designed to resist flotation in all stages of temporary and permanent works.

8.5 Trenchless construction

The Applicant has confirmed details of the trenchless crossings; shaft dimensions and depths. Launch shaft dimensions will range between 9.0 m – 9.5 m diameter and reception shafts range between 5.0 m – 5.4 m diameter with a 700 mm-800 mm diameter DI pipe inserted within a 1200 mm internal diameter pipejack. Trenchless crossings are presumed to be driven west to east so the launch shafts are always the most westerly shafts. The Applicant has provided guideline depths for trenchless crossings across the project, which are generally a minimum of 2.5 m under the lowest point of the river or road crossing.

Trenchless crossings are expected to be between 9.7 m and 15 m bgl under the River Hamble, whilst beneath Wintershill at approximately 6 m and 8 m bgl. It is expected that at these depths that the tunnelling would be primarily within London Clay Formation (firm to stiff/very stiff silty clay); this is considered to be an optimum material for soft-ground tunnelling as it is generally self-supporting, of low permeability, and homogenous. Medium strong claystone bands have been encountered (e.g. at 9.70 m bgl in 2K5501SR), and may also exist at other levels, which pipejacking, will need to account for. Both open-face and closed face tunnelling methods

are likely to be suitable for London Clay Formation noting however that persistent bands of sand do also occur at various levels.

Uniaxial Compressive Strength (UCS) testing was carried out on samples from the two boreholes 2K5500SR and 2K5501SR near the proposed construction; 2K5500SR at 14.45 m bgl and 16.75 m bgl; UCS reported was 0.163 MPa and 0.129 MPa (163 kPa and 129 kPa respectively), and 2K5501SR at 9.25 m bgl and 10.9 m bgl reported was 0.180 MPa and 0.140 MPa (180 kPa and 140 kPa respectively). The tunnelling drive at the launch shaft (2K5501SR) will need to accommodate an approximate average of 14 kPa increase extra strength as shown and withstand approximately 0.10 m thick bands of medium strong claystone within London Clay Formation at 9.70 m bgl.

At borehole 3K5606SA, undrained shear strength testing of the LC between 6 – 8m bgl reported undrained strength of 240 kPa with testing at 5.2 m and 9.2 m bgl in the order of 190 – 210 kPa, a very stiff /hard clay. As 3K5605SA was not drilled during the GI period, SSP strongly recommends a cable percussion borehole be drilled at the Site of 3K5605SA prior to construction. This is to confirm the strata sequence, undrained shear strength of the London Clay between 6 – 8 m bgl, location of any hard bands, and enable the pipejack tooling to be appropriately equipped at both launch and reception shafts.

8.6 Ground Aggressivity

8.6.1 Concrete

The results of the pH and sulphate tests (SO_4) undertaken on Made Ground, Alluvium and River Terrace Deposit samples recovered indicate that the worst-case design sulphate class is DS-1 and the worst case aggressive chemical environment for concrete (ACEC) class AC-1. Head Deposits results indicated a design sulphate class of DS-2 and an ACEC class of AC-2. For London Clay Formation, the design sulphate class is DS-4 and ACEC class is AC-4. It is assumed that arisings may be oxidized when reused as fill hence the high DS class in this case.

8.6.2 Ferrous Metals

Natural soils can be aggressive towards ferrous metal.

Following guidance published by TRL (Eyre, D., & Lewis, D.A., 1987) clay is expected to prevail with the below characteristics, it is considered aggressive towards ferrous metals with:

- Characteristic apparent resistivity value of 10 Ωm
- Organic content greater than 0.2 %
- Plasticity index greater than 15
- Poorly drained area or groundwater above pipework level
- Moisture content greater than 20 %
- pH greater than 6
- Soluble sulphate 500 to 1000 mg/l
- Aggressive compounds in Made Ground (e.g. cinder or coke)

Eyre and Lewis' (1987) Contractor Report has two soil corrosivity assessment methods; Table A1 and B1. These two assessments class Section K as highly aggressive (Table A1) and very aggressive (Table B1) respectively.

8.7 Break Pressure Tank – K (BPT-K)

8.7.1 Bearing Resistance

The BPT-K comprises a twin cell tank and valve house, together with access roads on Site. Ultimate bearing resistance calculations have been completed for the tanks and valve house as described in **Section 2.2,** which at this stage is assumed to be founded on a pad foundation depth of 0.6 m bgl. bearing on London Clay Formation with removal of any softer Alluvium or made ground

Twin cell tank (21 m width x 31 m length x 4 m height)
Preliminary assessment of bearing resistance has been carried out in accordance with Eurocode 7, considering both drained and undrained cases; the undrained case is most critical. A permanent gross load of 90 kPa has been assumed for each tank (65 kPa representing 4 m from base of tank to maximum height of ceiling multiplied by a full water load of 10 kPa as 40 kPa, a 25 kPa load for wall and roof slab weight with an additional 25 kPa for a 0.6 m thick base slab). The ultimate bearing resistance, q_n is approximately 400 kPa, well in excess of the anticipated ground pressure of the structure. The full analysis output for the drained and undrained foundation bearing analysis case is attached within **Appendix J**.

Valve house (10 m length x 8 m width x 3.5 m height)
Preliminary assessment of bearing resistance has been carried out in accordance with Eurocode 7, considering both drained and undrained cases; the drained case is most critical. This shows a satisfactory pass with an overdesign factor is 7.14 in the most critical case - Design Approach 1 Combination 2. A permanent gross pressure of 20 kPa for roof, wall slab support and pipe supports has been assumed. The ultimate bearing resistance, q_n is 327 kPa, well in excess of the anticipated ground pressure of the structure. The full output is attached within **Appendix J**.

8.7.2 Settlement

Twin cell tank (21 m width x 31 m length x 4 m height)
Using a permanent load of 65 kPa, the settlement imposed is estimated to be of the order of 40 mm, assuming all alluvium and made ground is removed. It is recommended only founding on London Clay Formation and removing all alluvium where present at formation level. 40 mm is a worst-case value based on an excavation of a flat surface, but the proposed BPT-K tank location is on a steep slope. The 40mm settlement is unlikely to be fully realised because load would be attracted to the stiffer London Clay. The tank structure located at the upper end of the slope would be constructed embedded into the existing slope profile, therefore the net ground pressure imposed on this side (allowing for removal of soil) would be minimal.

Valve house (10 m length x 8 m width x 3.5 m height)
Using a permanent gross bearing pressure of 20 kPa, the settlement imposed is estimated to be of the order of 8 mm. It is recommended only founding on London Clay Formation and removing all alluvium where present at formation level. 8 mm is a worst case value based excavation on a flat surface, but the proposed valve house is on a steep slope. The 8mm settlement is unlikely to be fully realised because load would be attracted to the stiffer London Clay. The tank structure located at the upper end of the slope would be constructed becoming embedded into the existing slope profile, therefore the net ground pressure imposed on this side (allowing for removal of soil) would be minimal.

8.8 Geotechnical Hazard Assessment

Table 8.1 summarises potential geotechnical hazards associated with the Site during and post construction.

Table 8.1: Geotechnical Hazard Assessment

Hazard	Source of information/comment	Mitigation method
Unforeseen Ground Conditions	Project specific ground investigation undertaken in 2023 and 2024 to inform outline design. Trenchless bore collapse and uncontrolled ground settlement, very soft / loose material present that is inadequate for founding of pipework / chambers.	Further ground investigation is strongly recommended to confirm ground conditions at the area where 3K5605SA was originally proposed at the launch/reception shaft for the trenchless crossing at 3K5606SA southeast from Wintershill Hall and Wintershill. We would also recommend a borehole near the River Hamble and / or a hydrographic survey of the river bed to ensure the trenchless crossing is deep enough.
Groundwater	Lack of knowledge of groundwater conditions. Potentially result inappropriate/inadequate choice of dewatering techniques, excessive sump pumping causing settlement, unstable ground, inappropriate bore/trench support.	Groundwater levels are checked for boreholes during digging inspection pits (2K5502DS, 2K5503DS, 2K5534DS, 2K5535DS, 3K5513HP, 3K5515HP, 3K5529HP) and throughout post-fieldwork monthly monitoring visits.
Pit / Bore Collapse	Fracture indices within London Clay Formation during rotary coring highlighting areas of assumed zones of core loss. Inadequately defining the superficial deposits / London Clay Formation interface or from encountering sand horizons	Use vertical sided trench support: trench sheets and/or drainage if sand bands within London Clay are encountered during excavations for open cut and trenchless construction. Alternatively to prevent failure of potentially fractured slopes, cut the slopes of the trench to a shallower angle (CIRIA, 1992). Bore collapse may be mitigated by a slurry supported tunnelling bore machine (TBM).
Unknown buried structures / Southern Water assets /	Geological logs displaying strata to a maximum of 20 m bgl. Subsidence and hidden soft areas of ground previously not identified during the GI.	Ensure that proposed pipework avoids these areas of unsuitable ground and buried structures where possible. If structures are within the route alignment, arrange with the Applicant and appropriate landowners for these to be investigated/removed as early as practicable consulting all records available to the Applicant.
Excessive settlement, pipe failure / bursts.	Geological logs displaying strata to a maximum of 20m bgl. Subsidence and hidden soft areas of ground previously not identified during the GI.	Ensure that proposed pipework avoids these areas of unsuitable ground and buried structures where possible. If structures are within the route alignment, arrange with the Applicant and appropriate landowners for these to be investigated/removed as early as practicable. Other mitigation might include overdig and replace or increase pipe bedding due to poor native soil.
Existing buried services - strike, injury	Utility drawings provided to the Principal Contractor / Ground Investigation Contractor may not reveal all services underground and may differ.	Ensure that utility providers are contacted in advance of excavation works with any uncertainty proven on Site by those providers having engineers on Site. They should be in attendance where necessary such as near high risk locations. For further confirmation, Ground Penetrating Radar (GPR) and/or PAS128 surveys may also be performed.
Striking a unexploded ordnance (UXO), triggering an explosion	The Site was impacted by bombing in WWII.	Preliminary Risk Assessments were conducted specific to each exploratory hole location to reduce the section wide greater UXO risk. Zetica produced a Detailed Unexploded Ordnance Risk Assessment Report for the whole site (Zetica, 2024). Section K pipeline route has a low risk of UXO as shown in Chapter 8 of the Zetica report. Recommendations are presented within Chapter 8.1 and 8.2. For shallow intrusive works: ■ UXO Safety & Awareness Briefing
Risk of concrete degradation, failure of concrete structures.	BRE test results on Alluvium, Made Ground and River Terrace Deposits from the GI show a design sulphate class is DS1. Corresponding Aggressive Chemical Environment for Concrete (ACEC) is AC1. For Head Deposits, BRE test results show a design sulphate class is DS2. Corresponding Aggressive Chemical Environment for Concrete (ACEC) is AC2. Though DS-1 AC-1 and DS-2 AC-2 results are based on minimal testing per Section. For London Clay Formation, BRE test results show maximum available design sulphate class is DS4. Corresponding ACEC is AC4.	Ensure that additional testing is carried out for Made Ground and superficial deposits (Alluvium, Head Deposits and River Terrace Deposits) to fully categorise the design sulphate class and concrete aggressivity design sulphate class due a maximum of only 3 No. available samples of each superficial strata being tested. London Clay Formation contains high amounts of pyrite and consequently aggressive towards concrete.
Potential for chalk solution features.	Historic borehole records within 100 m of the pipeline (SU51NW2). The borehole was thought to have been drilled into a subtertiary chalk dissolution pipe (previously unknown about in 1891) at depths greater than 30 m bgl.	Undertake Electromagnetic surveying (EM) and Electric Resistivity Tomography (ERT) where any chalk is likely to be encountered underneath tertiary bedrock near where historic boreholes encountered chalk within historic London Clay soil descriptions. Evidence suggests that Chalk is at too great a depth for there to be a significant risk of chalk dissolution affecting the works.

9 Conclusions

9.1 Geotechnical

The GI data for Section K comprises many exploratory holes for the selected areas of trenchless crossings beneath the River Hamble, Wintershill Hall land, selected PSCs, non-pipeline infrastructure at BPT-K and for proving the geology along the linear route to comply with recommendations laid out in Eurocode 7: Part 2.

Shallow superficial deposits and London Clay Formation bedrock is likely to be encountered during open-cut construction, with London Clay Formation bedrock only likely to be expected during the trenchless crossing beneath the River Hamble and between Wintershill Hall land and Wintershill.

High water levels across the exploratory hole locations may require conventional sump pumping to take place. Where groundwater is likely to be expected at ground level due to potentially flooded areas adjacent to the River Hamble where high permeability gravel deposits are likely, a more substantial dewatering scheme and/or groundwater exclusion by sheet piles may be required.

Trenchless crossing construction beneath the River Hamble and Wintershill Hall area may require open face/closed face tunnelling methods, which is depending on thickness of superficial deposits and/or precise depth of bore (TBC). Pipejacking is the proposed trenchless construction technique considered by the Applicant due to passing under a number of sensitive land-uses.

Proposed open-cut construction to between 3 – 6 m bgl and trenchless construction to between approximately 9.7 – 15 m bgl are to be within London Clay Formation (as shown by the 2No 20 m boreholes adjacent to the River Hamble) and between 6 – 8 m bgl within the Wintershill area, which is heavily pyritic based on calculated Total Potential Sulphate values exceeding 2.4% suggesting a worst case design sulphate class is DS-4 and the worst case aggressive chemical environment for concrete (ACEC) class AC-4.

As a result of particle size distribution (PSD) tests and Atterberg limits analysis, Head Deposits and River Terrace Deposits may be suitable for re-use as bedding (S4), though more testing is required to confirm this – if so careful segregation of materials would be needed during construction, and perhaps some processing (e.g., to remove larger clasts). Made Ground, Alluvium and London Clay Formation are expected to be unsuitable as pipe bedding.

9.2 Geo-environmental

9.2.1 BPT-K AGP

The Phase 3B/3C GI at the BPT-K AGP location focussed on assessing ground conditions as well as investigating nearby PSC 474 – Wintershill Hall (military and civilian base). Based on the generic quantitative risk assessment the following risks were determined:

- Overall, a Moderate risk classification has been identified for impact to construction, maintenance workers and future site users; this is due to potential inhalation of ground gases.
- Risks to adjacent land users have been dismissed given that PSCs have not been identified on Site of the BPT-K AGP. Furthermore, risks to surface water bodies / watercourses and ecological receptors have been dismissed based on the absence of these receptors on the Site of the BPT-K AGP.
- Risk to future property (without mitigation) has been assessed as moderate due to potential for gas migration and accumulation. This risk rating is based on the gas risk assessment (calculated to be CS 3 – Moderate risk), whereby gas protection measures would be required in future buildings. However,

additional monitoring should be considered to better understand the ground gas regime given the inconsistent gas flow readings recorded.

- Although some PCOCs were detected in groundwater and soil leachate sampled from the BPT-K AGP location at concentrations above the GAC, risks to groundwater have been identified to be Very Low due to the underlying unproductive stratum (London Clay Formation) and absence of superficial deposits.

9.2.2 Section K DoL

Overall, based on the generic quantitative risk assessment for the Section K DoL, the following risks have been determined:

- A High risk has been identified for impact to construction workers, maintenance workers and future site users from direct contact, ingestion and inhalation of asbestos dusts and fibres within the vicinity of 2K5500SR (trenchless crossing point south of the Botely Road) due to the presence of asbestos.
- A Moderate risk rating from direct contact, ingestion and inhalation of asbestos dusts and fibres during proposed excavation works for adjacent land users has also been identified based on the presence of asbestos.
- A Moderate / Low risk has been identified for impact to construction workers, maintenance workers and future site users from inhalation of ground gases / vapours at locations investigated during the GI works.
- Risks to on Site existing and future property have been assessed as Low.
- Risks to groundwater and surface waters vary between Very Low, Moderate/Low and Moderate, depending on geology, the contaminant concentration detected in groundwater and soil leachate, and applying a conservative approach where such results are missing.
- Potential contaminant linkages to ecological receptors have been identified as Very Low risk.

Other PSCs identified within a 50 m radius of the DoL for Section K were not investigated during Phase 2 or Phase 3B/3C GI. For these areas, it was considered that the potential for the presence of significant contamination is not high as defined in the Methodology for Identification of Ground Investigation (SSP, 2022b). These may be investigated at subsequent phases of GI. Risk Assessments for these PSCs are presented in the Desk Study (SSP, 2024).

10 Recommendations

10.1 Geotechnical

Further ground investigation is recommended.
Ground investigation carried out thus far in Section K (Phase 2 and Phase 3B/3C locations) are only representative of a relatively small area of the approximate 5.1 km length of pipeline. It is recommended that further ground investigation along the route is performed to fully understand and characterise the soil required to be excavated / removed / reused at additional trenchless crossings (at the launch/reception shaft location at Wintershill where 3K5605SA was cancelled) beneath roads and rivers, PSC and open-cut areas. BRE SD1 testing is also recommended throughout soil samples taken along the route for concrete aggressivity classification.

If it is proposed to re-use materials as pipe bedding (e.g. Head Deposits and River Terrace Deposits as an S4 bedding), it is recommended that further testing (PSD, Atterberg limits, and compaction tests) is carried out to confirm suitability, and that construction monitoring includes careful segregation of materials, laboratory and in-situ testing to confirm acceptance.

If the locations that flooded and consequently terminated between 0.7 – 0.9 m bgl were revisited again to achieve greater depths (such as 6 m bgl), it would be recommended to return with Cone Penetration Testing (CPT) with MOSTAP sampling to recover environmental samples.

Resistivity test results along Section K suggest the ground conditions are highly aggressive towards ferrous metal (ductile iron), the proposed pipeline construction material. Consequently, the pipe material and surrounding pipe bedding should be designed to account for this.

10.2 Geo-environmental

Further Ground Investigation is recommended.
Groundworkers should remain vigilant throughout construction particularly within the vicinity of PSCs and should visual and/or olfactory indicators of contamination (including asbestos) be encountered, works should cease in that area and advice be sought from a suitably qualified Geo-Environmental Engineer. Further testing and specialist advice may be required. This is particularly applicable to parts of Section K to undergo open cut excavation. The additional data will inform on health and safety for construction workers and also for material management and reuse.

A return mobilisation to complete the GI at PSC 132 Infilled Ground - Pond is recommended. Although soil samples were taken, no chemical analyses have been provided by the analytical laboratory. The investigation should be timed to coincide with dryer weather conditions so that high water levels do not restrict excavation depths. These GI works could obtain further information regarding nature and extent of the Made Ground and also collect soil, soil leachate and groundwater samples.

High TPH concentrations have been detected in certain groundwater samples. The source of the TPH is unconfirmed. There is a possibility that a laboratory error has occurred that is related to the High TPH concentrations detected in groundwater and therefore to further assess potential impact to groundwater and surface waters additional GI and groundwater monitoring/sampling is recommended. Where groundwater may be encountered during the construction works, further ground investigation with groundwater monitoring and sampling should be undertaken to confirm the contaminant concentrations, ensure suitable protection of site workers and determine appropriate groundwater management and disposal routes.

There are currently no known proposals to reuse soils on Site. The reuse of material containing asbestos would not be permitted. In other areas and based on the limited soil leachate data and limited groundwater data available, further soil sampling and testing prior to construction would be necessary if material re-use is planned. This is to be determined upon further details in the design phase.

Conduct additional geo-environmental monitoring during construction.
Recommendations for ground gas and groundwater monitoring testing during the construction phase should be provided within the Construction Phase Environmental Management Plan.

BPT-K AGP – Additional Ground Gas Monitoring / Ground Gas Protection Methods
Gas risk assessment for the BPT-K AGP location calculated a Moderate risk classification (Characteristic Situation (CS) 3). According to BS8485:2015+A1:2019 (BSI, 2015a), a CS3 classification Type D building requires gas protection measures. However, given the inconsistent gas flow readings recorded at this location ranging from -19.3 l/hr to 46.3 l/hr, completing additional gas flow monitoring should be considered to further characterise the gas regime.

Watching briefs are recommended
Watching briefs should be in place during construction. Groundworkers should remain vigilant throughout construction and should visual and/or olfactory indicators of contamination (including asbestos) be encountered, works should cease in that area and advice be sought from a suitably qualified geo-environmental professional.

Stockpile management
Stockpile material must be well managed and kept on an area of hardstanding located down gradient of surface water drainage that may potentially discharge to a watercourse. It is recommended that any stockpiled material is covered to prevent rainfall infiltration, run off, and leachate and dust generation. Stockpiles should be secured when not in use to prevent third party access.

References

BRE. (2005). Concrete in aggressive ground BRE Construction Division Special Digest 1 : 2005. BRE.

BSI. (2015). BS8002:2015 Code of practice for earth retaining structures. . London: Figure 2, BSI.

BSI. (2015a). BS8485:2015+A1:2019: Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. British Standards Institute.

BSI. (2019). BS6164:2019 - Heath and Safety in Tunnelling in the Construction Industry - Code of Practice. London: British Standards Institute. Retrieved from BS 6164:2019 Health and safety in tunnelling in the construction industry. Code of practice: https://knowledge.bsigroup.com/products/health-and-safety-in-tunnelling-in-the-construction-industry-code-of-practice/tracked-changes

BSI. (2020). BS9295: 2020 Guide to the structural design of buried pipes. London: BSI.

CIRIA. (1992). CIRIA REPORT 97 Trenching Report (Updated 1992). CIRIA.

Defra. (2014). SP1010 Defra. (2014). Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. Final Project Report (Version2). Contaminated Land: Applications in Real Environments. .

Drinking Water Inspectorate. (2024). Drinking Water Standards and Regulations. Retrieved 2024, from https://www.dwi.gov.uk/drinking-water-standards-and-regulations/

Environment Agency. (2021). Waste Classification Technical Guidance . Retrieved from GOV.UK: https://www.gov.uk/government/publications/waste-classification-technical-guidance

Environment Agency. (2023, July 08). Guidance - Land contamination risk (LCRM). Retrieved from www.gov.uk: https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

Eyre, D., & Lewis, D.A. (1987). TRL Contractor Report 51: Soil corrosivity assessment. Crowthorne. Transport Research Laboratory.

Groundsure. (2023).

HazWasteOnline (a). (2024). HazWasteOnline Phase 2, Report Reference H1Q6F-LPY5Y-M81DT, 9th January 2024.

HazWasteOnline (b). (2024). HazWasteOnline Phase 3 GI, Report Reference 1C1S2-FWADS-VZ8EE, 8th August 2024.

HSE. (2020). EH40/2005 Workplace Exposure Limits. London: HSE.

Legislation.gov.uk. (2024). The Water Supply (Water Quality) Regulations 1989. Retrieved 2024, from https://www.legislation.gov.uk/uksi/1989/1147/made

Look. (2007). Handbook of Geotechnical Investigation and Design Tables. Taylor and Francis.

MAGIC. (2024). Retrieved from https://magic.defra.gov.uk/: https://magic.defra.gov.uk/

Society of Brownfield Risk Assessment (SoBRA). (2020). Development of Acute Generic Risk Assessment - Criteria for Assessing to Human Health from Contaminants in Soil (v.2). SoBRA.

SOCOTEC. (2023). Ground Investigation Report (Factual Account of Fieldwork Monitoring and Laboratory Testing), Issue 02 ref: G2034-22/P2, November 2023. Maidstone: SOCOTEC.

SOCOTEC. (2023). Ground Investigation Report Phase 2 (Factual Account of Fieldwork Monitoring and Laboratory Testing), Issue 02 ref: G2034-22/P2. Maidstone: SOCOTEC.

SOCOTEC. (2024). WFL Hampshire Water Transfer and Water Recycling Project (Phase 3B) Report G2034-22/P3B and (Phase 3B and Phase 3C) Ground Investigation Report (Factual Account of Fieldwork, Monitoring and Laboratory Testing). Final Report. Report No. G4011-24/P3B_3C. Maidstone: Socotec.

Southern Water. (2023). Moata: SW Water for Life Hampshire Above Group Plant micro-site locations. Retrieved from https://app.moata.com/projects/1299/scenarios/7557/map/@50.96340606339321,-1.249146961670432,16z?layerstate=eyJjaGVja2VkU3RhdGUiOnsiNjAzODYiOnRydWUsIjYwNzkyIjp0cnVlLCIxMDk3MjciOnRydWUsIjExNjk0MSI6dHJ1ZSwiMTIzODk4Ijp0cnVlLCIxMjM4OTkiOnRydWUsIjEyMzkwMSI6dHJ

Southern Water. (2024). Hampshire Water Transfer and Water Recycling Project Technical Document Terminology Guide 710166 - SOUTHERN WATER. Southern Water January 2024 Version 8.

SSP. (2022). Ground Investigation Specification and Bill of Quantities Water Transfer from Havant Water Recycling Plant to Havant Reservoir, Water Transfer from Havant Thicket Reservoir to Otterbourne Water Supply Works Tunnel Locations November 2022. Falmer: SSP.

SSP. (2022b). Methodology for Identification of Ground Investigation 710166-SWS-XX-XX-MS-GE-00001. SSP.

SSP. (2023). Water Recycling Plant (WRP) to Otterbourne WSW and Havant Thicket HLPS to Otterbourne WSW Geotechnical and Geo-environmental Desk Study.

SSP. (2023c). Ground Investigation Specifcation and Bill of Quantities for Ground Investigation. Hampshire Water Transfer and Water Recycling Project. Phase 3B Critical Crossings, Potential Sources of Contamination (PSCs), Non-pipeline Infrastructure and Linear Route. SSP.

SSP. (2023d). Ground Investigation Specifcation and Bill of Quantities for Ground Investigation. Hampshire Water Transfer and Water Recycling Project. Phase 3C Critical Crossings, Potential Sources of Contamination (PSCs), Non-pipeline Infrastructure and Linear Route. SSP.

SSP. (2024). Hampshire Water Transfer and Water Recycling Project Geotechnical and Geo-Environmental Desk Study Version 4 710166-SWS-XX-XX-RP-GE-00004. SSP.

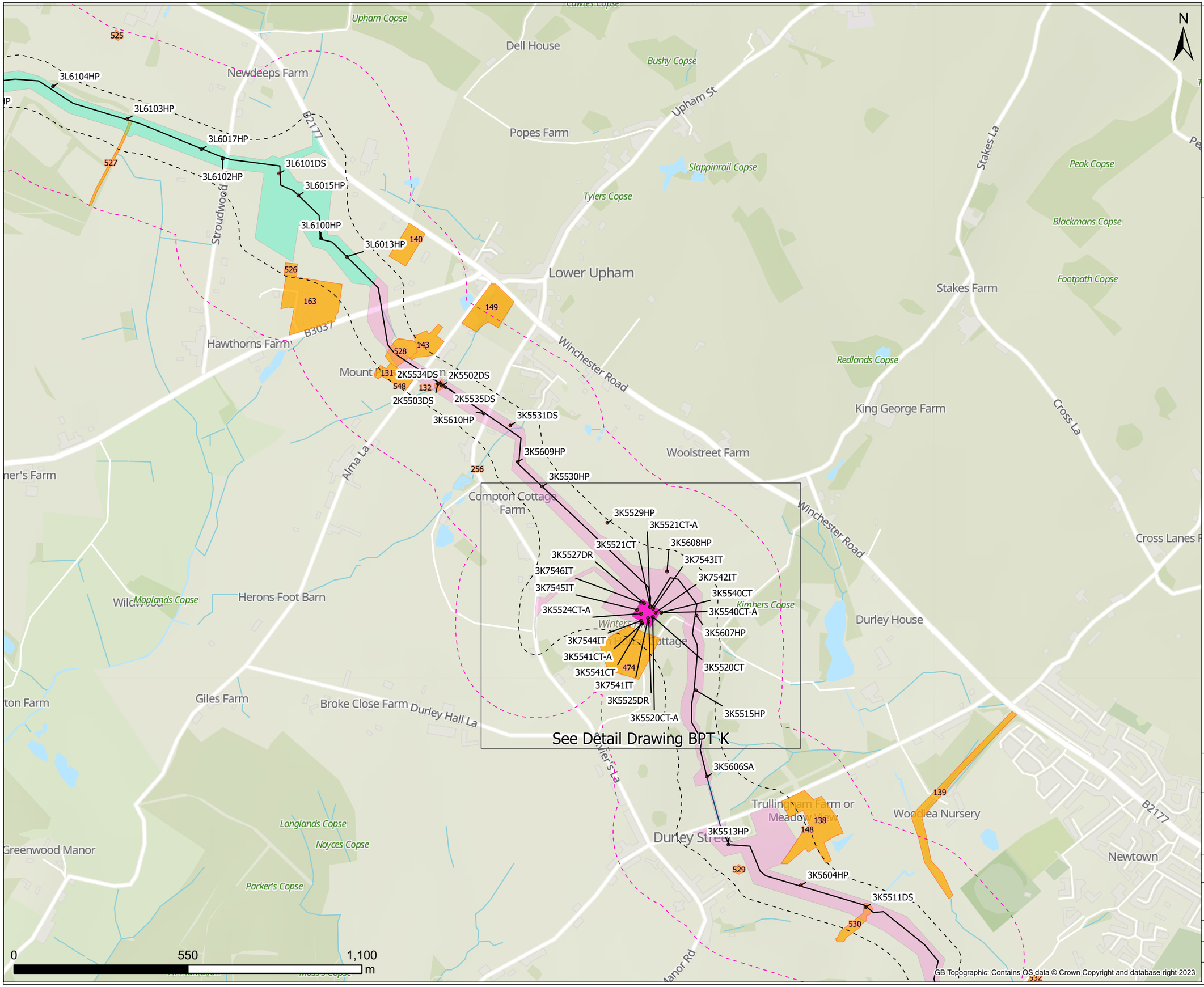
Tomlinson. (2001). Foundation Design and Construction 7th Edition. Pearson Educational Ltd.

Wintershill Hall. (2023). Wintershill Hall. Retrieved from https://wintershill.net/about/

Zetica . (2024). UXO Desk Study and Risk Assessment. ZETICA UXO.

Zetica. (2024). UXO Desk Study and Risk Assessment Document (Various document references). Zetica.

Figures



Legend

- Ground Investigation
- Draft Order Limits 50m buffer
- Draft Order Limits 250m buffer

GI Scoping Route

- Open cut
- Trenchless

Draft Order Limits Sections

- A
- B
- C
- D
- E
- F
- G
- H
- J
- K
- L
- M

Above Ground Plant

- BPT K
- Potential Sources of Contamination

Contains Southern Water preliminary data - All site locations and routes shown are preliminary only and subject to further site selection assessment and stakeholder consultation.

Stantec

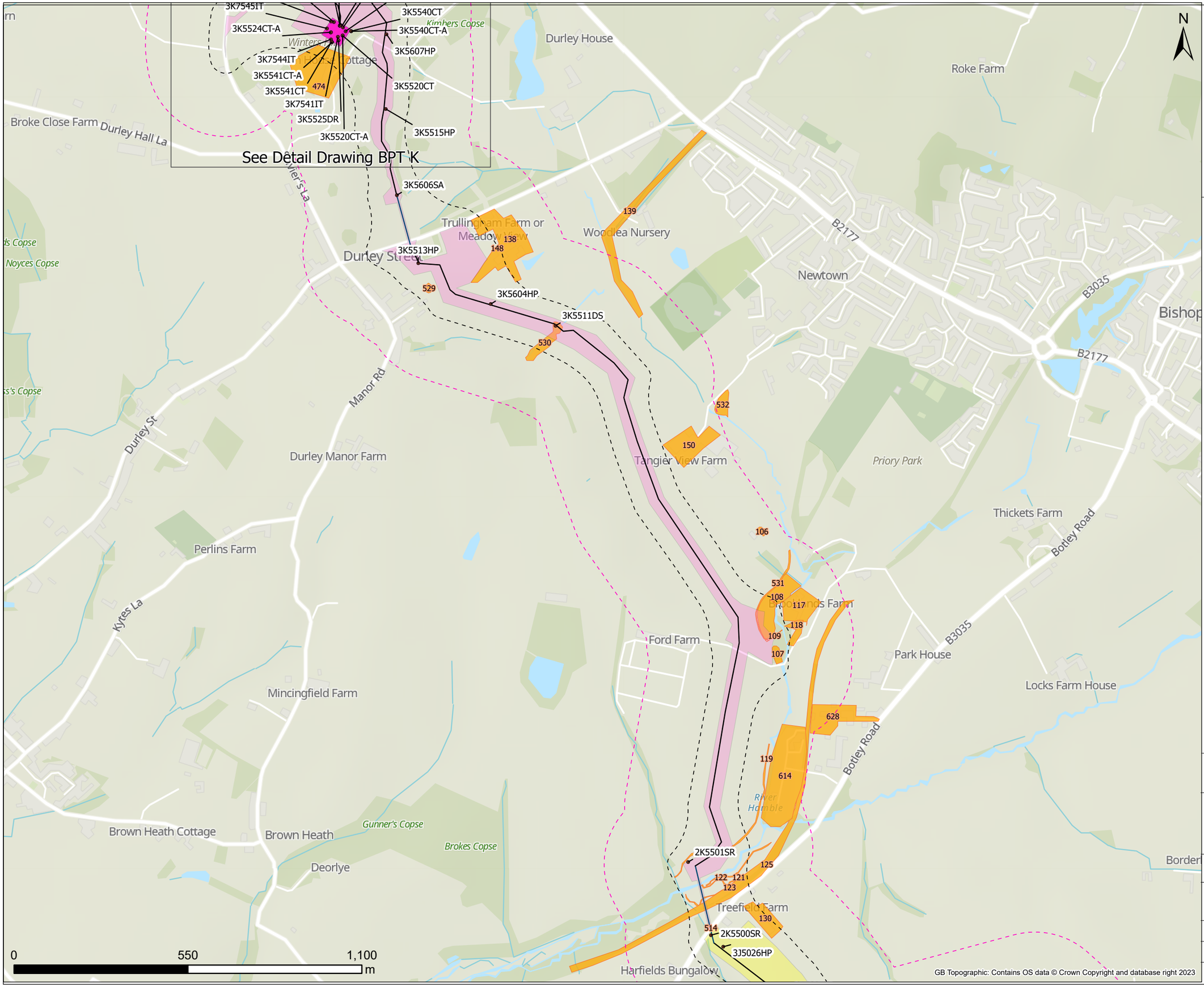
Southern Water
Southern House
Lewes Road
Falmer, Brighton
BN1 9PY

Southern Water

Project Title	Water For Life Hampshire
Drawing Title	Figure 1.1 Section K (NW) Ground Investigation Locations with PSCs

Scale	Date Drawn	Page	Sheet Size
1:11,000	27/11/2024	1.1	A3
Originator	Checker	Reviewer	Approver
SB	GS	AC	JH
Project No.			Revision
710166-SWS-XX-XX-SK-GE-00001			A

GB Topographic: Contains OS data © Crown Copyright and database right 2023



GB Topographic: Contains OS data © Crown Copyright and database right 2023

Contains Southern Water preliminary data - All site locations and routes shown are preliminary only and subject to further site selection assessment and stakeholder consultation.

Stantec

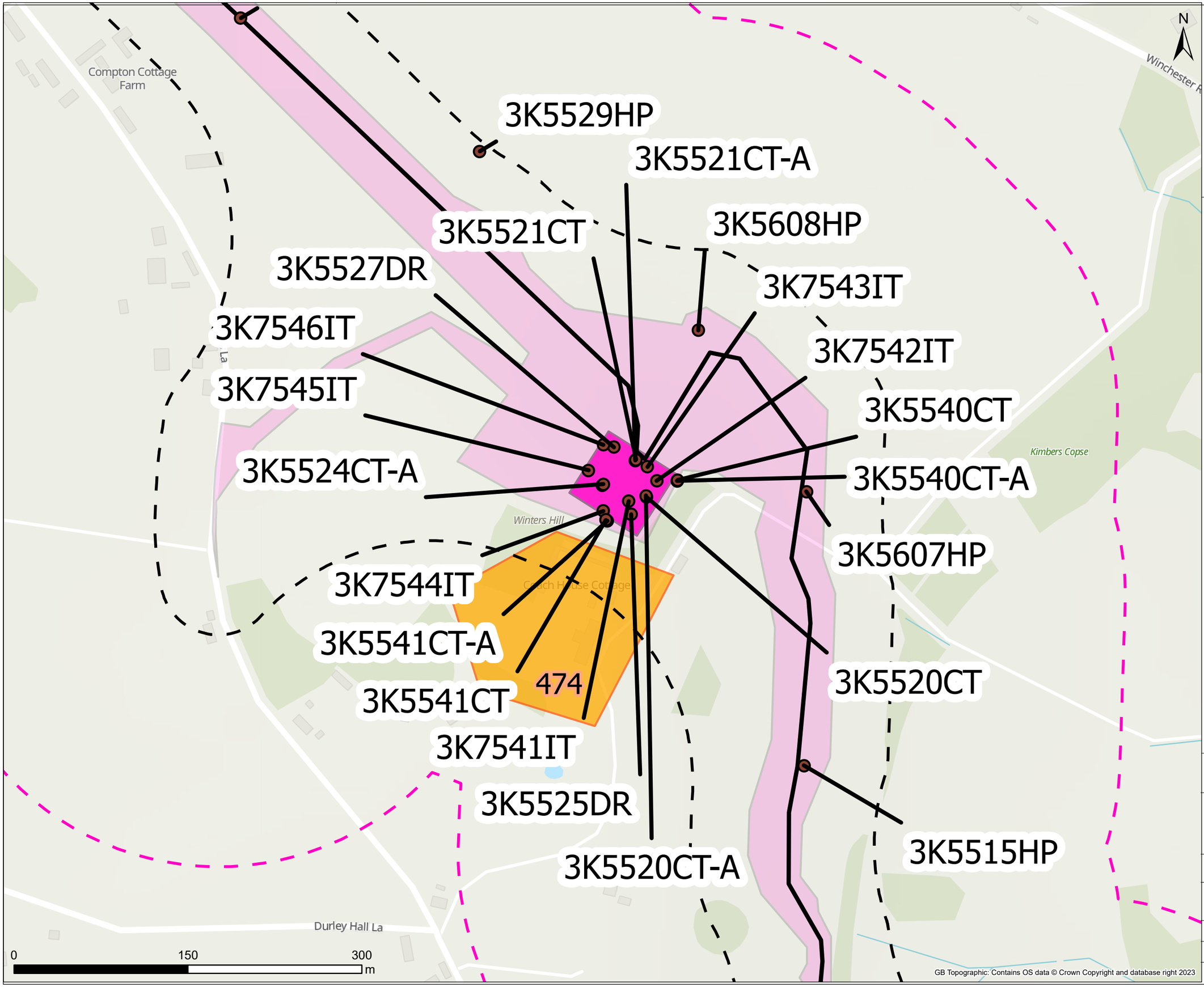
Southern Water
Southern House
Lewes Road
Falmer, Brighton
BN1 9PY

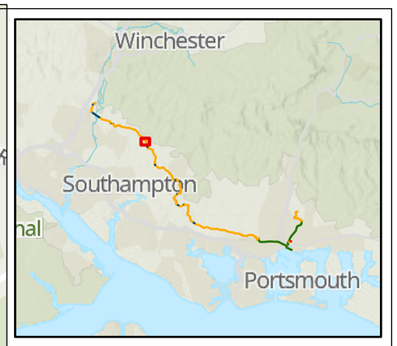
Southern Water

Project Title	Water For Life Hampshire
Drawing Title	Figure 1.2 Section K (SE) Ground Investigation Locations with PSCs

Scale	Date Drawn	Page	Sheet Size
1:11,000	27/11/2024	1.2	A3
Originator	Checker	Reviewer	Approver
SB	GS	AC	JH
Project No.			Revision
710166-SWS-XX-XX-SK-GE-00001			A

Document Path: C:\Southern Water\Hampshire Water for Life\Geo_MapSeries\GI_Scoping\GI_Scoping.aprx





Legend

- Ground Investigation
- Draft Order Limits 50m buffer
- Draft Order Limits 250m buffer

GI Scoping Route

- Open cut

Draft Order Limits Sections

- A
- B
- C
- D
- E
- F
- G
- H
- J
- K
- L
- M

Above Ground Plant

- BPT K
- Potential Sources of Contamination

Contains Southern Water preliminary data - All site locations and routes shown are preliminary only and subject to further site selection assessment and stakeholder consultation.

Stantec

Southern Water
Southern House
Lewes Road
Falmer, Brighton
BN1 9PY

Southern Water

Project Title	Water For Life Hampshire
Drawing Title	Section BPT K (Detail) Ground Investigation Locations with PSCs

Scale	Date Drawn	Page	Sheet Size
1:3,000	27/11/2024	1.1	A3
Originator	Checker	Reviewer	Approver
SB	GS	AC	JH
Project No.			Revision
710166-SWS-XX-XX-SK-GE-00001			A

GB Topographic: Contains OS data © Crown Copyright and database right 2023

PSC No.	Name	Source	Current	Dates	Description	Category	Section
1	Works - Crockerhill Brickworks	Groundsure, National Library of Scotland, ArcGIS Earth, Google Earth	Y	1868 - Present	1868 to 1939 brickfield including infilled ponds. 1939 to 1992 (last available map) Saw mills east of Forest Lane. 1999 to Present - 'Pinks' Industrial park / Welbourne Business Park	PSC & Infilled Land	F
2	Pit - Clay	NLS	N	1937-61 - 1949-70		Infilled Land	F
4	Farm - Albany Farm	National Library of Scotland, Historic Map 1856. Fareham and Gosport Council	Y	1856-1914 - Present	Area now a business centre, houses, a care home and offices. Local authority note timber furniture manufacture.	PSC	F
5	Landfill - Albany Farm Historic Landfill	Environment Agency, National Library of Scotland, Historic Map 1856	N	1856-1913 - 1949-89	Old chalk pit 1888-1913 (NLS),1949-70 (NLS) no longer labelled, markings remain. Landfill licence granted 1977 and shown in lower area until 1989.	Infilled Land	F
6	Landfill - Albany Farm Historic Landfill	Environment Agency, National Library of Scotland, Historic Map 1856	N	1977 - 1982	1892-1914 (NLS) - Old Chalk Pit. Inert backfill.	Infilled Land	F
7	Pit - Unspecified	National Library of Scotland, Historic Map 1856	N	1856 - 1965		Infilled Land	F
8	Pit - Sand	National Library of Scotland, Historic Map 1856	N	1856-1913 - 1937-61		Infilled Land	F
9	Pit - Chalk	National Library of Scotland, Fareham BC EHO, Historic Map 1856	Y	1856-1913 - 1949-70	1892-1913 (NLS) excavation markings still present 1949-92 (NLS). Chalk pit followed by farm use.	PSC & Infilled Land	F
10	Pit - Chalk	National Library of Scotland, Historic Map 1856	N	1856-1913 - 1949-78	Former pit and pond.	Infilled Land	F
11	Landfill - Heytesbury Farm Landfill	Environment Agency, National Library of Scotland / Fareham BC EHO	N	1856-1913 - 1949-70	Former clay pit. Visible on Historical 1956 Map, 1888-1913 (NLS),1949-70 (NLS) no longer labelled. First input 1980. Unknown last input. Local authority note - Waste treatment: landfill construction/demolition/builders waste.	Infilled Land	F
12	Pit - Various	Fareham Council EHO	N	Unknown	Chalk, gravel, clay pit	Infilled Land	F
14	Pit - Various	Fareham BC EHO	N	1856 - 1873	Chalk, gravel, clay pit	Infilled Land	F
15	Infilled Land - Disturbed Ground	Fareham BC EHO	N	Unknown	Unknown landfill/ Stockpiled Soil/ Raised land/ Reclaimed land/ Fly-tipping/Burnt waste - no evidence seen on historical maps.	PSC & Infilled Land	F
16	Embankment	Historic Map 1932	Y	1932 - 1987	Road embankment, road layout has changed in area.	PSC	F
17	Embankment	Historic Map 1958	N	1958 - 1992	Road embankment, layout of road has changed in area, road no longer extends up this far, although area still seems to be raised.	PSC	F
18	Waste Facility - Recycling and waste centre	Historic Map 1856, Google Earth	Y	1856 - Present	Charity Farm shown throughout Historical Maps until 1993. Current map shows area as a waste and recycling centre.	PSC	F
19	Infilled Land - Pond	Historic Map 1856	N	1856 - 1895		Infilled Land	F
20	Infilled Land - Drain	Historic Map 1856	N	1856 - 1910		Infilled Land	F
21	Farm - Whitedell Farm	Historic Maps 1856 - 1992 Google Earth 2024	Y	1856 - Present		PSC	F
22	Pit - Sand	Historic Map 1856	N	1856 - 1898		Infilled Land	F
23	Pit - Chalk	Historic Map 1873	N	1856 - 1985		Infilled Land	F
24	Pit - Chalk	Historic Map 1895	N	1895 - 1898		Infilled Land	F
25	Pit - Chalk	Historic Map 1897	N	1856 - 1985	Infilled Land, western part potentially crosses the pipeline route.	Infilled Land	F
26	Infilled Land - Channel	Historic Map 1868	N	1856 - 1910		Infilled Land	F
27	Infilled Land - Channel	Historic Map 1868	N	1856 - 1957		Infilled Land	F
28	Infilled Land - Channel	Historic Map 1868	N	1856 - 1957		Infilled Land	F
29	Electricity Sub Station (Small)	ArcGIS Earth / Google Earth	Y	1987 - Present		PSC	G
30	Infilled Land - Pond	National Library of Scotland	N	1868 - 1894		Infilled Land	G
31	Infilled Land - Pond	National Library of Scotland	N	1868 - 1938	Infilled by 1940.	Infilled Land	G
32	Farm - Cold Harbour Farm	National Library of Scotland, Google Earth	Y	1888 -1913 - Present		PSC	G
33	Garage - Drokes Farm Motor Company	Google Earth / ArcGIS Earth	Y	2017 - Present	2017 to Present (2023). Servicing, repairs and diagnostic.	PSC	G
34	Nursery	National Library of Scotland	Y	1949-70 - Present		PSC	G
35	Infilled Land - Pond	NLS	N	1888-1913 - 1999		Infilled Land	G
36	Pit - Gravel	National Library of Scotland	N	1892-1914 - 1937-61	Excavation marks visible 1937-61, no longer labelled, pipeline route no longer being passed through PSC.	Infilled Land	G
37	Pit - Gravel	National Library of Scotland	N	1868 - 1913		Infilled Land	G
38	Farm - Little Tapnage Farm	ArcGIS Earth / Google Earth	Y	2021 - Present	2021 Google Earth to Present.	PSC	G
39	Railway	National Library of Scotland	N	1909 - 1968	Appears to be dismantled by 1980. Area now a path.	PSC	G
40	Infilled Land - Pond	National Library of Scotland	N	1868-1897 - 1949-70		Infilled Land	G
41	Infilled Land - Pond	National Library of Scotland	N	1888 - 1994		Infilled Land	G
42	Hospital - Ravenswood	National Library of Scotland, Google Earth, Historic Map 1940	Y	1940-70 - Present		PSC	G
43	Embankment	Historic Map 1939	Y	1939 - Present		PSC	G
44	Embankment	Historic Map 1987	Y	1939 - Present		PSC	E
45	Pit - Gravel	Historic Map 1968	N	Pre-1868	Labelled as 'Gravel Pit Copse'; Shape seen in 1868 map and first labelled in 1888, no actual gravel pit confirmed.	Infilled Land	H
46	Pit - Various	Historic Map 1994, BGS Historical Mineral Planning Areas	N	1973 - 1994	Park Place - Sand and gravel surface mineral working (BGS) Licence granted 1972. Eastern corner pipeline passes through.	Infilled Land	G
49	Pit - Gravel	Historic Map 1895	N	1895 - 1938		Infilled Land	G
50	Infilled Land - Pond	Historic Map 1965	N	1965 - 1994		Infilled Land	G
51	Pit - Gravel	Historic Map 1895	N	1895 - 1938		Infilled Land	G
52	Pit - Gravel	Historic Map 1908	Y	1908 - Present	Pipeline no longer passes near PSC.	Infilled Land	G
53	Infilled Land - Pond	Historic Map 1868	N	1868 - 1994		Infilled Land	F
54	Infilled Land - Drain	Historic Map 1968	N	1868 - 1979	Unclear when the drain was first created, first labelled as a drain in map 1979, however shape can be seen on 1868 map.	Infilled Land	G
55	Infilled Land - Drain	Historic Map 1968	N	1868 - 1987	Unclear when the drain was first created, first labelled as a drain in map 1979, however shape can be seen on 1868 map.	Infilled Land	G
57	Infilled Land - Drain	Historic Map 1968	N	1868 -1980	Unclear when the drain was first created, first labelled as a drain in map 1979, however shape can be seen on 1868 map.	Infilled Land	G
58	Infilled Land - Drain	Historic Map 1968	N	1868 -1980	Unclear when the drain was first created, first labelled as a drain in map 1979, however shape can be seen on 1868 map.	Infilled Land	G
59	Pit - Sand	Historic Map 1868	N	1868 - 1938	Hospital built on top.	Infilled Land	G
60	Pit - Gravel	Historic Map 1895	N	1895 - 1938	Hospital built on top.	Infilled Land	G
62	Infilled Land - Drain	Historic Map 1868	N	1868 - 1994	Shown as a large channel in 1868map, no water shown in that area on ArcGIS Map, however channel outline is still visible on 1994 Map.	Infilled Land	G
64	Infilled Land - Drain	Historic Map 1868	N	1868 - 1895		Infilled Land	G
65	Infilled Land - Drain	Historic Map 1868	N	1868	Only visible in 1868 map.	Infilled Land	G
66	Infilled Land - Drain	Historic Map 1868	N	1868 - 1938		Infilled Land	G
67	Infilled Land - Drain	Historic Map 1868	N	1868	Only visible in 1868 map.	Infilled Land	G
68	Infilled Land - Drain	Historic Map 1868	N	1868	Only visible in 1868 map.	Infilled Land	G
69	Infilled Land - Drain	Historic Map 1868	N	1868	Only visible in 1868 map.	Infilled Land	G
70	Infilled Land - Drain	Historic Map 1868	N	1868	Only visible in 1868 map.	Infilled Land	G
71	Infilled Land - Drain	Historic Map 1868	N	1868	Only visible in 1868 map.	Infilled Land	G
72	Infilled Land - Drain	Historic Map 1868	N	1868	Only visible in 1868 map.	Infilled Land	G
73	Infilled Land - Drain	Historic Map 1868	N	1868	Only visible in 1868 map.	Infilled Land	G
74	Infilled Land - Drain	Historic Map 1868	N	1868	Only visible in 1868 map.	Infilled Land	G
75	Infilled Land - Drain	Historic Map 1868	N	1868	Only visible in 1868 map.	Infilled Land	G
76	Farm	Google Earth, Groundsure Historical Tanks layer	Y	Pre-1999 - Present	Tanks identified by Groundsure 1986-87.	PSC	H
77	Agricultural - Nursery / Farm	Google Earth	Y	1987 - Present	Possible greenhouses adjacent to corridor.	PSC	H
78	Infilled Land - Disturbed Ground	Google Earth	Y	2005 - Present	Ground shown as disturbed with soil and waste heaps. Land also used a farm yard.	PSC & Infilled Land	H
79	Farm	Google Earth	Y	1999 - Present	Small scale activities, no farm name.	PSC	H
80	Tank	Historic Map 1989	N	1986 - 2007		PSC	H

PSC No.	Name	Source	Current	Dates	Description	Category	Section
81	Tank	Historic Map 1989	N	1986 - 1994		PSC	H
82	Pit - Sand	Historic Map 1939	N	1939 - 1957		Infilled Land	H
83	Pit - Sand	Historic Map 1939	N	1939 - 1968		Infilled Land	H
84	Infilled Land - Pond	Historic Map 1868	N	1868 - 1909	No labels on map, however older maps potentially show a pit or an infilled pond.	PSC	H
85	Farm - Westland Farm	Historic Map 1994	Y	1994 - Present		PSC	H
86	Farm	Google Earth	Y	2014 - Present	Farm building.	PSC	H
87	Infilled Land - Swimming pool	Historic Map 1965	N	1965 - 1987		Infilled Land	H
88	Garage	Historic Map 1965, Winchester County Council, Groundsure	Y	1965 - Present		PSC	H
89	Pit - Sand	Historic Map 1965	N	1965 - 1968		Infilled Land	H
90	Landfill - Shirrel Heath Sand Pit	Historic Map 1987, Environment Agency	N	1976 - 1987	Surrounding Old sand pit site. Licence issue11/1976. Labelled as disused workings on 1987 Map. Input - inert, commercial waste.	Infilled Land	H
91	Infilled Land - Pond	Historic Map 1965	N	1965 - 1994	Partially infilled, current site has a river running through the middle. Date of infill unknown, visible on most recent historical map of area (1993) but not on current Google Earth imagery.	Infilled Land	H
92	Garage - Winkworths Garage	Historic Map 1986	Y	1986 - Present	Vehicle repair, maintenance and MOT services.	PSC	H
94	Farm - Woodman's Farm	National Library of Scotland	N	1888 - 1913		PSC	J
95	Pit - Sand	National Library of Scotland	N	1895 - 1896		Infilled Land	J
96	Industrial Estate - Woodmans Farm	Google Earth	Y	1993 - Present	On the former footprint of Woodmans Farm. Units include several vehicle maintenance garages, metal finisher and welding activities and air condition repair. Tank shown in north of site on 1993 historical map.	PSC	J
97	Landfill - Ash House Farm Landfill	National Library of Scotland	N	1868 - 1991		Infilled Land	J
98	Pit - Sand	National Library of Scotland, Historical Map 1968	N	1965 -1968		Infilled Land	J
99	Farm - Unknown	Google Earth	Y	1999 - Present	Farm or possible horse stable.	PSC	J
100	Farm - Five Oaks Farm	National Library of Scotland	Y	Present		PSC	J
101	Farm - Sandy Hill Farm	Historical Map 1868	N	1868 - 1897	From Sandy Hill Farm to Sandy Hill House in next map, 1909.	PSC	J
102	Pit - Sand	Historic Map 1869	N	1869 - 1897		Infilled Land	J
103	Pit - Sand	Historic Map 1895	N	1895 - 1957	LiDAR shows ground level lower than surrounding area. Potentially not infilled.	Infilled Land	H
104	Pit - Sand	Groundsure Historical Maps. BGS mineral planning areas and worked ground layer	N	1965 - 1987	Phillimore Sand pit 1965. 1987 map labels whole area as disused workings.	Infilled Land	J
106	Pit - Gravel	Historic Map 1869	N	1868 - 1869	Only visible on two maps. Not shown on 1895 map.	Infilled Land	K
107	Infilled Land - Marshland	Historical Map 1964	N	1964 - 1993	Not visible on current aerial photography. May still be present.	Infilled Land	K
108	Infilled Land - Marshland	Historical Map 1964	N	1964 - 1993,	Potentially infilled by 1999.	Infilled Land	K
109	Infilled Land - Drain	Historical Map 1964	N	1964 - 1993		Infilled Land	K
114	Wastewater Treatment Works - Pumping Station	Historic Map 1994	Y	1985 - Present		PSC	J
115	Infilled Land - Drain	Historic Map 1965	N	1965	Exact location and size unclear. Label 'drain' present in 1965 map only.	Infilled Land	J
116	Embankment - Park Lug	Historic Map 1964, Hants.gov.uk	Y	1964 - Present	Historical map appear to show a tree lined artificially raised land to form an embankment. Embankment identified as Park Lug on historical maps. Hants.gov.uk describes Park Lug as a boundary for a medieval deer park.	PSC	J
117	Farm - Brooklands Farm	Historic Map 1868	Y	1868 - Present	Lodge Farm/Brooklands farm currently residential housing	PSC	K
118	Infilled Land - Marshland	National Library of Scotland	N	1840-1880		Infilled Land	K
119	Infilled Land - Channel	Historic Map 1869	N	1868 - 1957		Infilled Land	K
121	Infilled Land - Channel	Historic Map 1869	N	1868 - 1985		Infilled Land	K
122	Infilled Land - Channel	Historic Map 1869	N	1868 - 1896		Infilled Land	K
123	Infilled Land - Channel	Historic Map 1869	N	1868 - 1957	Partially infilled at different times, channel is last visible on 1957 map.	Infilled Land	K
125	Railway	National Library of Scotland	N	1868 - 1964	Marked as disused from 1964.	PSC	K
126	Pit - Sand	Historic Map 1957	N	1957	Only visible on 1957 Map. Not visible on 1910 or 1965 maps.	Infilled Land	J
127	Infilled Land - Pond	Historic Map 1868	N	1868 - 1909		Infilled Land	E
128	Infilled Land - Pond	Historic Map 1909	N	1896 - 1957		Infilled Land	J
129	Farm - Dalecote Farm	Historic Map 1965	Y	1965 - Present		PSC	J
130	Farm - Treefield Farm	Historic Map 1868	Y	1957 - Present		PSC	J
131	Agricultural - Orchard	ArcGIS Earth	Y	1868 - Present		PSC	K
132	Infilled Land - Pond	National Library of Scotland	N	1868 - 1957	Infilled by 1964. Land drain still present.	Infilled Land	K
133	Infilled land - Artificial Deposit	British Geological Survey	N	Unknown	BGS Artificial Ground	Infilled Land	K
134	Infilled Land - Pond	National Library of Scotland	N	1888 - 1914		Infilled Land	K
135	Farm - Winterhill Farm	National Library of Scotland, ArcGIS Earth	N	1888 - 1913		PSC	K
136	Garage	Google Earth	Y	Present		PSC	K
137	Works - Brick works	NLS	N	1888-1913 - 1949-70	1937-61 Works.	PSC & Infilled Land	K
138	Farm - Trullingham / Laurel Farm	NLS / Google Earth	Y	1868 - Present	Shown as Trullingham on maps from 1888-1913 to 1949-70. Laurel Farm not shown until 1949-70.	PSC	K
139	Infilled Land - Landscaped bank	National Library of Scotland	N	1896 - 1993		Infilled Land	K
140	Works - Brick works	Groundsure Winchester City Council	N	1868 - 1888	Recorded as a Brick Field with Kilns on the 1885 map. No longer recorded as a Brick Field on the 1896 map and forms the rear garden of a residential property.	Infilled Land	K
143	Farm - Merry Orchard Farm	Historic Map 1964	Y	1964 - Present	Cherry Orchard Farm/Merry, possibly part of Merrytree Farm/Merry Orchard Farm.	PSC	K
146	Infilled Land - Pond	Historic Map 1993	N	1993 - 2000	Only visible on 1993 map.	Infilled Land	K
148	Infilled Land - Pond	Historic Map 1868	N	1868 - 1964		Infilled Land	K
149	Infilled Land - Marshland	Historic Map 1964	Y	1964 - Present		Infilled Land	K
150	Farm - Tangier Farm	Historic Map 1868	Y	1868 - Present	Tangier Farm.	PSC	K
151	Infilled Land - Pond	National Library of Scotland	N	1888-1913 - 1947-1970		Infilled Land	L
152	Works - Brick works	National Library of Scotland, Winchester CC EHO	N	1892-1914	The 1940 plan records the site as disused with the south eastern area of the site divided up into fields. Post 1940 site is recorded as open ground with ponds. Site developed into housing post 1963 into housing.	PSC & Infilled Land	L
153	Landfill - Sand pit	National Library of Scotland, Winchester CC EHO	N	1892-1914 - 1945-1965		Infilled Land	L
154	Embankment	National Library of Scotland	Y	1888 - Present		PSC	L
155	Infilled Land - Made Ground (BGS)	National Library of Scotland, BGS	Y	1868 - Present		PSC	L
156	Garage	Google Maps	Y	Present	Vehicle maintenance.	PSC	L
157	Industrial Estate - Simba Business Park	Google Maps	Y	Present	Business park (fuel, workshops, general trade).	PSC	L
158	Garage	Google Earth	Y	Present	Fuel store / vehicle repair.	PSC	L
159	Waste Facility - Recycling / Scrap Yard	ArcGIS Earth	Y	Present		PSC	L
160	Farm - Rockery Farm	Google Earth	Y	Present		PSC	L
161	Worked Ground	Google Earth	N	2019 - 2020		PSC	L
162	Farm - Lowhill Farm	ArcGIS Earth	Y	1868 - Present		PSC	L
163	Farm - Ashbourne Stables	Google Earth	Y	1993 - Present		PSC	L
164	Fuel Filling Station	Historical Map 1963, Winchester City Council	N	1963 - 2010	Poor map coverage post 1963. The 1983 map shows the garage and a Coach House developed on the site, 1989 only labels the coach house.	PSC	L
165	Pit - Gravel	Historic Map 1868	N	1868 - 1957		Infilled Land	L
166	Pit - Gravel	Historic Map 1996	N	1888 - 1957	Replaced with houses.	Infilled Land	L

PSC No.	Name	Source	Current	Dates	Description	Category	Section
167	Works - Old Brick Yard	Historic Map 1868, Groundsure Historical Land Use layer	N	1868 - 1968	According to 2024 Groundsure Reports, unspecified pits and ground working are also associated with this PSC.	PSC & Infilled Land	L
168	Works - Brick works	Historic Map 1868	N	1868 - 1869	Brick Works, Clay Pits, Kilns.	PSC & Infilled Land	L
170	Infilled Land - Swimming Pool	Historic Map 1937	N	1937 - 1994		PSC & Infilled Land	L
171	Infilled Land - Pond	Historic Map 1989, ArcGIS Map	Y	1989 - Present	Large areas have been infilled and a smaller pond now exists here.	Infilled Land	L
172	Infilled Land - Pond	Historic Map 1989, ArcGIS Map	Y	1989 - Present	Large areas have been infilled and a smaller pond now exists here.	Infilled Land	L
173	Infilled Land - Pond	Historic Map 1989	N	1989 - 1993		Infilled Land	L
174	Infilled Land - Drain	Historic Map 1963	N	1963 - 1995		Infilled Land	L
175	Infilled Land - Drain	Historic Map 1963, ArcGIS Map	N	1868 - 1993	Only labelled as a drain in maps 1963 & 1968; maps as far back as 1868 show shape of the watercourse without the label, modern map shows a smaller watercourse crossing the western section. Eastern section potentially re-aligned to electricity pylon route	Infilled Land	L
177	Works - Unknown	Historic Map 1963	N	1963 - 1968	Labelled as 'works' in 1963 map, structures still visible in 1968 map, but not before 1963 or 1968.	PSC	L
178	Works - Unknown	Historic Map 1963	N	1963 - 1968	Labelled as 'works' in 1963 map, structures visible in 1968 map, but not before 1963 or after 1968 maps.	PSC	L
179	Pit - Gravel	Historic Map 1939	N	1939	Only visible in 1939 map.	Infilled Land	L
180	Pit - Gravel	Historic Map 1939	N	1937	Only visible in 1937 map.	Infilled Land	L
181	Pit - Gravel	Historic Map 1909	N	1909 - 1910		Infilled Land	L
182	Farm - Tee's Farm	Historic Map 1868	N	1868 - 1939		PSC	L
183	Infilled Land - Pond	Historic Map 1868	N	1868 - 1984		Infilled Land	L
184	Infilled Land - Pond	Historic Map 1868	N	1868 - 1896.		Infilled Land	L
185	Infilled Land - Pond	Historic Map 1868	N	1868 - 1963		Infilled Land	L
186	Farm - Upper Bambridge Farm	Historic Map 1968	Y	1868 - Present		PSC	L
187	Farm - Hill's Farm	Historic Map 1939	N	1868 - 1984		PSC	L
188	Infilled Land - Pond	Historic Map 1957	N	1957	Only visible in 1957 map.	Infilled Land	L
189	Infilled Land - Pond	Historic Map 1963	N	1963 - 1968		Infilled Land	L
190	Infilled Land - Pond	Historic Map 1963	N	1963	Only visible in 1963 map.	Infilled Land	L
191	Infilled Land - Pond	Historic Map 1868	N	1868 - 1937		Infilled Land	L
192	Tank	Historic Map 1963	N	1963	Only visible in 1963 map.	PSC	L
193	Farm - Leylands Farm	Historic Map 1968	N	1868 - 1968		PSC	L
196	Infilled Land - Pond	Historic Map 1868	N	1868 - 1939		Infilled Land	L
197	Infilled Land - Pond	Historic Map 1868	N	1868 - 1964		Infilled Land	L
198	Infilled Land - Pond	Historic Map 1868	N	1868 - 1964		Infilled Land	L
199	Infilled Land - Pond	Historic Map 1994	N	1992 - 2000	Date of infill unknown. Pond shown on 1994 map, no longer shown on modern map.	Infilled Land	L
201	Works - Depot	ArcGIS Earth	Y	Present	Metal warehouse frame and outdoor storage area with equipment.	PSC	E
202	Infilled Land - Lagoon	National Library of Scotland	N	1963 - Present		Infilled Land	M
204	Railway	Google Maps	Y	1868 - Present		PSC	M
206	Infilled Land - Pond	NLS, ArcGIS Map, Historic Map 1963	N	1963 - 1984	Pond size has changed through maps, notably from 1968 map, extended in some areas and infilled in others.	Infilled Land	M
208	Water Works	Historic Map 1888, ArcGIS Earth	Y	1888 - Present	First classed as Water works; then Sewage Works and sewage farms. Site structures include sewerage septic-tanks and filter beds.	PSC	M
209	Landfill - Bugle Farm Landfill	Groundsure Historical Maps, Environment Agency	N	1937 - 1963	Extraction of alluvial sediments (sand, stone, clay, peat, marl and gravel), previously a farm. No information on first last input or waste type from Environment Agency. SSP 2023 site visit did not find evidence of landfilling.	Infilled Land	M
210	Infilled Land - Pond	Historic Map 1963	N	1963	Infilled Pond, turns into drainage area.	Infilled Land	M
214	Landfill - Brambridge Landfill	Historic Map 1957, BGS, Hampshire County Council	N	1957	Former sand and gravel pit, Made Ground (BGS). Local authority records note 'Gas risk - no info, permeability - high'.	Infilled Land	M
215	Infilled Land - Pond	Historic Map 1963	N	1963 - 1999	Pond has changed in size over time.	Infilled Land	M
216	Infilled Land - Drain	Historic Map 1963	N	1963	Only labelled on 1963 map, present day northern section seems to now have a pond.	Infilled Land	M
217	Infilled Land - Pond	Historic Map 1963	N	1963	Watercourses still present. Pond shown until last historic map in 1993.	Infilled Land	M
218	Water Works - Pumping, Treatment, Tanks	Historic Map 1939	Y	1939 - 1963	Disused Pumping Station, Waterworks, Tanks. Site still present on 1993 map. Outline still present on 2022 Google earth, but only labelled on historical map up to 1963.	PSC	E
219	Infilled Land - Drain	Historic Map 1963	N	1963 - 1968		Infilled Land	M
220	Water Works - Filter beds	Historic Map 1937	N	1937 - 1957		PSC	M
221	Infilled Land - Drain	Historic Map 1963	N	1895 - 1980	Feature only labelled as a drain in 1963 map, however structure can be seen as far back as the 1895 map.	Infilled Land	E
222	Infilled Land - Drain	Historic Map 1963	N	1869 - 1980	Feature only labelled as a drain in 1963 Map, however structure can be seen as far back as the 1869 map.	Infilled Land	E
223	Infilled Land - Drain	Historic Map 1963	N	1963	Only visible in 1963 map.	Infilled Land	E
224	Infilled Land - Drain	Historic Map 1963	N	1908 - 1980	Drain extends further SE, however that appears to still be filled with water. Feature only labelled as a drain in 1963 Map, however structure can be seen as far back as the 1908 map	Infilled Land	E
225	Infilled Land - Sluice	Historic Map 1896	N	1869 - 1896		Infilled Land	M
226	Infilled Land - Channel	Historic Map 1896	N	1869 - 1999	Unsure exactly when infilled. Visible on last historical map of the area, not shown on Google Earth 1999 image.	Infilled Land	E
227	Infilled Land - Channel	Historic Map 1869	N	1869 - 1957		Infilled Land	E
228	Infilled Land - Channel	Historic Map 1869	N	1869 - 1909		Infilled Land	M
229	Infilled Land - Channel	Historic Map 1869	N	1869 - 1999	Unsure exactly when infilled. Visible on last historical map of the area, not shown on Google Earth 1999 image.	Infilled Land	E
230	Infilled Land - Channel	Historic Map 1869	N	1869 - 1957		Infilled Land	E
231	Infilled Land - Channel	Historic Map 1896	N	1869 - 1909		Infilled Land	M
232	Infilled Land - Channel	Historic Map 1896	N	1869 - 1968		Infilled Land	E
233	Infilled Land - Pond	Historic Map 1869	N	1869 - 1999	Unsure exactly when infilled. Visible on last historical map of the area, not shown on Google Earth 1999 image.	Infilled Land	E
234	Infilled Land - Channel	Historic Map 1870	N	1870 - 1999	Unsure exactly when infilled. Visible on last historical map of the area, not shown on Google Earth 1999 image.	Infilled Land	M
235	Infilled Land - Channel	Historic Map 1870	N	1870 - 1957		Infilled Land	M
236	Infilled Land - Channel	Historic Map 1870	N	1869 - 1999	Unsure exactly when infilled. Visible on last historical map of the area, not shown on Google Earth 1999 image.	Infilled Land	E
237	Infilled Land - Drain	Historic Map 1963	N	1963 - 1999	Unsure exactly when infilled. Visible on last historical map of the area, not shown on Google Earth 1999 image.	Infilled Land	E
238	Infilled Land - Drain	Historic Map 1963	N	1957 - 1999	Unsure exactly when infilled. Visible on last historical map of the area, not shown on Google Earth 1999 image.	Infilled Land	M
239	Infilled Land - Drain	Historic Map 1993	N	1932 - 1999	Unsure exactly when infilled. Visible on last historical map of the area, not shown on Google Earth 1999 image.	Infilled Land	E
240	Infilled Land - Drain	Historic Map 1958	N	1869 - 1987		Infilled Land	E
241	Infilled Land - Drain	Historic Map 1958	N	1869 - 1987		Infilled Land	E
242	Infilled Land - Drain	Historic Map 1958	N	1958 - 1987		Infilled Land	E
243	Farm - Bugle Farm	Historic Map 1968	Y	1968 - Present		PSC	E
256	Infilled Land - Pond	Historic Map 1993	N	1896-1993		Infilled Land	K
257	Infilled Land - Tank	Historic Map 1994	N	1994	Former tank, now part of a nursery (agricultural).	PSC & Infilled Land	G
258	Farm - Prior's Holds Farms	NLS	Y	1888-1913 - Present		PSC	E
259	Farm	NLS	Y	Pre-1999 - Present		PSC	E
260	Pit - Gravel	National Library of Scotland	N	1888 - 1913		Infilled Land	E
261	Farm - Heath Farm	Google Earth	Y	Present		PSC	E
262	Pit - Unspecified	National Library of Scotland	N	1888 - 1970	Local authority suggest pit present in 1878.	Infilled Land	E

PSC No.	Name	Source	Current	Dates	Description	Category	Section
263	Farm - Pigeionhouse Farm	National Library of Scotland	N	1856-1913 - 1949-70	Currently residential property.	PSC	E
264	Pit - Chalk	National Library of Scotland	N	1856-1913 - 1949-70		Infilled Land	E
265	Infilled Land - Pond	National Library of Scotland	N	1856-1931 - 1949-70		Infilled Land	E
266	Worked Ground	National Library of Scotland	N	1937-61 - 1949-70	1937-61 unspecified buildings.1949-70 (NLS) unspecified heaps. Area identified by local authority as a former anti-aircraft battery during 2nd world war.	PSC	E
267	Pit - Chalk	National Library of Scotland	N	1888-1913 - 1949-70		Infilled Land	E
268	Pit - Chalk	National Library of Scotland	N	1856-1913 - 1937-61		Infilled Land	E
269	Pit - Chalk	National Library of Scotland	N	1908 - 1913	Local authority suggest pit present in 1873.	Infilled Land	E
270	Pit - Chalk	National Library of Scotland	N	1888-1913 - 1949-70		Infilled Land	E
271	Pit - Chalk	National Library of Scotland	N	1888-1913 - 1937-61		Infilled Land	E
273	Water Works - Reservoir	National Library of Scotland	N	1938 - 1951	Reservoir(Portsmouth Water Works).	PSC	E
274	Infilled Land - Pond	National Library of Scotland	N	1937-61 - 1949-70		Infilled Land	E
275	Pit - Chalk	Historic Map 1860	N	1856 - 1980		Infilled Land	E
276	Pit - Chalk	Historic Map 1869	N	1856 - 1980		Infilled Land	E
277	Pit - Chalk	Historic Map 1869	N	1856 - 1978		Infilled Land	E
278	Pit - Chalk	Historic Map 1869, Groundsure Historical Industrial Land Uses layer	N	1856 - 1957		Infilled Land	E
279	Works - Kiln	Historic Map 1869	N	1869 - 1957		PSC	E
280	Infilled Land - Pond	Historic Map 1856	N	1856 - 1897		Infilled Land	E
281	Pit - Chalk	Historic Map 1873	N	1873 - 1980		Infilled Land	E
282	Works - Kiln	Historic Map 1856	N	1856 - 1957		PSC	E
283	Pit - Chalk	Historic Map 1856	N	1856 - 1993		Infilled Land	E
284	Pit - Chalk	Historic Map 1856	N	1856 - 1895		Infilled Land	E
285	Pit - Chalk	Historic Map 1856	N	1856 - 1873		Infilled Land	E
286	Infilled Land - Well	Historic Map 1868	N	1868 - 1965		Infilled Land	E
287	Pit - Chalk	Historic Map 1873	N	1873 - 1978		Infilled Land	E
288	Pit - Chalk	Historic Map 1895	N	1895 - 1980		Infilled Land	E
289	Pit - Chalk	Historic Map 1895	N	1895 - 1978		Infilled Land	E
290	Pit - Chalk	Historic Map 1895	N	1895 - 1957		Infilled Land	E
291	Pit - Chalk	Historic Map 1895	N	1895 - 1993		Infilled Land	E
292	Pit - Chalk	Historic Map 1895	N	1895 - 1941		Infilled Land	E
293	Pit - Chalk	Historic Map 1895	N	1895 - 1908		Infilled Land	E
294	Pit - Chalk	Historic Map 1897	N	1897 - 1972		Infilled Land	E
295	Pit - Chalk	Historic Map 1909	N	1909 - 1957		Infilled Land	E
296	Infilled Land - Pond	Historic Map 1909	N	1868 - 1957		Infilled Land	E
297	Military - Fort Widley	Historic Map 1963	Y	1850 - 1972	Various uses. Last military use 1972. See Zeticia Report P14032-24-R10 Site E. Sold to Portsmouth Council 1972.	Military	E
298	Farm - New Barns Farm	Historic Map 1968	Y	1968 - Present		PSC	E
299	Infilled Land - Pond	National Library of Scotland	N	1860 - 1913		Infilled Land	D
300	Pit - Chalk	National Library of Scotland	N	1888 - 1913		Infilled Land	D
301	Infilled Land - Pond	National Library of Scotland	N	1892 - 1914		Infilled Land	D
302	Pit - Chalk	National Library of Scotland, Havant Borough Council	N	1866 - 1980	Known or suspected filled ground.	Infilled Land	D
303	Pit - Chalk	National Library of Scotland	N	1888 - 1913		Infilled Land	D
304	Military - Farlington Redoubt	https://www.heritagegateway.org.uk/Gateway/. Zetica Detailed UXO report.	N	1860s - 1991	1860s - Farlington Redoubt, former barracks. Chalk pit 1931 - 1991. Chalk pit used as firing range during 1944.	Infilled Land	D
305	Waste Facility - Physical Treatment Facility	Google Earth	Y	Present	L&S Waste Management. EA Permit Number - DP3295HN, A16 : Physical Treatment Facility.	PSC	D
306	Pit - Chalk	National Library of Scotland	N	1860 - 1913	Former quarry	Infilled Land	D
307	Water Works - Treatment Works	Groundsure, Google Earth	Y	1931 - Present	Filter beds shown in the northern portion of the map. Filter tanks also shown on maps.	PSC	D
308	Water Works - Reservoir	National Library of Scotland	N	1897 - Present		PSC	D
310	Garage	Google Earth	Y	Present	Tyre repair / replacement garage.	PSC	E
311	Pit - Chalk	Historic Map 1859	N	1859 - 1932	Labelled 'old chalk pit' on 1859 map. Shown as 'Old chalk pit' and 'Collyer's Pit' on 1897 map buildings in the central area. Cottages shown by 1951.	Infilled Land	D
313	Pit - Chalk	National Library of Scotland	N	1859 - 1913	Eastern part extends across pipeline route.	Infilled Land	D
314	Pit - Unspecified	National Library of Scotland	N	1860-1913 - 1949-1970	Labelled 'The Dell'	Infilled Land	D
315	Infilled Land - Pond	National Library of Scotland	N	1869 - 1914		Infilled Land	D
316	Farm - Highbank Farm	National Library of Scotland	N	1970 - 1973		PSC	D
317	Infilled Land - Pond	National Library of Scotland	N	1888 - 1973		Infilled Land	D
318	Infilled Land - Pond	National Library of Scotland	N	1860 - 1913		Infilled Land	D
319	Water Works - Reservoir	National Library of Scotland	N	1897 - 1991	Reservoir(Portsmouth Water Works).	Infilled Land	D
320	Railway - Portsdown & Horndean (Tram)	Historic Map 1910, Wikipedia	N	1903 - 1935	Portsdown & Horndean Light railway (tram).	PSC	D
321	Electricity Sub Station (Small)	ArcGIS Earth	Y	1960 - Present		PSC	D
322	Pit - Chalk	Historic Map 1859	N	1859 - 1995		Infilled Land	D
323	Pit - Chalk	Historic Map 1859	N	1859 - 1971		Infilled Land	D
324	Pit - Chalk	Historic Map 1859	N	1859 - 1963		Infilled Land	E
325	Pit - Clay	Historic Map 1860, Havant Borough Council	N	1860 - 1907	Known or suspected Made Ground (local authority records).	Infilled Land	D
326	Pit - Sand	Historic Map 1860, Environment Agency, Havant Borough Council	N	1860 - 1960	Privett Road Sand Pit. Input data and type unknown.	Infilled Land	D
327	Infilled Land - Pond	Historic Map 1860	N	1860 - 1991		Infilled Land	D
328	Infilled Land - Pond	Historic Map 1860	N	1860 - 1869		Infilled Land	D
329	Pit - Chalk	Historic Map 1866	N	1866 - 1969		Infilled Land	D
330	Pit - Chalk	Historic Map 1866, Havant Borough Council	N	1866 - 1897	Known or suspected filled ground (local authority records).	Infilled Land	D
331	Pit - Unspecified	Historic Map 1868	N	1868 - 1897	Davis's Grave / Beris's Grave	Infilled Land	D
332	Infilled Land - Pond	Historic Map 1895	N	1895 - 1937		Infilled Land	D
333	Infilled Land - Pond	Historic Map 1895	N	1895 - Present		Infilled Land	D
334	Infilled Land - Pond	Historic Map 1895	N	1895 - 1930		Infilled Land	D
335	Infilled Land - Pond	Historic Map 1895	N	1895 - 1937		Infilled Land	D
336	Pit - Gravel	Historic Map 1897, Havant Borough Council, Groundsure Historical Industrial Use layer	N	1897 - 1930	Known or suspected filled ground (local authority records).	Infilled Land	D
337	Infilled Land - Pond	Historic Map 1898	N	1898 - 1907		Infilled Land	D
338	Pit - Sand	Historic Map 1930	N	1930 - 1937		Infilled Land	D
339	Pit - Sand	Historic Map 1930	N	1930 - 1952		Infilled Land	D

PSC No.	Name	Source	Current	Dates	Description	Category	Section
340	Military - Fort Purbrook	Historic Map 1932	Y	1861 - 1968	Various uses. Last military use 1968. See Zeticia Detailed UXO Report P14032-24-R11, D Site.	Military	D
341	Agricultural - Nursery	Historic Map 1937	N	1937 - 1963		PSC	D
344	Water Works	Historic Map 1950	Y	1950 - Present	Drain (covered).	PSC	D
345	Infilled Land - Drain	Historic Map 1950	N	1950 - 1993	Drain (covered).	Infilled Land	D
346	Infilled Land - Drain	Historic Map 1950	N	1950 - 1993		Infilled Land	D
347	Infilled Land - Drain	Historic Map 1950	N	1950 - 1973		Infilled Land	D
348	Infilled Land - Drain	Historic Map 1950	N	1950 - 1973		Infilled Land	D
349	Electricity Sub Station (Small)	Historic Map 1951	Y	1951 - Present		PSC	D
350	Infilled Land - Pond	Historic Map 1952	N	1952 - 1959		Infilled Land	D
351	Infilled Land - Drain	Historic Map 1960	N	1960 - 1979		Infilled Land	D
352	Farm - Highbank Farm	Historic Map 1960	N	1960 - 1973		PSC	D
353	Infilled Land - Pond	Historic Map 1960	N	1960 - 1973		Infilled Land	E
354	Infilled Land - Drain	Historic Map 1960	N	1960 - 1975		Infilled Land	E
355	Infilled Land - Drain	Historic Map 1960	Y	1960 - Present	Looks to be covered but still mapped. Possibly realigned but Groundsure show a watercourse in this location by woodland	Infilled Land	E
356	Infilled Land - Swimming Pool	Historic Map 1969	N	1969 - 1982	Swimming Pool.	Infilled Land	D
357	Electricity Sub Station (Small)	Historic Map 1968	Y	1968 - Present		PSC	D
358	Water Works	Historic Map 1969	Y	1969 - Present	Reservoir (Covered).	Infilled Land	D E
359	Infilled Land - Swimming Pool	Historic Map 1969	N	1969 - 1973	Swimming Pool.	Infilled Land	D
360	Infilled Land - Swimming Pool	Historic Map 1969	N	1969 - 1973	Swimming Pool.	Infilled Land	D
361	Pit - Chalk	Historic Map 1969	N	1859 - 1980	Northern portion crosses pipeline route.	Infilled Land	D
363	Electricity Sub Station (Small)	Historic Map 1971	Y	1971 - Present		PSC	D
364	Water Works	Historic Map 1973	N	1973	Tank.	PSC	D
365	Water Works	Historic Map 1973	N	1973 - 1991		PSC	D
366	Water Works - Reservoir	Historic Map 1991	Y	1991 - Present	Covered Reservoir.	Infilled Land	D
367	Pit - Chalk	Historic Map 1993	N	1991 - Present	Potentially Infilled.	Infilled Land	D E
368	Infilled Land - Marshland	Historic Map 1993	Y	1993 - Present		Infilled Land	E
369	Infilled Land - Marshland	Historic Map 1993	Y	1993 - Present		Infilled Land	E
370	Infilled Land - Made Ground (BGS)	Historic Map 1866, Havant Borough Council	N	1866 - 1974	Potential infill with Earth Spoils, Domestic Refuse, Incinerator Ash (local authority records).	Infilled Land	WRP (C), Budds Farm to WRP (C)
372	Infilled Land - Marshland	Historic Map 1866	N	1866 - 1993	Broad Marsh.	Infilled Land	WRP (C), Budds Farm to WRP (C), D
375	Infilled Land - Watercourse	Historic Map 1867	N	1863 - 1969	Former Hermitage Stream to Storehouse Lake.	Infilled Land	WRP (C), Budds Farm to WRP (C)
378	Wastewater Treatment Works - Budds Farm	Historic Map 1969	Y	1969 - Present	Budd's Farm Sewage Works.	PSC	Budds Farm (C), Budds Farm to WRP (C)
379	Wastewater Treatment Works - Lagoons	Historic Map 1969	N	1969 - 1991	Sewage Sludge.	Infilled Land	Budds Farm (C), Budds Farm to WRP (C)
381	Works - Aggregate	Historic Map 1991	Y	1991 - Present	Aggregate works currently owned by Tarmac. Hanson ready mixed concrete plant located on site.	PSC	Budds Farm to WRP (C)
382	Works	Google Earth, Historic Map 1971, Havant Borough Council	Y	1958 - Present	Garage / Depot / Works / Factory. Area of known or suspected filled ground (local authority records).	PSC	WRP to Havant Thicket Reservoir (B)
383	Railway - Building and siding	National Library of Scotland	N	1892 - 1914	Historical Maps do not detail use. Possibly for storage.	PSC	WRP to Havant Thicket Reservoir (B)
385	Infilled Land - Pond	National Library of Scotland	N	1892 - 1914	In proposed tunnel area.	Infilled Land	WRP to Havant Thicket Reservoir (B)
386	Infilled Land - Watercourse	National Library of Scotland	N	1888 - 1913		Infilled Land	WRP to Havant Thicket Reservoir (B)
387	Works - Corn Mill	National Library of Scotland, Historic Map 1866	N	1866 - 1951	Including Mills Dams and pond areas that have been infilled.	PSC	WRP to Havant Thicket Reservoir (B)
388	Wastewater Treatment Works	National Library of Scotland	N	1931 - 1966	Tanks and filter beds shown on 1939 historical map onwards.	PSC	WRP to Havant Thicket Reservoir (B)
389	Infilled Land - Watercourse	National Library of Scotland, Havant Borough Council	N	1892 - 1978	Area of known or suspected infilled soils (local authority records)	Infilled Land	WRP to Havant Thicket Reservoir (B)
391	Railway - South Western Railway	Historic Map 1866	Y	1866 - Present	South Western Railway branch line.	PSC	WRP to Havant Thicket Reservoir (B), D
392	Infilled Land - Pond	Historic Map 1866	N	1866 - 1951		Infilled Land	WRP to Havant Thicket Reservoir (B)
393	Infilled Land - Pond	Historic Map 1886	N	1868 - 1971		Infilled Land	WRP to Havant Thicket Reservoir (B)
394	Infilled Land - Pond	Historic Map 1886	N	1868 - 1907		Infilled Land	WRP to Havant Thicket Reservoir (B)
395	Water Works - Tank	Historic Map 1939	N	1939 - 1961		PSC	WRP to Havant Thicket Reservoir (B)
396	Water Works - Tank	Historic Map 1939	Y	1939 - Present		PSC	WRP to Havant Thicket Reservoir (B)
397	Water Works - Tank	Historic Map 1939	Y	1939 - Present		PSC	WRP to Havant Thicket Reservoir (B)
398	Water Works - Tank	Historic Map 1939	Y	1939 - Present		PSC	WRP to Havant Thicket Reservoir (B)
399	Water Works - Tank	Historic Map 1939	Y	1939 - Present		PSC	WRP to Havant Thicket Reservoir (B)
400	Water Works - Tank	Historic Map 1939	Y	1939 - Present		PSC	WRP to Havant Thicket Reservoir (B)
401	Water Works - Tank	Historic Map 1939	Y	1939 - Present		PSC	WRP to Havant Thicket Reservoir (B)
403	Wastewater Treatment Works	Historic Map 1952	N	1952 - 1957	1952 map shows sludge beds, filter beds, settling tanks, congestion tanks (east of Dunsbury Way) and humus tanks (west side of Dunsbury Way). Now an industrial estate.	PSC	WRP to Havant Thicket Reservoir (B)
405	Infilled Land - Pond	Historic Map 1953	N	1953 - 1971	Pond likely infilled, now forms part of residential gardens.	Infilled Land	WRP to Havant Thicket Reservoir (B)
406	Infilled Land - Pond	Historic Map 1953	N	1953 - 1973		Infilled Land	WRP to Havant Thicket Reservoir (B)
407	Water Works - Pumping station	Historic Map 1955	N	1955 - 1998		Infilled Land	WRP to Havant Thicket Reservoir (B)
408	Farm - Health Farm	Historic Map 1955	N	1955 - 1973	Farm	PSC	WRP to Havant Thicket Reservoir (B)
409	Infilled Land - Pond	Historic Map 1955	N	1955 - 1978	Pond, potentially infilled land	Infilled Land	WRP to Havant Thicket Reservoir (B)
411	Infilled Land - Drain	Historic Map 1955	N	1955 - 1978		Infilled Land	WRP to Havant Thicket Reservoir (B)
413	Infilled Land - Drain	Historic Map 1963	N	1963 - 1973		Infilled Land	WRP to Havant Thicket Reservoir (B)
414	Infilled Land - Drain	Historic Map 1963	N	1955 - 1973		Infilled Land	WRP to Havant Thicket Reservoir (B)
415	Farm - Hook's Farm	Historic Map 1966	N	1966 - 1971	Farm.	PSC	WRP to Havant Thicket Reservoir (B)
416	Infilled Land - Drain	Historic Map 1966	N	1966 - 1971	Drain - Infilled Land.	Infilled Land	WRP to Havant Thicket Reservoir (B)
417	Infilled Land - Drain	Historic Map 1966	N	1961 - 1973		Infilled Land	WRP to Havant Thicket Reservoir (B)
418	Infilled Land - Drain	Historic Map 1967	N	1967 - 1987		Infilled Land	E
420	Infilled Land - Swimming Pool	Historic Map 1974	Y	1974 - 1993	Swimming Pool - No Longer present, last record 1993.	PSC	WRP to Havant Thicket Reservoir (B)
421	Infilled Land - Pond	National Library of Scotland	N	1892 - 1914		Infilled Land	E
422	Farm - Dunsbury Hill Farm	National Library of Scotland, Google Earth	N	1840-1880- 1999	Last available map shown 1963 NLS map. Not shown on 1999 google photography.	PSC	E
424	Infilled Land - Pond	Historic Map 1952	Y	1866 - 1966	Pond - Potentially still present but obscured by trees.	Infilled Land	Havant Thicket Reservoir (A)
425	Infilled Land - Swimming Pool	Historic Map 1952	N	1952 - 1956	Swimming Pool - Part of Stockheath Naval Camp.	Infilled Land	Havant Thicket Reservoir (A)
426	Embankment	Historic Map 1956	N	1956 - 1964	Embankment - Crosses Pipeline Route.	PSC	WRP to Havant Thicket Reservoir (B)
427	Infilled Land - Drain	Historic Map 1975	Y	1975 - Present	Drain - Likely still present, potentially obscured by trees.	Infilled Land	Havant Thicket Reservoir (A)
428	Infilled Land - Drain	Historic Map 1988	N	1988 - 1991		Infilled Land	Havant Thicket Reservoir (A)
429	Infilled Land - Marshland	Historic Map 1866	N	1866 - 1938		Infilled Land	WRP (C), WRP to Bedhampton Springs (B)
430	Infilled Land - Pond	Historic Map 1951	N	1939 - 1969	Potentially still present.	Infilled Land	D

PSC No.	Name	Source	Current	Dates	Description	Category	Section
431	Works - Portsdown Windmill	Historic Map 1869	N	1856 - 1869		PSC	E
432	Pit - Unspecified	Historic Map 1980, Groundsure Historical Industrial Land use and waste disposal layers	N	1856 - 1991	Disused pit on 1980 map. Widley Dell on previous maps. Groundsure Waste Disposal layer notes 1952 used as landfill or other waste disposal site. Site may extend southwest outside of boundary.	Infilled Land	E
433	Pit - Chalk	Historic Map 1941	N	1908 - 1957		Infilled Land	E
434	Pit - Chalk	Historic Map 1908	N	1908 - 1993		Infilled Land	E
435	Pit - Gravel	Historic Map 1868	N	1868 - 1950		Infilled Land	G
437	Infilled Land - Worked Ground (BGS)	BGS	N	1963 - 1993	Appears to have been infilled by 1993.	Infilled Land	M
438	Infilled Land - Made Ground (BGS)	BGS	N	Unknown		Infilled Land	M
439	Pit - Unspecified	Groundsure Historical Land Use Layer	N	1869 - 1957		Infilled Land	L
440	Infilled Land - Made Ground (BGS)	BGS	N	Unknown		Infilled Land	L
441	Landfill - Crowd Hill Landfill	Environment Agency	N	1962 - 1972	SW Phase 2 ground investigation 2023 found very little to denote landfill. Approx 0 - 0.5m MG overlying natural deposits.	Infilled Land	L
442	Works - Brick works	Groundsure Historical Industrial Land Use layer	N	1895		PSC	L
443	Landfill - Land at Rossgarth Landfill	Hampshire County Council, Environment Agency. Phase 3c GI	N	1988 - 1995	EA input 1988 to 1995 (licence surrendered).Inert waste. Local authority note - 'Gas risk - Gassing, Permeability - high'. Boundary extended west following Phase 3c GI hole 3J5007DS. MG to 3.6m bgl inc brick, concrete, glass, ceramics, cement.	Infilled Land	J
444	Works - Smithy	Groundsure Historical Industrial Land Use layer	N	1910		PSC	H
445	Worked Ground - unspecified	Groundsure Historical Land Use Layer	N	1965 - 1987	LiDAR shows ground level lower than surrounding area. Potentially not infilled.	Infilled Land	H
446	Worked Ground - Unspecified heap	Groundsure Historical Industrial Land Use layer	N	1868 - 1965		PSC	H
447	Pit - Unspecified	Groundsure Historical Industrial Land Use layer	N	1868 - 1869		Infilled Land	H
448	Landfill - Firth Lane Sand Pit	Winchester City Council, Hampshire County Council, Environment Agency, Google Earth	N	1998 - 2007	A01: co-disposal landfill site (EA), Licence application desk study undertaken 1997. Google Earth appears to show site closure by 2007.	Infilled Land	H
449	Landfill - Quob Copse Landfill	Environment Agency	N	1971 - 1972	Droxford Rural District Council, household / commercial landfill.	Infilled Land	G
450	Worked Ground - unspecified	Groundsure Historical Industrial Land Use layer	N	1908 - 1938		Infilled Land	G
451	Fuel Filling Station	Groundsure Historical Garages Layer	N	1961 - 1993	Information from Groundsure layer. Site is currently residential properties and a public house.	PSC	E
452	Infilled Land - Christ Church, London Road	Havant Borough Council	N	1897 - 1998	Waste type - Putrescible.	PSC	D
453	Pit - Unspecified	Groundsure Historical Industrial Land Use layer	N	1895		Infilled Land	D
454	Landfill - Disused Sand Pit B Brick and Tile works	Groundsure Historical Industrial Land use / Havant Borough Council	N	1930 - 1938	Local authority - suspected filled ground along the south of site.	Infilled Land	D
455	Pit - Unspecified	Groundsure Historical Industrial Land Use layer	N	1898 - 1938		Infilled Land	D
456	Landfill	Portsmouth City Council	N	1952	Waste disposal / unknown infill. Considered a landfill by the local authority.	Infilled Land	D
457	Pit - Chalk	Havant Borough Council, Groundsure Historical Industrial Land Use layer	N	1895 - 1963	Unknown material used to fill a small quarry hole.	Infilled Land	D
459	Infilled Land - Made Ground (BGS)	BGS / Havant Borough Council	Y	1969 - Present	Known or suspected infilled soils (local authority records). Historical mapping shows potential highways construction activities.	Infilled Land	WRP to Havant Thicket Reservoir (B), WRP (C), Budds Farm to WRP (C), D
460	Landfill - Land South of Budds Farm	Environment Agency, Havant Borough Council	N	2014	Bund erosion and water egress noted to EA. Former domestic waste landfill.	Infilled Land	Budds Farm (C), Budds Farm to WRP (C)
461	Infilled Land - Made Ground (BGS)	BGS	N	Unknown		Infilled Land	E
462	Landfill - Bedhampton Waterworks	Environment Agency, Havant Borough Council, Groundsure Historical Industrial Land use	N	Unknown	L05 inert landfill registered to Portsmouth Water. Area of known or suspected infilled soils (local authority records).	Infilled Land	WRP to Havant Thicket Reservoir (B)
463	Worked Ground - Heap	Groundsure Historical Industrial Land Use layer	N	1910 - 1963	Unspecified heap apart from 1931 which is recorded as unspecified ground workings. Tank recorded on site between 1897 - 1910.	Infilled Land	Havant Thicket Reservoir (A)
464	Pit - Unspecified	Groundsure Historical Industrial Land Use layer	N	1963 - 1991	Potential embankment on Historical Mapping.	Infilled Land	WRP to Havant Thicket Reservoir (B)
465	Pit - Unspecified	Groundsure Historical Industrial Land Use layer	N	1907 - 1963		Infilled Land	WRP to Havant Thicket Reservoir (B)
466	Landfill - Harts Farm Landfill	Environment Agency	N	1978 - unknown	Household waste landfill, site ref FHA15, 1760/1/13/6.	Infilled Land	WRP (C), Budds Farm to WRP (C), D
467	Worked Ground - unspecified	Groundsure Waste Disposal and Historical Industrial Uses layers	N	1952	Unknown hole. Potentially landfilled.	Infilled Land	E
468	Military - Research Facility	Google Maps, http://www.portsdown-tunnels.org.uk/	Y	1950 - Present	QinetiQ Technology Business park. Potential tanks on site.	Military	E
469	Military - Fort Southwick	Winchester County Council, / http://www.portsdown-tunnels.org.uk/	N	1861 - 2002	Various uses. Last military use 1968. See Zeticia Detailed UXO Report P14032-24-R11, D Site.	Military	E
470	Worked Ground - unspecified	Groundsure Historical Industrial Land Use layer	N	1986 - 1987		Infilled Land	H
471	Worked Ground - unspecified	Groundsure Historical Industrial Land Use layer	N	1987		Infilled Land	J
472	Landfill - Crowd Hill Landfill	BGS Historical Landfill point	N	Unknown	Risk code G2, boundaries unknown, location shown at point.	Infilled Land	L
473	Worked Ground - unspecified	Groundsure Historical Industrial Land Use layer	N	1957 - 1968		Infilled Land	L
474	Military - Wintershill Hall (Former military / civilian base)	https://wintershill.net/about/	N	1941 - 1946	Headquarters of the Hampshire Fire Service. The lower lawn was covered in Nissen huts for offices and additional accommodation. 20m south of BPT-4.	PSC	K
475	Garage	Google Earth, Site visit 04052023	Y	Unknown - Present	Streetview shows Motorhome Service Centre. Above ground tank (metal) and bunded tank (plastic) at approx. 456320, 111685.	PSC	G
476	Works - Parchow Groundworks	Ground investigation site visit 26 March 2023	Y	Unknown - Present	Former telephone exchange.	PSC	E
478	Infilled Land - Artificial Ground	ROL-2-562-575-0135-1979 MAP	N	1937 - 1993	Artificial Land / Worked Ground may be associated with removal of woodlands	Infilled Land	M
479	Water Works - Pump house	A60-21-SU-0089	Y	1988 - Present	Pump House.	PSC	D
480	Pit - Various	HAM-076-10-XX-1909-G-01	N	1909 - 1932	Potentially Infilled Pit (Sand and Gravel) associated with RTD deposits.	PSC	D
481	Waste Facility - Incinerator	Groundsure 2023 Report	N	1987 - 1993		PSC	WRP (C)
482	Infilled Land - Pond	SU51SE-03-G-1957	Y	1939 - 1957	Former Un-named building which at present is an infilled pond (associated with the River Meon).	PSC	G
483	Farm - Crockerhill Farm	SU-51SE-03-G-1957	Y	1957		PSC	F
484	Farm - Building (potential)	SU-51E-03-G-1957	Y	1957		PSC	G
485	Wastewater Treatment Works	SU-51SE-01-G_1987	Y	1987	Sewage Works with 5 tanks, two settlement tanks.	PSC	G
487	Building - Un-named	HAM-075-03-XX-1941-G-01_1941	Y	1941		PSC	E
488	Infilled Land - Pond	ROL-4-1741-1750-0290_1986	Y	1986		Infilled Land	F
490	Infilled Land - Pond	SU810_S1_SEP_1994_1994	Y	1994		Infilled Land	F
492	Infilled Land - Pond	SU6109_1965_1965	Y	1965		Infilled Land	E
493	Railway - Meon	SU-51SE-03-G_1957	Y	1909 - 1957	Meon Railway.	PSC	G
494	Infilled Land - Pond	SU5909_S1_NOV_1992_1992	Y	1992		Infilled Land	F
495	Water Works - Reservoir (covered)	SU-51SE-01-G-1987	Y	1987		PSC	F G
496	Pit - Gravel	HAM-075-02-xx-1932	N	1932		Infilled Land	F
498	Wastewater Treatment Works	Groundsure Google Earth	Y	1965 - Present		PSC	E
499	Landfill	Portsmouth Borough Council Waste Disposal GIS	N	1952 - 1980	Potential landfill recorded by local authority, unknown infill (dated 1952 by local authority).	Infilled Land	E
500	Military - Belmont Camp II	Safelane WfL UXO Report 9714 RA Section 9.1.3	N	1940 - 1950	Camp's facilities included classrooms, training grounds, barracks, and administrative buildings.	PSC	D
501	Military - Stockheath Naval Camp	Safelane WfL UXO Report 9714 RA Section 9.1.3	N	1941 - 1970	Nissen huts in west of Camp, assault course south of PSC 425 swimming pool, practice trench in the north. South of PSC 428 drain. Site demolished in 1950 to 1970 and replaced with housing	Military	WRP to Havant Thicket Reservoir (B)
502	Military - HMS Daedalus III	Safelane WfL UXO Report 9714 RA Section 9.1.3 / Zetica P14032-24-R1-A Zetica UXO Desk Study Havant Thicket Pipeline	N	1940 - 1950	Camp's facilities included classrooms, training grounds, barracks, and administrative buildings. Eastern extent passes pipeline route.	Military	WRP to Havant Thicket Reservoir (B)
503	Military - Fraser Naval Camp	Safelane WfL UXO Report 9714 RA Section 9.1.3	N	1940 - 1950	Camp's facilities included classrooms, training grounds, barracks, and administrative buildings. Northern part of the former barracks potentially passes through the pipeline route.	Military	WRP to Havant Thicket Reservoir (B)
504	Military - Belmont Naval Camp	Safelane WfL UXO Report 9714 RA Section 9.1.3	N	1940 - 1950	Camp's facilities included classrooms, training grounds, barracks, and administrative buildings.	Military	WRP to Havant Thicket Reservoir (B)
505	Farm - Widley Farm	Groundsure 2023 Report Winchester County Council	N	1860 - 1980	Farm buildings. Unknown filled ground (possible pond) noted in east of site by local authority	PSC	E
507	Farm - Offwell Farm	Groundsure 2023 Report	Y	1867 - Present		PSC	E
508	Landfill - Whitedell Farm	Environment, Agency Groundsure	N	1980 - 1982	Licence 10/14, FFA7, 1760/7 - Inert landfill.	PSC	F
509	Farm - Cloverfield Farm	OS Zoomstack maps	Y	2005 - Present		PSC	H
510	Worked Ground	Google Maps	Y	2023		PSC & Infilled Land	F
511	Worked Ground	Google Maps	Y	2023	Potential stockpile of unknown soil.	Infilled Land	F
512	Farm - Pig farm (potential)	Google Earth (2005)	N	2005 - 2007	Potential pig Farm.	PSC	H

PSC No.	Name	Source	Current	Dates	Description	Category	Section
513	Farm - Barn	Google Maps, Groundsure Maps	Y	1986 - Present		PSC	G
515	Infilled Land - Artificial Ground	Groundsure Historic Maps	N	1937 - 1993		Infilled Land	M
516	Pit - Gravel	Groundsure Historic Maps, Winchester City Council Contaminated Land Data	N	1938 - 2010		Infilled Land	M
517	Farm - Storage area	Google Earth	Y	2015 - Present	Storage area.	PSC	M
519	Infilled Land - Artificial Ground	Winchester City Council Contaminated Land Data (Site Reports)	N	2016		Infilled Land	M
520	Infilled Land - Marshland	Groundsure Historic Maps	N	1868 - 1968		Infilled Land	L
522	Infilled Land - Marshland	Groundsure Historic Maps	N	1939 - 1968		Infilled Land	L
523	Farm - Storage area	Google Earth	Y	2000 - Present	Storage area.	PSC	L
524	Infilled Land - Watercourse	Groundsure Historic Map 1869, LIDAR data	N	1869 - 1888		Infilled Land	L
525	Infilled Land - Pond	Groundsure Historic Maps, LIDAR data, Google Earth	N	1868-1992		Infilled Land	L
526	Farm - Storage area	Google Earth, LIDAR data	Y	2014 - Present	Storage area for farm / stables to the southeast.	PSC	L
527	Embankment	Groundsure Historic Maps, LIDAR data	Y	1964 - Present		Infilled Land	L
528	Agricultural - Orchard	Groundsure Historic Maps	N	1868 - 1957		PSC	K
529	Worked Ground - Stockpile	Google Earth, LIDAR data	N	2012 - Present	Ground workings. Soil heap first visible in 2012, still present but overgrown in 2024 aerial photography.	PSC	K
530	Worked Ground - unspecified	Google Earth, Google Maps, LIDAR data	Y	2019 - Present		PSC	K
531	Infilled Land - Watercourse	Groundsure Historic Maps	N	1868 - 1964		Infilled Land	K
532	Infilled Land - Made Ground (BGS)	BGS, LIDAR data, Google Earth	N	Unknown	BGS Made Ground	Infilled Land	K
533	Embankment - (potential)	Groundsure Historic Maps, LIDAR data	Y	1964 - Present		PSC	J
534	Embankment	Groundsure Historic Maps, LIDAR data	Y	1964 - Present		PSC	J
535	Tank	Groundsure Historic Maps, Google Earth	N	1993 - 2012		PSC	J
536	Infilled Land - Pond	Groundsure Historic Maps, LIDAR data	N	1869 - 1964		Infilled Land	J
538	Farm - Storage area	Google Earth, Google Maps	Y	2019 - Present	Storage area.	PSC	J
539	Worked Ground - Stockpile	Google Earth, LIDAR data	Y	2014 - Present	Unspecified heap.	PSC	J
540	Farm - Storage area	Google Earth, Google Maps	Y	2012 - Present	Storage area.	PSC	J
541	Agricultural - Orchard	Groundsure Historic Maps	N	1868 - 1968		PSC	J
542	Infilled Land - Pond	Groundsure Historic Maps, LIDAR data	N	1868 - 1957		Infilled Land	J
543	Infilled Land - Pond	Groundsure Historic Maps	N	1868 - 1869		Infilled Land	H
544	Infilled Land - Marshland	Groundsure Historic Maps	N	1895 - 1896		Infilled Land	H
545	Farm - Building	Google Earth	Y	2005 - Present	Farm building.	PSC	H
546	Farm - Yard / Storage area	Google Earth	Y	2012 - Present	Yard / Storage area.	PSC	H
547	Farm	Google Earth	Y	pre-1999 - Present		PSC	H
548	Farm	Groundsure Historic Maps, Google Earth	Y	1868 - Present		PSC	K
582	Filter Beds or Potential Tanks	Historical Maps A28-17-SU7006SW 1959, Google Earth	N	1959-2007		PSC & Infilled Land	B
584	Tanks	Historical Maps 1969	Y	1969 - Present		PSC	D
587	Tanks	Historical Maps - 1939 HAM-076-10-XX-1939	N	1939 - 1969		PSC & Infilled Land	WRP to Havant Thicket Reservoir (B)
588	Farm - Mayles Farm	Historical Map - A48-06-SU-0380-1980	Y	1980 - Present		PSC	G
592	Pit - Gravel	Groundsure Historical Maps	N	1859 - 1985		Infilled Land	F
593	Infilled Land - Reservoir	Historical Maps - HAM-075-01-XX-1910	N	1897 - 1910		Infilled Land	F
594	Infilled Land - Pond	Historical Maps - HAM-075-01-XX-1859	N	1856 - 1957		Infilled Land	F
595	Farm - Castle Farm	Historical Maps HAM-067-13-XX-1897-G-01	Y	1897 - Present		PSC	G
596	Wastewater Treatment Works - Filter beds / tanks	Historical Maps - A54-02-SU-0360_1969	N	1939 - 1993		PSC & Infilled Land	WRP to Havant Thicket Reservoir (B)
597	Wastewater Treatment Works - Settlement Tanks	Historical Maps 2500 A33-18-SU-0239_1952	N	1952 - 1958		PSC & Infilled Land	WRP to Havant Thicket Reservoir (B)
598	Wastewater Treatment Works - Filter beds (former)	Historical Maps 2500 - A33-18-SU-0239_1952	N	1952 - 1964		PSC	WRP to Havant Thicket Reservoir (B)
599	Tank - Congestion	Historical Maps 2500 - A33-18-SU-0239_1952	N	1952 - 1958		PSC & Infilled Land	WRP to Havant Thicket Reservoir (B)
600	Infilled Land - Former Sludge Beds	Historical Maps - 2500 A33-18-SU-0239_1952	N	1952 - 1958		PSC & Infilled Land	WRP to Havant Thicket Reservoir (B)
601	Water Works - Pumping station	Historical Map - A49-02SU-0211_1971	N	1955 - 1975		PSC	WRP to Havant Thicket Reservoir (B)
602	Embankment	A28-22-SU7107-1_1955	N	1955 - 1971		PSC	WRP to Havant Thicket Reservoir (B)
603	Tank	Historical Maps - SU7108SE_1971 TO 1993, Google Earth	Y	1971 - Present		PSC	WRP to Havant Thicket Reservoir (B)
604	Electricity Sub Station (Small)	Historical Mapping - SU107SW_1969, Google Street View	Y	1969 - Present		PSC	WRP to Havant Thicket Reservoir (B)
605	Electricity Sub Station (Small)	Historical Maps - A60-01-SU-0576_1973, Groundsure Historical Energy Features	Y	1973 - Present	Potentially 2 substations have existed at this location. 1st substation approximately 1973 later replaced approximately 1993.	PSC	D
606	Infilled Land - Pond	Historical Map - A28-08-SU108NW-1_1957	N	1952 - 1964		Infilled Land	Havant Thicket Reservoir (A)
607	Fuel Petrol Filling Station	Google Earth Imagery	Y	1999 - Present		PSC	G
609	Electricity Sub Station (Small)	A32-04-SU7008-4_1964 - Groundsure	N	1964 - 1971		PSC	WRP to Havant Thicket Reservoir (B)
610	Garage	A32-04-SU7008-4_1964 - Groundsure	N	1964 - 1995		PSC	WRP to Havant Thicket Reservoir (B)
611	Farm - Leigh Park Farm	Groundsure Historical Map 1975	N	1991 - Present		PSC	WRP to Havant Thicket Reservoir (B)
612	Pit - Unspecified	Groundsure 2024 Report	N	1968 - 1980	Unspecified Hole. No additional information on Groundsure maps. Potentially an infilled pit.	Infilled Land	M
613	Water Works - Pumping station	Groundsure 2024 Report	N	1980	Groundsure maps indicate a pumping station.	Ground Investigation	L
614	Wastewater Treatment Works	Aerial imagery and Groundsure 2024 reporting	Y	1993 - Present	Sewage Treatment Works.	PSC	K
621	Works - Industrial Estate	Groundsure	N	1939 - 1992	Saw Mills between 1939 - 1990s, then industrial estate.	PSC	F
622	Military - Anti-aircraft Battery	Winchester City Council	N	1939 - 1946	Dates are approximate. Information from Winchester City Council Potential Contaminative use GIS 1_2500 2km buffer 2022.	PSC	Havant Thicket Reservoir (A)
623	Military - Leigh Park House	Zetica Detailed Desk Study	N	1940 - 1957	Used by Admiralty Mine Design Department for administration and design of mines, depth changes and minesweeping. Explosive stored in the 'ice house'. See Zetica Detrail Risk Assessment for detail.	PSC	Havant Thicket Reservoir (A)
624	Pit - Unspecified	Groundsure Winchester City Council	N	1868	Shown only on 1868 map. Reduced ground level also visible on LiDAR.	Infilled Land	E
626	Infilled Land - Drain	Groundsure	N	1868 - 1980	Partially infilled by 1980 south of Mayles Lodge.	Infilled Land	G
627	Infilled Land - Drain	Groundsure	N	1868 - 1994	Drain south of sewage works no longer shown on maps.	Infilled Land	G
628	Works - Depot	Groundsure Google Maps Winchester City Council	Y	1964 - Present	'Depot' shown on maps until 1989. Buildings remain on 2019 Google Earth photography	PSC	K

Appendices

Appendix A: DoL for Section K Desk Study Information Specific to the GI

Tables A1.1 to A1.2 summarise desk study information specific for the Phase 2 and Phase 3B/3C GI area for Section K respectively. The standalone desk study document for the BPT-K Site is also provided below. The information was used to develop the preliminary conceptual site model (CSM) presented in the HWTWRP Geotechnical and Geo-environmental desk study Version 4 (SSP, 2024).

Table A1.1: Geo-environmental Desk Study Summary Information for Phase 2 GI Locations at Section K

		2K5500SR	2K5501SR	2K5502DS, 2K5503DS, 2K5534DS, 2K5535DS
Geology	Superficial Deposits	River Terrace Deposits	None. River Terrace Deposits approximately <5 m south; Head Deposits <10 m east	Absent
	Bedrock Geology	London Clay Formation (Clay, Silt, Sand)	London Clay Formation (Clay, Silt, Sand)	London Clay Formation (Clay, Silt, Sand)
	Artificial/Made Ground [1]	None	None	None
Hydrogeology	Bedrock Aquifer Classification	Unproductive stratum (London Clay)	Unproductive stratum (London Clay)	Unproductive stratum (London Clay)
	Superficial Aquifer Classification	Secondary A Aquifer (River Terrace Deposits)	N/A	N/A
	Source Protection Zones (SPZs)	None	None	Zone II
	Groundwater Abstractions [1]	None	None	Approximately 630 m southeast (potable water supply)
	Nitrate Vulnerable Zone	✓		
Hydrology	Surface Watercourses	River Hamble approximately 150 m north. A tributary to the River Hamble is 15 m southwest.	River Hamble approximately 65 m south. A tributary to the River Hamble 45 m west. A field drain may have been present > 10m of GI location.	Adjacent to drain/watercourse flowing in a south westerly direction, a tributary to Ford Lake.
	Surface Water Abstractions [1]	Approximately 490 m northeast (spray irrigation, abstraction from River Hamble. Approximately 270 m northwest (spray irrigation), abstraction from River Hamble.	Approximately 260 m southwest (spray irrigation), abstraction from River Hamble. Approximately 430 m east (spray irrigation), abstraction from River Hamble.	None
Flooding	Risk for Rivers and the sea	None		
Site History	On Site	Earliest mapping to the present day shows the investigation areas to remain as open undeveloped farmland.		Earliest mapping shows a pond/waterbody present with an unnamed watercourse/drain flowing through the pond. There is no significant change until the 1949-1972 map (NLS maps) which shows the pond no longer present (PSC 132 – Infilled Ground - Pond). The 1964 map (Groundsure, 2022) also shows the pond as no longer present.
	Surrounding Land	Earliest mapping (1840-1880s) shows the surrounding land as rural; a railway is present approximately 85 m north of 2K5500SR. Drainage channels to the River Hamble are present in the vicinity of both GI locations. The closest channel to borehole 2K5501SRwas within approximately 5 m (PSC 119) (uncil c.1957). There is little change in the surrounding area, the railway is shown as disused by the 1950s and several properties and farms are present along Botley Road. The area to the north of the River Hamble is shown as marshland.		The surrounding land remains rural with predominantly open undeveloped land (farmland) and farms since the earliest mapping.
Landfill Sites	There are no historical or current landfill Sites within 250 m of the GI locations.			
Pollution Incidents	There are no pollution incidents (category 1 or 2) within 50 m of the GI locations.			
Ecological Sensitivity (250m radius)	Sites of Special Scientific Interest (SSSIs), SSSI	None		
	Special Areas of Conservation (SAC),			
	Special Protection Areas (SPAs)			

		2K5500SR	2K5501SR	2K5502DS, 2K5503DS, 2K5534DS, 2K5535DS
	RAMSAR Site			
	National Nature Reserve (NNR)			
	Ancient Woodlands			
Preliminary Risk Assessment	Overall Risk Assessment	Potential contaminant linkages for all identified pathways and receptors were classified as Low due to the method of construction (trenchless crossing) across the River Hamble. This risk increases to Moderate/Low at the area of PSC 119 for open cut excavation.		Potential contaminant linkages (associated with PSC 132) with a high risk rating were identified for surface waters, and a moderate risk for construction workers, future Sites users and adjacent land users was identified. All other contaminant linkages were classified as low risk.

1. active groundwater and surface water abstractions within 1km; surface waters up to 250 m; artificial ground up to 250 m. All distances are approximate.

Table A1.2: Geo-environmental Desk Study Summary Information for Phase 3B/3C GI Locations at Section K

		3K5609HP, 3K5610HP, 3K5531DS, 3K5530HP, 3K5529HP	3K5607HP and 3K5608HP	3K5515HP
Geology	Superficial Deposits	None	None	None
	Bedrock Geology	London Clay Formation (Clay, Silt, Sand)	London Clay Formation (Clay, Silt, Sand)	London Clay Formation (Clay, Silt, Sand)
	Artificial/Made Ground [1]	None	None	None
Hydrogeology	Bedrock Aquifer Classification	Unproductive stratum (London Clay)	Unproductive stratum (London Clay)	Unproductive stratum (London Clay)
	Superficial Aquifer Classification	None	None	None
	Source Protection Zones (SPZs)	3K5610HP - Zone II The remaining holes - Zone 1	None	None
	Groundwater Abstractions [1]	Two groundwater abstractions located approximately 335 m southwest	None	None
	Nitrate Vulnerable Zone	✓		
Hydrology	Surface Watercourses	A drain is recorded approximately 5 m south of 3K5531DS. Ponds are mapped approximately 240 m east of 3K4431SDS and further ponds approximately 140 m west of 3K5609HP.	None	Unnamed tributary of the River Hamble located approximately 155 m southeast.
	Surface Water Abstractions [1]	None		
Flooding	Risk for Rivers and the sea	None		
Site History	On Site	Earliest mapping shows the area remains as open undeveloped land.	Earliest mapping to the present data shows the area as open undeveloped land.	Earliest mapping to the present day shows the area as open undeveloped land.
	Surrounding Land	Sciviers Lane has been recorded immediately southeast of 3K5610HP since the earliest available mapping (c.1888), leading north to the nearby village of Lower Upham.	Surrounding land has remained predominantly rural since the earliest available mapping (c.1888). Wintershill Hall has been recorded approximately 120 m west of 3K5607HP and 180 m southwest of 3K5608HP since 1910. This was a privately-owned stately home used during World War I as a base for the Hampshire Ambulance Service (PSC 474). During World War II, after brief use as a school, it was used as the Headquarters for the Hampshire Fire Service.	Surrounding land has remained rural since the earliest available mapping (c.1888).
Landfill Sites		There are no historical or current landfill Sites within 250 m of the GI locations.		
Pollution Incidents		There are no pollution incidents (category 1 or 2) within 50 m of the GI locations.		
Ecological Sensitivity (250m radius)	Sites of Special Scientific Interest (SSSIs), SSSI	None	Kimbers Copse is an ancient woodland located approximately 85 m southeast of 3K5607HP and 245 m southeast of 3K5608HP.	None
	Special Areas of Conservation (SAC),			
	Special Protection Areas (SPAs)			
	RAMSAR Site			
	National Nature Reserve (NNR)			
	Ancient Woodlands			
Preliminary Risk Assessment	Overall Risk Assessment	N/A – not targeting PSCs	N/A – not targeting PSCs (PSC 474 is at too great a distance to be considered further).	Potential contaminant linkages for all identified pathways and receptors were classified as Low as no PSCs were identified within the vicinity of this exploratory location.

		3K5606SA	3K5513HP	3K5604HP and 3K5511DS
Geology	Superficial Deposits	None	None	3K5511DS - Alluvium
	Bedrock Geology	London Clay Formation (Clay, Silt, Sand)	London Clay Formation (Clay, Silt, Sand)	London Clay Formation (Clay, Silt, Sand)
	Artificial/Made Ground [1]	None	None	None
Hydrogeology	Bedrock Aquifer Classification	Unproductive stratum (London Clay)	Unproductive stratum (London Clay)	Unproductive stratum (London Clay)
	Superficial Aquifer Classification	None	None	Secondary A
	Source Protection Zones (SPZs)	None	None	None
	Groundwater Abstractions [1]	None	None	None
	Nitrate Vulnerable Zone	✓		
Hydrology	Surface Watercourses	Unnamed tributary of the River Hamble located approximately 40 m east.	Unnamed tributary of the River Hamble located approximately 220 m north,	Unnamed drainage channel on Site of 3K5511DS and 210 m east of 3K5604HP.
	Surface Water Abstractions [1]	None		
Flooding	Risk for Rivers and the sea	None		
Site History	On Site	Earliest mapping to the present day shows the area as open undeveloped land	Earliest mapping to the present day shows the area as open undeveloped land	Earliest mapping shows the area of 3K5604HP as undeveloped land from the earliest mapping to the present day. The location of 3K5511DS is shown as undeveloped land from the earliest mapping, with potentially worked ground is showing on aerial imagery c.2019 (PSC 530 - Worked Ground – unspecified).
	Surrounding Land		The exploratory hole location is surrounded by woodland (adjacent east) and residential properties towards the south displayed in 1964 mapping.	Surrounding land has remained rural since the earliest mapping.
Landfill Sites		There are no historical or current landfill Sites within 250m of the GI locations.		
Pollution Incidents		There are no pollution incidents (category 1 or 2) within 50m of the GI locations.		
Ecological Sensitivity (250m radius)	Sites of Special Scientific Interest (SSSIs), SSSI	None		
	Special Areas of Conservation (SAC),			
	Special Protection Areas (SPAs)			
	RAMSAR Site			
	National Nature Reserve (NNR)			
	Ancient Woodlands			
Preliminary Risk Assessment	Overall Risk Assessment	N/A – not targeting PSCs	N/A – not targeting PSCs	Potential contaminant linkages for PSC 530 were assessed as Moderate/Low for all receptors, except ecology which was classified as Low.

[1]-Active groundwater and surface water abstractions within 1 km; surface waters up to 250 m; artificial ground up to 250 m. All distances are approximate.

Table A2: BPT-K Desk Study

Site Name/Reference	BPT-K
National Grid Reference (NGR)	452787E 118499N *(Based on AGP information 11 January 2024)*
Proposed Infrastructure Site	The proposed area for BPT- K AGP compound area is approximately 0.44 ha. The extended BPT-K compound area including access roads is approximately 1.8 ha. The exact location of the proposed AGP will be dependent on the route of the Proposed Underground Pipeline. This will be confirmed following hydraulic assessment of the route topography to ensure the required flow can be achieved.
Site Location and Description	BPT-K (the Site') is located at Wintershill within the private estate of Wintershill Hall. The Site may be accessed via a private road from Scivier's Lane, Durley. BPT-K is situated to the north of the main building footprint of (including Coach House Cottage) Wintershill Hall. Within BPT-K, elevations increase southwards, from approximately 65m OD in the north to 74m OD in the southeast. A Site walkover was completed in October 2023. Care should be taken when walking across the sloped area and during construction, protective track mats or boards are recommended to prevent slipping.

	 **Figure G5.1: Site location of AGP BPT-K.** (Southern Water, 2023) The Site is shown in **Figure G5.1** with the orange pipeline route to the east and north of Site.
Current Site use	Arable field (agricultural) Wintershill Hall Estate
Site History	Earliest mapping (Groundsure 2023 and 2024, NLS 2023) shows the Site as open fields (1869-1913). Mapping at this time shows the north, east and west of the Site to be surrounded by arable fields and Woolstreet copse's, with an unnamed road approximately 30m east, leading from Scivier's Lane. Wintershill House (later called Wintershill Hall) is shown approximately 45m south of the Site comprising the main house and outbuildings. Two small ponds are shown approximately 210m and 250m south of the Site respectively. Wintershill House was built in 1852 with the current gardens and parkland. In 1902, the house was renamed Wintershill Hall (Wintershill Hall, 2023). No significant changes are noted on historical mapping from the early 1900's, with exception of Woolstreet Copse to the north of the Site which is no longer shown on the 1964 map onwards. A pond approximately 245m north of the Site on the 1964 map is no longer visible on current mapping (potentially infilled) (Groundsure, 2023). Wintershill Hall was used during World War I as a base for the Hampshire Ambulance Service. During World War II, after briefly used as a school, it became the Headquarters of the Hampshire Fire Service. Information from the estate website (Wintershill Hall, 2023) states that Nissen huts were present on the lower lawn and used for offices and additional accommodation during this time. The information also states that a new sewage system was installed to cope with the additional numbers living at the estate. After the war the House was used to house orphan children rescued from concentration camps. At present, Wintershill is now being used as a residential building and venue centre (Wintershill Hall, 2023).

Geology	No superficial deposits recorded. London Clay Formation is the bedrock.
Hydrogeology	London Clay Formation (bedrock) is classified as an unproductive stratum. The Site does not lie within a groundwater Source Protection Zone (SPZ), a groundwater Drinking Water Safeguard Zone (DWSgZ) or within a groundwater Nitrate Vulnerable Zone (NVZ). One active groundwater abstraction used for potable water supply is located approximately 400m northwest. An historical groundwater abstraction (general use) was located approximately 410m northwest.
Hydrology	No watercourses are recorded on Site or within 250m of the Site. The nearest surface waterbodies (ponds) are recorded approximately 200m south within the grounds of Wintershill Hall. The Site is located within Hamble Estuary Eutrophic Nitrate Vulnerable Zone (NVZ), Eutrophic Water (ET3). Immediately south of the Site, is a Surface Water NVZ (S810) for Upper Hamble. The Site is not located within a surface water DWSgZ. There are no surface water abstractions located within 1km of the Site.
Flood Zone	The Site is located within a Flood Zone 1 (less than 1 in 1,000 annual probability of river flooding).
Environmental Setting	No Ramsar Sites, Special Areas of Conservation, Sites of Special Scientific Interest (SSSI) or Special Protection Areas are present on Site or within 250m of the Site (MAGIC, 2024).
Previous Ground Investigation/ Records of Remediation	None
Geotechnical Considerations/Issues	<u>Excavations</u> It is expected that excavation of the London Clay will be within the capabilities of conventional plant. Excavation support will be dependent upon the depth of excavation, strength of the soil and the groundwater table but where London Clay Formation comprised of firm to very stiff clay above the water table is encountered within the excavations at shallow depth (<3m) then ¼ or ½ space sheeting may be utilised or side batter in the region of 40° (CIRIA C97). <u>Foundations</u> BPT-K will be founded on the London Clay Formation. London Clay Formation may be softened slightly at the top but typically should have sufficient capacity to cope with a BPT. Ultimate bearing resistance, q_n, would be approximately 1100 kPa based on undrained conditions and assuming foundations of the BPT have a width of 10m length of 20m and constructed to 2.5m bgl. <u>Flotation/Uplift</u> Groundwater levels are currently unknown on the Site due to no previous GI data being available. GI locations are proposed in subsequent GI stages

	for this location, which would inform if any floatation (and uplift) design requirements are required. Concrete Aggressivity London Clay is noted to be pyritic throughout and are therefore likely to be moderately aggressive towards concrete.
Potential Sources of Contamination (PSCs)	**On site**: Unknown (see below **PSC 474**). **Off-Site within 50m**: Historical use of Wintershill Hall and estate grounds during World War I and II (**PSC 474**), the building footprint located approximately 35m south. Historical maps do not show the location of the Nissen huts, sensitive sites during World Wars I and II and were generally omitted from maps for security reasons. Asbestos cement sheeting has been used in construction materials of some Nissen hut styles and there may be a potential for asbestos fibres to be released to soils during demolition. It is unknown whether fuel storage or vehicle maintenance were undertaken within the estate. It is possible that if these activities were undertaken these would have been close to the main buildings. Historical maps do not provide any details to the location of these potential structures. It is unknown what activities were undertaken at the site by the Hampshire Fire Service. **Off-Site between 50m and 250m**: The small infilled Pond (**PSC 146**) located approximately 245m north is noted but is not further considered a PSC for the current BPT-K Site area due to the distance and size of the potential infilled area.
Conceptual Site Model and Land Contamination Risk Assessment	A preliminary conceptual site model (CSM) has been developed for the proposed site based on the information collated and has identified potential contaminant linkages on site and in the surrounding areas. Potential sources, pathways and receptors are listed and assessed in the land contamination risk assessment (**Table G5.1**). **Figure 12.1** shows the PSC locations. Potential contaminant linkages with a moderate/low risk rating which could potentially impact construction workers, future site users and future property (buildings and services) have been identified. A ground investigation is recommended at the proposed location BPT-K to quantify these risks.

Photograph	 **Figure G5.2: Site photograph of BPT-K infrastructure site looking northwest (Photo taken on 26/10/2023)**
Further Assessment	Further geotechnical and geo-environmental assessment is required to determine the ground conditions at the proposed BPT-K Site. These works will aid design, inform on health and safety of the construction workers and excavated materials (waste) management (i.e., disposal and/or re-use). Further details are presented in **Section 8.2.3** of the report.
The current scheme is still appraising several alternative Section routes and infrastructure sites. Revisions to the desk study including identification and confirmation of additional PSCs may i be required.	

Table G5.1: Risk Assessment for construction and Maintenance Activities for PSCs within 50m and infilled land between 50m and 250m of BPT-K

Site Name/Reference	BPT-K (Section K)					
Potential Source of Contamination	**Potential Contaminants of Concern**	**Potential Receptors**	**Potential Pathways**	**Potential Consequence of Pollutant Linkage**	**Probability of Pollutant Linkage**	**Risk (Without mitigation measures)**
Historic activities during World War I and II at Wintershill Hall and estate grounds (**PSC 474**), building footprints located approximately 35m south of proposed BPT-K location. BPT-K within grounds of Wintershill Hall. WWI: used as the base for the Hampshire Ambulance Service. Potential for storage and use of fuels. WWII: used as a school and headquarters of the Hampshire Fire Service. Potential for storage and use of fuels. Nissen huts are documented to have been present in the grounds (the exact location unconfirmed). Asbestos cement sheeting has been used in construction materials. Potential for asbestos fibres to be released to soils during demolition.	Metals, inorganics, asbestos, petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) and total phenols	**Construction, maintenance workers and future site users:** Construction workers during open cut excavations/construction, maintenance workers during operation.	Direct dermal contact, ingestion, and inhalation of dusts.	Medium	Low Likelihood	Moderate / Low
			Inhalation of gases and vapours	Medium	Unlikely	Low
		Adjacent land users: arable farming (estate land and Farmland) residents of Wintershill Hall.	Direct dermal contact, ingestion and inhalation of dusts, gases and vapours during excavation works and stockpiling.	Medium	Low Likelihood	Moderate / Low
		On Site future property (buildings and buried services): Location and design of building structures to be confirmed.	Direct contact with materials	Medium	Low Likelihood	Moderate / Low
			Gas migration and accumulation	Medium	Unlikely	Low
		Surface water bodies/watercourses: No main rivers within 250m.	Surface water runoff from stockpiles and migration through groundwater and underground utilities.	Mild	Unlikely	Very Low
		Groundwater: Unproductive Stratum	Leaching through unsaturated and saturated soil.	Mild	Unlikely	Very Low
		Ecological receptors (flora and fauna)	Plant uptake, direct contact, ingestion and inhalation of dusts, gases, and vapours by animals. Gases and vapours by animals.	Mild	Low Likelihood	Low

Appendix B: Chemical Analysis List of Suite and Geo-environmental Testing

Soil Suites				**Suite L1.0 Soil Generic Analysis**													**Suite L2.0 - Potential Source of Contamination Soil Suites** *(use add ons from Suite 1.0 if required in addition)*													
Chemical	Method	LOD units		Generic Analysis - For locations not included in Suite 2.0 or where required													Farms (buildings/yards)		Fuel filling stations and garages	Electrical substations	Current and former works/industry		Current and historic railway land		STWs and Water Supply Works		Former military facility		Former hospital	Agricultural nursery building	Landfill sites / potentially infilled areas	
			Suite No.	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10	1.11	1.12	1.13	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	2.11	2.12	2.13	2.14	2.15	2.16
			Suite Name	Made Ground	Made Ground + add. metals + inorganics	Natural	Barrier pipe (PE/Metal)	VOCs with TICs	SVOCs with TICs	Pesticides	Herbicides	PFAS (inc PFOS / PFOA)	WAC (1-stage) inc solid suite	Core Logs (including PAK marker)	Tar anlysis (PAH, phenol) - ADEPT 2019 method	Tar analysis Assessment - ADEPT 2019 method	Farms Standard	Farms Standard + VOCs +pestcides	Fuel filling & Garages	Electrical Substations	Works Standard	Works Standard + S/VOC+PCBs	General Railway land	Depots / Yards	STW Standard	STW/WSW + VOCs +PCBs	Standard	Standard + S/VOC+PCBs	Former Hospital	Agri. Nursery	Potentially infilled Land	BGS Made Ground / Landfill
Metals		**mg/kg** (unless stated)																													
Arsenic	ICP-OES / MS	<0.5		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Cadmium	ICP-OES / MS	<0.5		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Chromium (trivalent)	ICP-OES / MS	<0.5		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Chromium, Hexavalent	Skalar CFA / ICP-OES	<1		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Chromium (total)		<1																													
Selenium	ICP-OES / MS	<0.5		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Copper	ICP-OES / MS	<0.5		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Lead	ICP-OES / MS	<3		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Mercury	ICP-OES / MS	<0.3		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Nickel	ICP-OES / MS	<0.5		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Zinc	ICP-OES / MS	<2		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Boron, water soluble	ICP-OES / MS	<1.0		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Vanadium	ICP-OES / MS	TBC																													
Antimony	ICP-OES / MS	TBC																													
Barium	ICP-OES / MS	TBC																													
Molybdenum	ICP-OES / MS	TBC			x																				x						
Aluminium	ICP-OES / MS	TBC			x																				x						
Manganese	ICP-OES / MS	TBC			x																				x						x
Iron	ICP-OES / MS	TBC			x																				x						x
Inorganics																															
Sulphate, Total	ICP-OES / MS	<10		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Sulphide, Easily liberated	Skalar CFA	<10		x	x												x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Phosphate	TBC by lab	TBC			x																					x		x			x
Chloride	TBC by lab	TBC			x																				x	x					x
Cyanide, Free	Skalar CFA	<1			x																x	x			x	x		x		x	x
Cyanide, Total	Skalar CFA	<1			x																x	x			x	x		x		x	x
Cyanide, Complex	Skalar CFA	<1			x																x	x			x	x		x		x	x
Thiocyanate	TBC by lab	TBC			x																				x	x				x	x
Ammonia	TBC by lab	TBC			x												x								x	x			x		x
Ammonium	TBC by lab	TBC			x												x								x	x			x		x
% Stones Greater than 10mm				x	x	x											x	x	x		x	x	x	x	x	x	x	x	x	x	x
Asbestos ID	HSG 248	Presence		x	x												x	x	x		x	x	x	x	x	x	x	x	x	x	x
Asbestos Quantification (if asbestos ID positive)	Gravimetric	<0.001%		x	x												x	x	x		x	x	x	x	x	x	x	x	x	x	x
pH	Potentiometric	+/- 0.1		x	x	x	x										x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Phenols (total)															x																
Total Phenols includes following Phenol, Resorcinol, Methylphenols (Cresols), Dimethylphenols (Xylenols), 1-Napthols, Trimentylphenols.	HPLC	<0.1		x													x	x	x		x	*	x	*	x		x	*	x		x	
Total Speciated Phenols includes the following Phenol, Pentachlorophenol, 2,4,5-Trichlorophenol, 2,4,6 -Trichlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, 2-chlorophenol, 2-methylphenol, 2-nitrophenol, 4-chloro-3-methylphenol, 4-methylphenol	GCMS	<0.05			x													x				*		*		x		*		x		*

Chemical	Method	LOD units		Generic Analysis - For locations not included in Suite 2.0 or where required													Farms (buildings/yards)		Fuel filling stations and garages	Electrical substations	Current and former works/industry		Current and historic railway land		STWs and Water Supply Works		Former military facility		Former hospital	Agricultural nursery building	Landfill sites / potentially infilled areas	
			Suite No.	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10	1.11	1.12	1.13	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	2.11	2.12	2.13	2.14	2.15	2.16
			Suite Name	Made Ground	Made Ground + add. metals + inorganics	Natural	Barrier pipe (PE/Metal)	VOCs with TICs	SVOCs with TICs	Pesticides	Herbicides	PFAS (inc PFOS / PFOA)	WAC (1-stage) inc solid suite	Core Logs (including PAK marker)	Tar anlysis (PAH, phenol) - ADEPT 2019 method	Tar analysis Assessment - ADEPT 2019 method	Farms Standard	Farms Standard + VOCs +pestcides	Fuel filling & Garages	Electrical Substations	Works Standard	Works Standard + S/VOC+PCBs	General Railway land	Depots / Yards	STW Standard	STW/WSW + VOCs +PCBs	Standard	Standard + S/VOC+PCBs	Former Hospital	Agri. Nursery	Potentially infilled Land	BGS Made Ground / Landfill
BTEX																															
Benzene	GCMS	<0.05		x	x		x										x			x	x		x		x		x		x	x	
Toluene	GCMS	<0.05		x	x		x										x			x	x		x		x		x		x	x	
Ethylbenzene	GCMS	<0.05		x	x		x										x			x	x		x		x		x		x	x	
o-xylene	GCMS	<0.05		x	x		x										x			x	x		x		x		x		x	x	
m-xylene	GCMS	<0.05		x	x		x										x			x	x		x		x		x		x	x	
p-xylene	GCMS	<0.05		x	x		x										x			x	x		x		x		x		x	x	
Total BTEX	GCMS	<1.0		x	x		x										x			x	x		x		x		x		x	x	
MTBE				x	x		x										x			x	x		x		x		x		x	x	
PAH by GCMS																															
PAH 17 (total and speciated incl coronene)	GCMS	<0.1		x	x												x	x	x		x	*	x	*	x	x	x	*	x	x	x	*
PAK Marker (PAH indicator test)														x																		
PCBs																																
PCB 7 Congeners (speciated and total)	GCMS	<0.001			x															x		x		x		x		x	x	x		x
Petroleum Hydrocarbons																																
TPHCWG	GC-FID / GCMS	<0.1			x		x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
TPH >C6-C44 - with silica clean-up	GC-FID or GCMS	<1		x		x											x															
TPHCWG (if over 1000 mg/kg)				x		o											o															
TPH Identification (if over 1000 mg/kg)				o	o	o											o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
o - complete test if threshold reached.																																
VOCs/Semi-VOCs																																
Volatile Organic Compounds (VOCs) inc TICS	GCMS	<0.01						x										x	x			x		x		x		x	x			x
Semi-volatile Organic Compounds (SVOC) incl TICs	GCMS	<0.01					x		x													x		x				x				x
Pesticides / Herbicides																																
Pesticides (organochlorine, organophosphate)	GC-MS	<0.001								x								x												x		x
Herbicides (Organonitrogen / triazine herbicides (to include Atrazine) and acid herbicides)	LC-MS	<0.1									x							x					x	x						x		x
Other																																
Soil Organic Matter	Titration	<0.1%		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Conductivity	Potentiometric	<10 µS/cm		x	x	x	x										x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Redox Potential		v		x	x	x	x										x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Moisture Content Ratio (% of as received sample)	Gravimetric	<0.1%		x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Waste Acceptance Criteria (1-stage) including solid suite	Various	Various		x	x								x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PFAS (to include PFOS and PFOA)	Lab to confirm	<0.001										x														x		x				x
Pathogens																																
Total coliforms	Lab to confirm	TBC																							x							
E.coli	Lab to confirm	TBC																							x							
Faecal coliforms	Lab to confirm	TBC																							x							
Faecal streptococci	Lab to confirm	TBC																							x							
To be confirmed																																
Radioisotopes - TBC site/PSC specific	TBC	TBC																										x	x			
Explosives TBC following UXO assessment	TBC	TBC																										x				
Road surfacing - Coal Tar																																
Coal tar interpretation															x	x																
Note - Ethylene glycol to be included in VOC TICs analysis.																																
Request lab provides the result with the lowest LOD where chemicals are tested twice using different methods (e.g benzene in BTEX suite and VOC analysis.)																																

Water and Leachate Suites					**Suite 3.0 Generic Groundwater Analysis**									**Suite 4.0 - Potential Source of Contamination Groundwater Suites** *(use add ons from Suite 3.0 if required in addition)*													
	Analysis	LOD units			Generic Analysis - For locations not included in Suite 4 or where required									Farms	Fuel filling stations & garages	Electrical substations	Current and former works/industry		Current and historic railway land		Sewage Treatment Works (STW)	Water Supply Works (WSW)	Former military facility		Former hospital	Agricultural nursery building (storage/buildings)	Landfill sites / potentially infilled areas	
		µg/l unless stated	Suite No.	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	4.10	4.11	4.12	4.13	4.14	4.15
			Suite Name	Soil leachate preparation	Standard	Standard + add. metals + inorganics	TPH CWG	VOCs with TICs	SVOCs with TICs	Pesticides	Herbicides	PFAS (inc PFOS / PFOA)	Hydrogeo Suite	Farms	Fuel filling & Garages	Electrical Substations	Works Standard	Works Standard + S/VOC+PCBs	General Railway land	Depots / Yards	STW	WSW	Military Standard	Military Standard + inorg + S/VOC	Former Hospital	Agri. Nursery	Potentially infilled Land	BGS Made Ground / Landfill
Metals (dissolved)																											
Arsenic	ICP-OES / MS	<5			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Cadmium	ICP-OES / MS	<0.01			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Chromium (trivalent)	ICP-OES / MS	<1			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Chromium, Hexavalent	Skalar CFA	<1			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Chromium (total)		<1																										
Selenium	ICP-OES / MS	<1			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Copper	ICP-OES / MS	<0.1			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Lead	ICP-OES / MS	<1			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Mercury	ICP-OES / MS	<0.05			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Nickel	ICP-OES / MS	<1			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Zinc	ICP-OES / MS	<5			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Boron, water soluble	ICP-OES / MS	<10			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Vanadium	ICP-OES / MS	<10																										
Antimony	ICP-OES / MS	1																										
Barium	ICP-OES / MS	500																										
Molybdenum	ICP-OES / MS	10				x															x	x						
Aluminium	ICP-OES / MS	10				x															x	x						
Manganese	ICP-OES / MS	5				x															x	x						x
Iron	ICP-OES / MS	100				x															x	x						x
Inorganics																												
Sulphate	ICP-OES / MS	<10 mg/l			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Sulphide	Skalar CFA	<10 mg/l			x	x								x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Phosphorous (total and ortho)	TBC by lab	TBC				x															x	x		x				x
Chloride	TBC by lab	<0.15 mg/l			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Cyanide, Free	Skalar CFA	<0.1			x	x											x	x			x	x		x			x	x
Cyanide, Total	Skalar CFA	<0.1			x	x											x	x			x	x		x			x	x
Thiocyanate	TBC by lab	TBC				x															x	x					x	x
Ammonia	TBC by lab	<0.01 mg/l			x	x							x	x							x	x				x	x	x
Nitrates, nitrites	TBC by lab	<1 mg/l			x	x							x	x							x	x				x	x	x
Total Nitrogen	TBC by lab	TBC				x								x							x	x				x		x
Ammoniacal Nitrogen	TBC by lab	<0.1				x								x							x	x				x		x
Fluoride	TBC by lab	<1 mg/l			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Dissolved Methane	TBC by lab	TBC																									x	x
pH	Potentiometric	+/- 0.1			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Calcium		<1 mg/l											x															
Magnesium	ICP-OES / MS	<0.5 mg/l											x															
Sodium		<1 mg/l											x															
Potassium		<1 mg/l											x															
Bicarbonate		<10 mg/l											x															
Phenols																												
Total Phenols includes following Phenol, Resorcinol, Methylphenols (Cresols), Dimethylphenols (Xylenols), 1-Napthols, Trimentylphenols.	HPLC	<0.1			x									x	x		x		x		x	x	x		x		x	
Total Speciated Phenols includes the following Phenol, Pentachlorophenol, 2,4,5-Trichlorophenol, 2,4,6 -Trichlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, 2-chlorophenol, 2-methylphenol, 2-nitrophenol, 4-chloro-3-methylphenol, 4-methylphenol	GCMS	<0.1				x																				x		

Water and Leachate Suites	Analysis	LOD units			Generic Analysis - For locations not included in Suite 4 or where required									Farms	Fuel filling stations & garages	Electrical substations	Current and former works/industry		Current and historic railway land		Sewage Treatment Works (STW)	Water Supply Works (WSW)	Former military facility		Former hospital	Agricultural nursery building (storage/buildings)	Landfill sites / potentially infilled areas	
		µg/l unless stated	Suite No.	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	4.10	4.11	4.12	4.13	4.14	4.15
			Suite Name	Soil leachate preparation	Standard	Standard + add. metals + inorganics	TPH CWG	VOCs with TICs	SVOCs with TICs	Pesticides	Herbicides	PFAS (inc PFOS / PFOA)	Hydrogeo Suite	Farms	Fuel filling & Garages	Electrical Substations	Works Standard	Works Standard + S/VOC+PCBs	General Railway land	Depots / Yards	STW	WSW	Military Standard	Military Standard + inorg + S/VOC	Former Hospital	Agri. Nursery	Potentially infilled Land	BGS Made Ground / Landfill
BTEX																												
Benzene	GCMS	<0.1			x	x	x									x	x		x			x	x			x	x	
Toluene	GCMS	<0.1			x	x	x									x	x		x			x	x			x	x	
Ethylbenzene	GCMS	<0.1			x	x	x									x	x		x			x	x			x	x	
o-xylene	GCMS	<0.1			x	x	x									x	x		x			x	x			x	x	
m-xylene	GCMS	<0.1			x	x	x									x	x		x			x	x			x	x	
p-xylene	GCMS	<0.1			x	x	x									x	x		x			x	x			x	x	
Total BTEX	GCMS	<1.0			x	x	x									x	x		x			x	x			x	x	
MTBE	GCMS	<1			x	x	x									x	x		x			x	x			x	x	
PAHs																												
PAH 17 (total and speciated incl coronene)	GCMS	<0.0001			x	x							x	x	x		x	*	x	*	x	x	x	*	x	x	x	*
PCBs																												
PCB 7 Congeners (speciated and total)	GCMS	<0.01				x										x		x		x	x			x	x			x
Petroleum Hydrocarbon																												
TPHCWG	GCMS	<1.0				x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
TPH >C6-C44	GC-FID or GCMS	<10			x								x															
Free product Identification (if found)					o	o								o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
VOCs/Semi-VOCs																												
Volatile Organic Compounds (VOCs) inc TICS	GCMS	<0.001						x						x	x			x		x	x			x	x			x
Semi-volatile Organic Compounds (SVOC) incl TICs	GCMS	<0.001							x									x		x				x				x
Pesticides / Herbicides																												
Pesticides (organochlorine, organophosphate)	GC-MS	<0.001								x				x												x		x
Herbicides (Organonitrogen / triazine herbicides (to include Atrazine) and acid herbicides)	LC-MS	<0.001									x			x					x	x						x		x
Other																												
Conductivity	Potentiometric	<1 µS/cm			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Redox Potential		v																			x							x
Total hardness (as CaCO3)	ICP-OES / MS	1 mg CaCO3/L			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Total dissolved solids (TDS)	Gravimetric	10 mg/l			x	x							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PFAS (to include PFOS and PFOA)	Lab to confirm	<0.001 (total)										x									x			x				x
Pathogens																												
Total coliforms	Lab to confirm	TBC																			x							
E.coli	Lab to confirm	TBC																			x							
Faecal coliforms	Lab to confirm	TBC																			x							
faecal streptococci	Lab to confirm	TBC																			x							
Soil leachate preparation				x																								
Note - Ethylene glycol to be included in VOC TICs analysis.																												

Table 3.4: Summary of Geo-environmental Laboratory Tests

Analytical Suites [1]														
Sample ID	Soils								Leachates Suite 3.0 Leachate Preparation			Groundwaters	
	Suite 1.1 Made Ground	Suite 1.3 Natural	Suite 1.7 Pesticides	Suite 1.8 Herbicides	Suite 1.10 WAC	Suite 1.15 Potentially Infilled Land	Suite 2.0 Asbestos Quantification	Suite 2.15 Potentially Infilled Land	Suite 3.1 Standard leachate	Suite 3.6 Pesticide leachate	Suite 3.7 Herbicide leachate	Suite 3.1 Standard	Suite 3.9 Hydrogeology
2K5500SR 0.5 m	✓								R				
2K5500SR 1.0 m *		✓							R				
2K5500SR 4.5 m	✓C	R			xR								
2K5501SR 0.1 m	✓												
2K5501SR 1.0 m *		✓							R				
2K5501SR 6.0 m		✓							✓				
2K5503DS 0.1 m			R	R		R			R	R	R		
2K5503DS 0.3 m						R							
2K5503DS 1.0 m						R			R				
2K5500SR		N/A							✓				18/07/2023 12/09/2023 16/05/2024 30/07/2024
2K5501SR		N/A							✓				11/05/2023 08/03/2024 24/07/2023 09/04/2024
3K7542IT 0.3 m	✓												
3K7542IT 1.0 m		✓											
3K5515HP 0.2 m		✓	✓	✓									
3K5515HP 0.5 m		✓											
3K5524CT 0.2 m		✓											
3K5524CT 1.0 m		✓											

Analytical Suites [1]														
Sample ID	Soils								Leachates Suite 3.0 Leachate Preparation			Groundwaters		
	Suite 1.1 Made Ground	Suite 1.3 Natural	Suite 1.7 Pesticides	Suite 1.8 Herbicides	Suite 1.10 WAC	Suite 1.15 Potentially Infilled Land	Suite 2.0 Asbestos Quantification	Suite 2.15 Potentially Infilled Land	Suite 3.1 Standard leachate	Suite 3.6 Pesticide leachate	Suite 3.7 Herbicide leachate	Suite 3.1 Standard	Suite 3.9 Hydrogeology	
3K5529HP 0.2 m		✓												
3K5529HP 1.0 m		✓												
3K5606SA 4.3 m	C	xR			✓							✓ (4.02 m- 02/12/2023), ✓ (13/01/2024- 3.95 m), ✓ (12/03/2024-6.50 m), ✓ (13/01/2024-3.96 m)		
3K5606SA 6.2 m	C	xR			✓									
3K5606SA 0.5 m	C	xR			✓									
3K5607HP 0.2 m		✓												
3K5607HP 0.5 m		✓												
3K5608HP 0.3 m		✓												
3K5608HP 1.1 m		✓												
3K5527DR 0.2 m							C							
3K5527DR 0.5 m	C	xR			✓									
3K5527DR 3.0 m		✓												
3K5527DR 8.25 m		✓												
3K5525DR 0.5 m		✓										✓ (4.97 m-13/01/2024), ✓ (5.00 m-02/12/2023), ✓ (4.00 m- 12/03/2024), R (4.81 m)		
3K5525DR 0.1 m							C							
3K5525DR 2.0 m		✓												
3K5525DR 6.8 m		✓												

Analytical Suites [1]													
Sample ID	Soils								Leachates Suite 3.0 Leachate Preparation			Groundwaters	
	Suite 1.1 Made Ground	Suite 1.3 Natural	Suite 1.7 Pesticides	Suite 1.8 Herbicides	Suite 1.10 WAC	Suite 1.15 Potentially Infilled Land	Suite 2.0 Asbestos Quantification	Suite 2.15 Potentially Infilled Land	Suite 3.1 Standard leachate	Suite 3.6 Pesticide leachate	Suite 3.7 Herbicide leachate	Suite 3.1 Standard	Suite 3.9 Hydrogeology
3K7544IT 0.1 m							✓						
3K5511DS 0.1 m	✓		✓	✓									
3K5511DS 1.0m	✓												
3K5513HP 0.5 m		✓											
3K5530HP 1.0 m								✓					
3K5531DS 0.5 m		✓											
3K5531DS 3.0 m		✓											
3K5531DS 5.3 m		✓											
3K5604HP 0.5 m		✓											
3K5609HP 1.0 m								✓					
3K5610HP 0.1 m		✓											
3K5610HP 1.0 m		✓											

[1] List of analytes included in each suite is presented in **Appendix D**.
* * no nickel analysis included in metals suite
✓ Requested and completed.
✓C completed instead of requested suite.
R Not received to date in either AGS format or Final Factual GI report (SOCOTOC, 2023)
xR Requested but completed as part of another suite of analysis.
N/A not applicable

Appendix C: Deviations Reported by Analytical Laboratory

The Quality Control (QC) associated with the results of the following soil analysis did not wholly meet the QMS requirements, therefore the accreditation has been removed by the analytical lab. However, the laboratory has confidence in the performance of the method as a whole and the integrity of the data has not been significantly compromised:

- 2K5500SR 0.5 m: TPH (C_6-C_8 aliphatic), TPH (C_7-C_8, C_{10}-C_{12} aromatic), toluene and PCB 52;
- 2K5500SR 4.5 m: TPH (C_{10}-C_{12} aromatic), MTBE and PCB 52; and
- 2K5501SR 0.1 m: TPH (C_5-C_6, C_6-C_8, C_7-C_8, aliphatic) and toluene.

Due to the matrix of the following sample the laboratory has had to deviate from standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this has been taken into consideration when utilising the data.

- 2K5501SR 0.1 m TPH (C_5-C_6, aliphatic).

Holding times have been exceeded for the following samples as stated below:

- 2K5501SR 0.1 m: BTEXHSA- (BTEX) and GRO- GRO (>C_6-C_{10}) Total and GRO CWG UK (C_5-C_{10}) Ali/Aro Split.
- 3K5511DS 0.1 m and 3K5511DS 1.0 m: KONENS- (Chloride and Hexavalent Chromium), PAHMSUS- (17 PAHs including Coronene), SFAPI- (Cyanide Complex, Free, and Total), Phenol Index (Total), Sulphide, and Thiocyanate), TOCW- (Leached Organic Carbon), and TPHFIDUS- (TPH Aliphatic, Aromatic, and SCU).
- 3K5530HP 1.00m: BTEXHSA- (BTEX).
- 3K5531DS 3.30 and 5.60 m: GROHSA- GRO (>C_6-C_{10}) Total
- 3K5531DS 0.50 m: GROHSA- GRO (>C_6-C_{10}) Total and PHSOIL- (pH)
- 3K5604HP 0.50 m: GROHSA- GRO (>C_6-C_{10}) Total and TPHFIDUS (SCU)- TPH (>C_6-C_{10}) Total with Silica Cleanup
- 3K5610HP 0.10 and 1.00 m: GROHSA- GRO (>C_6-C_{10}) Total
- 3K5515HP 0.20 m: PHSOIL- (pH)
- 3K5527DR 3.00 to 3.20 m, and 8.25 to 8.45 m: GROHSA- GRO (>C_6-C_{10}) Total and PHSOIL- (pH)
- 3K7542IT 0.30 to 0.50 m: BTEXHSA- (BTEX), GROHSA- GRO (>C_6-C_{10}) total and (C_5-C_{10}) Ali/Aro, KONENS- (Chloride and Hexavalent Chromium), PAHMSUS- (17 PAHs including Coronene), PHEHPLCUV- (Phenols), PHSOIL- (pH), SFAPI- (Phenol Index), TOCW- (Leached Organic Carbon), TPHFIDUS- (Aliphatic and Aromatic), and WSLM13- (Leached Organic Carbon, Soil Organic Matter, and Total Organic Carbon).
- 3K7542IT 1.00 m: GROHSA- GRO (>C_6-C_{10}) total and (C_5-C_{10}) Ali/Aro, PHSOIL- (pH), and TPHFIDUS (SCU)- (TPH >C_{10}-C_{40}) Total with Silica Cleanup.
- Groundwater samples 2K5501SR-4-EW-2.02, 2K5500SR-3-EW-5.04, 2K5500SR-5-EW-4.50: PHCONDW.
- Groundwater sample 2K5500SR-3-EW-50.5: GROHSA.
- Groundwaters sample 2K5500SR-5-EW-4.50: TPHCALC.

Appendix D: Geo-Environmental Laboratory Analysis Summary Screening Tables

Contamination Assessment Sheet			Selected Files																				
		SOM Value																					
		NA																					
	Screening Criteria	S4UL Reference Page	Sample ID	2K5500SR	2K5500SR	2K5500SR	2K5501SR	2K5501SR	2K5501SR	3K5511DS	3K5511DS	3K5513HP	3K5515HP	3K5515HP	3K5524CT	3K5524CT	3K5525DR	3K5525DR	3K5525DR	3K5525DR	3K5527DR	3K5527DR	3K5527DR	3K5527DR
	GAC Land Use	Commercial	Sample Depth	0.5	1.0	4.5	0.1	1.0	6.0	0.1	1.0	0.5	0.2	0.5	0.2	1.0	0.1	0.5	2.0	6.8	0.2	0.5	3.0	8.3
	SOM	1.0%	Sample GEOL GEOL	MGR	RTD	RTD	TOP	Head	LC	MGR	MGR	LC	TOP	Head			TOP	ALV	ALV		ALV	ALV	LC	LC
Analyte	***Units***		**Lab ID**	G2034-222023042410 2838	G2034-222023042410 3515	G2034-222023042505 1037		G2034-222023030209 3923	G2034-222023031712 1833	#00498040206 90002	#00498040206 90008	#17483436696 90003	#20221586581 40001	#20221586581 40002	G2034-222023102401 2847	G2034-222023102401 3010	#87025322945 20002	#87025322945 20005	#87025322945 20012	#09332106546 10024	#36159566806 60001	#36159566806 60004	G2034-222023110109 3007	G2034-222023110109 4457
Arsenic	mg/kg	640		9.5	4.3	8.1	5.5	4.4	15.4	14.5	10	7.9	18.6	3.6	11.4	12.4		27.6	7.9	9.5		6.2	28.5	13.8
Cadmium	mg/kg	190		<0.2	0.2	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.5	<0.2	<0.2	<0.2		0.7	<0.2	0.2		<0.2	0.2	<0.2
Chromium	mg/kg	8600		20.1	7.6	12.9	30	18.8	36	28.2	25	29.2	34.1	13.6	37.9	38.4		34.3	35.6	36.5		24	40.7	30.1
Chromium, Hexavalent	mg/kg	33		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1		<0.1	<0.1	<0.1
Selenium	mg/kg	12000		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5		<0.5	0.9	<0.5
Copper	mg/kg	68000		16.2	10.4	17.3	6.1	6.8	22.1	31.2	11.2	17	27.6	1.8	14.7	18.5		148	18.3	16		8.5	20.9	17.4
Lead	mg/kg	1100		14.2	48.2	124	24	10.3	14	30.6	20.7	15.5	42.2	2.4	16.4	14.9		339.8	12.7	11.5		14.2	16.1	11.9
Elemental Mercury	mg/kg	58 (25.8)																						
Mercury	mg/kg	1100		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5		<0.5	<0.5	<0.5
Methylmercury	mg/kg	320																						
Nickel	mg/kg	980		5.5		15.5	12.4			14.5	11.9													
Zinc	mg/kg	730000		33	42.9	68.5	39.4	18.8	70	80.8	50.4	44.3	122.9	16.6	48.6	68.9		233.4	132.1	129		42	103.1	98.6
Beryllium	mg/kg	12																						
Boron, water soluble	mg/kg	240000			<0.5	0.8		<0.5	4	0.8	0.8	<0.5	1.1	0.7	2.2	2.6		0.6	4.8	6.5		0.7	0.6	<0.5
Vanadium	mg/kg	9000																						
Antimony	mg/kg																							
Barium	mg/kg																							
Molybdenum	mg/kg																							
Manganese	mg/kg																							
Inorganics																								
Elemental Sulphur	mg/kg																							
Sulphate, Total	mg/kg			128	629	638	479	88	466	705	620	323	358	114	163	78		127	78	650		267	155	1080
Sulphide, Easily liberated	mg/kg			<0.6		2.4	1			0.8	1.5													
Chloride	mg/kg																							
Cyanide, Free	mg/kg									<0.6	<0.7													
Cyanide, Total	mg/kg									0.9	<0.7													
Cyanide, Complex	mg/kg																							
Thiocyanate	mg/kg									<2.5	<2.6													
Ammonia	mg/kg																							
% Stones Greater than 10mm	%			<0.1	11.2	14.9	<0.1	53.1	5.4	27.5	37.3	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1		<0.1	<0.1	<0.1
Asbestos	Identifed			CH		NAIIS	NAIIS			NAIIS	NAIIS						NAIIS				NAIIS			
pH	pH			8.7	8.7	7.8	7.4	7.4	8.5	7.8	7.3	7.4	8.2	6.4	8.4	8		9.4	6.5	7.3		7.8	9	8.5
Soil Organic Matter	%			0.73	1.73	2.64	2.77	0.27	1.08	2.8	2.32	1.65	2.81	0.75	1.28	0.66		1.09	0.7	1.15		1.3	0.61	1.06
Phenols																								
Phenol	mg/kg	440		<0.10		<0.12	0.13			0.16	0.54													
Chlorophenols	mg/kg	3500																						
Pentachlorophenol	mg/kg	400								<0.10			<0.10											
Catechol	mg/kg																							
Resorcinol	mg/kg																							
Cresols	mg/kg			0.12		<0.12	0.21			<0.11	<0.12													
Xylenols & Ethylphenols	mg/kg			<0.10		<0.12	<0.13			<0.11	<0.12													
Naphthols	mg/kg																							
Trimethylphenol	mg/kg			<0.10		<0.12	<0.13			<0.11	<0.12													
2,4-Dimethylphenol	mg/kg																							
Total Phenols	mg/kg																							
BTEX																								
Benzene	mg/kg	27		<0.012		<0.012	<0.013			<0.013	<0.013											<0.013		
Toluene	mg/kg	56000 (869)		<0.012		<0.012	0.025			<0.013	<0.013											<0.013		
Ethylbenzene	mg/kg	5700 (518)		<0.012		<0.012	0.016			<0.013	<0.013											<0.013		
o-xylene	mg/kg	6600 (478*)		<0.012		<0.012	0.042			<0.013	<0.013											<0.013		
m-xylene	mg/kg	6200 (625)																						
p-xylene	mg/kg	5900 (576*)																						
m,p-xylene		#N/A		<0.023		<0.024	0.115			<0.025	<0.026											<0.025		
Total Xylenes (calculated for HWO)	mg/kg	#N/A																						
Total BTEX		#N/A		<0.070		<0.073	0.212			<0.076	<0.078											<0.075		
MTBE		#N/A		<0.023		<0.024	<0.027			<0.025	<0.026													
PAH by GCMS																								
Naphthalene	mg/kg	190 (76.4*)		<0.09		<0.10	<0.11			<0.10	<0.11											<0.10		
Acenaphthylene	mg/kg	83000 (86.1*)		<0.09		0.1	<0.11			<0.10	<0.11											<0.10		
Acenaphthene	mg/kg	84000 (57*)		<0.09		0.36	<0.11			<0.10	<0.11											<0.10		
Fluorene	mg/kg	63000 (30.9*)		<0.09		0.47	<0.11			<0.10	<0.11											<0.10		
Phenanthrene	mg/kg	22000		0.48		2.76	<0.11			0.23	<0.11											<0.10		
Anthracene	mg/kg	520000		0.2		1.04	<0.11			0.11	<0.11											<0.10		
Fluoranthene	mg/kg	23000		1.53		7.06	<0.11			0.97	0.16											<0.10		
Pyrene	mg/kg	54000		1.53		6.5	<0.11			0.91	0.13											<0.10		
Benzo(a)anthracene	mg/kg	170		0.5		2.09	<0.11			0.54	<0.11											<0.10		
Chrysene	mg/kg	350		0.69		2.55	<0.11			0.49	<0.11											<0.10		
Benzo(b)fluoranthene	mg/kg	44		0.72		2.54	<0.11			1.01	<0.11											<0.10		
Benzo(k)fluoranthene	mg/kg	1200		0.42		1.37	<0.11			0.36	<0.11											<0.10		
Benzo(a)pyrene	mg/kg	35		0.64		2.29	<0.11			0.81	<0.11											<0.10		
Indeno(1,2,3-cd)pyrene	mg/kg	500		0.42		1.26	<0.11			0.6	<0.11											<0.10		
Dibenzo(a,h)anthracene	mg/kg	3.5		0.13		0.32	<0.11			0.14	<0.11											<0.10		
Benzo(g,h,i)perylene	mg/kg	3900		0.39		1.27	<0.11			0.61	<0.11											<0.10		
Coronene	mg/kg			0.13		0.36	<0.11			0.15	<0.11											<0.10		
Coal Tar	mg/kg	15																						
Polyaromatic hydrocarbons, Total 17	mg/kg			8.16		32.4	<1.82			7.34	1.86											<1.70		
Benzo(j)fluoranthene	mg/kg																							

	Screening Criteria	S4UL Reference Page	Sample ID	2K5500SR	2K5500SR	2K5500SR	2K5501SR	2K5501SR	2K5501SR	3K5511DS	3K5511DS	3K5513HP	3K5515HP	3K5515HP	3K5524CT	3K5524CT	3K5525DR	3K5525DR	3K5525DR	3K5525DR	3K5527DR	3K5527DR	3K5527DR	3K5527DR
	GAC Land Use	Commercial	Sample Depth	0.5	1.0	4.5	0.1	1.0	6.0	0.1	1.0	0.5	0.2	0.5	0.2	1.0	0.1	0.5	2.0	6.8	0.2	0.5	3.0	8.3
	SOM	1.0%	Sample GEOL GEOL	MGR	RTD	RTD	TOP	Head	LC	MGR	MGR	LC	TOP	Head			TOP	ALV	ALV		ALV	ALV	LC	LC
Analyte	***Units***		**Lab ID**	G2034-222023042410 2838	G2034-222023042410 3515	G2034-222023042505 1037		G2034-222023030209 3923	G2034-222023031712 1833	#00498040206 90002	#00498040206 90008	#17483436696 90003	#20221586581 40001	#20221586581 40002	G2034-222023102401 2847	G2034-222023102401 3010	#87025322945 20002	#87025322945 20005	#87025322945 20012	#09332106546 10024	#36159566806 60001	#36159566806 60004	G2034-222023110109 3007	G2034-222023110109 4457
Sum of detected PCB 7 Congeners	mg/kg									<0.044	<0.046													
Dioxins and similar PCBs (equiv)	mg/kg																							
Petroleum Hydrocarbon (1% SOM)																								
Aliphatics >C5-C6	mg/kg	3200 (304*)		<0.234		<0.244	<0.267			<0.252	<0.261													
Aliphatics >C6-C8	mg/kg	7800 (144*)		<0.234		<0.244	<0.267			<0.252	<0.261													
Aliphatics >C8-C10	mg/kg	2000 (78*)		<0.234		<0.244	<0.267			0.278	<0.261													
Aliphatics >C10-C12	mg/kg	9700 (48*)		<4.68		<4.88	<5.34			<5.03	<5.23													
Aliphatics >C12-C16	mg/kg	59000 (24*)		<4.68		<4.88	<5.34			<5.03	<5.23													
Aliphatics >C16-C21	mg/kg			<4.68		<4.88	<5.34			<5.03	<5.23													
Aliphatic EC16 - 35	mg/kg	1600000																						
Aliphatics >C21-C35	mg/kg			<11.7		56.9	<13.4			15.1	<13.1													
Aliphatics >C35-C44	mg/kg	1600000		<7.03		62.8	8.15			<7.55	<7.84													
Aromatics >EC5-EC7	mg/kg	26000 (1220*)																						
Aromatics >EC7-EC8	mg/kg	56000 (869)		<0.012		<0.012	0.025			<0.013	<0.013													
Aromatics >EC8-EC10	mg/kg	3500 (613)		<0.047		<0.049	0.173			<0.051	<0.052													
Aromatics >EC10-EC12	mg/kg	16000 (364*)		<4.68		<4.88	10.5			<5.03	<5.23													
Aromatics >EC12-EC16	mg/kg	36000 (169*)		<4.68		<4.88	12.3			8.17	9.38													
Aromatics >EC16-EC21	mg/kg	28000		<4.68		20.7	5.44			9.61	8.8													
Aromatics >EC21-EC35	mg/kg	28000		39.5		244	25.7			70.5	29.3													
Aromatics >EC35-EC44	mg/kg	28000		36.2		153	34.2			24.2	<7.84													
Ali&Aro EC44-70	mg/kg	28000																						
Petrol Range Organics^	mg/kg																							
Diesel Range Organics^	mg/kg																							
Sum of C5-C44 Ali/Aro (CWG)	mg/kg	#N/A		75.7	0	537.4	96.488	0	0	127.858	47.48	0	0	0	0	0	0	0	0	0	0	0	0	0
TPH >C10-C40	mg/kg			123	166	322	27	40.9	<25.4	153	48.3	36.3	534	27.1	<26.0	<44.1		<24.8	45.5	77.2		59.9	45.1	72.6
1,2,4-Trimethylbenzene	mg/kg																							
Isopropylbenzene	mg/kg																							
Propylbenzene	mg/kg																							
Styrene	mg/kg																							
TPH MAX Value				123.0	166.0	537.4	96.5	40.9	<25.4	153.0	48.3	36.3	534.0	27.1	<26.0	<44.1		<24.8	45.5	77.2		59.9	45.1	72.6
Volatile Organic Compounds																								
Vinyl Chloride	mg/kg	0.059																						
1,1-Dichloroethene	mg/kg																							
Dichloromethane	mg/kg																							
trans-1,2-Dichloroethene	mg/kg																							
1,1-Dichloroethane	mg/kg																							
2,2-Dichloropropane	mg/kg																							
cis-1,2-Dichloroethene	mg/kg																							
Bromochloromethane	mg/kg																							
Chloroform	mg/kg	99																						
1,1,1-Trichloroethane	mg/kg	660																						
Carbontetrachloride	mg/kg	2.9																						
1,1-Dichloropropene	mg/kg																							
1,2-Dichloroethane	mg/kg	0.67																						
1,2-Dichloropropane	mg/kg																							
Dibromomethane	mg/kg																							
Bromodichloromethane	mg/kg																							
trans-1,3-Dichloropropene	mg/kg																							
cis-1,3-Dichloropropene	mg/kg																							
1,1,2-Trichloroethane	mg/kg																							
1,3-Dichloropropane	mg/kg																							
Dibromochloromethane	mg/kg																							
1,2-Dibromoethane	mg/kg																							
Chlorobenzene	mg/kg	56																						
1,1,2,2-Tetrachloroethane	mg/kg	270																						
1,1,1,2-Tetrachloroethane	mg/kg	110																						
Trichloroethene	mg/kg	1.2																						
Tetrachloroethene	mg/kg	19																						
2,4,6 Trinitrotoluene (TNT)	mg/kg	1000																						
HMX	mg/kg	110000																						
RDX	mg/kg	210000																						
1,2,3,4-Tetrachlorobenzene (TeCB)	mg/kg	1700 (122)								<0.00629			<0.00137											
1,2,3,5-Tetrachlorobenzene (TeCB)	mg/kg	49 (39.4)																						
1,2,4,5-Tetrachlorobenzene	mg/kg	42 (19.7*)																						
Pentachlorobenzene (PeCB)	mg/kg	640 (43*)								<0.00629			<0.00137											
Carbon Disulphide	mg/kg	11																						
Hexachlorobutadiene	mg/kg	31																						
2,4-Dinitrotoluene	mg/kg																							
2,6-Dinitrotoluene	mg/kg																							
2-Chloronaphthalene	mg/kg																							
Biphenyl	mg/kg																							
Bromobenzene	mg/kg																							
Bromoform	mg/kg																							
Chloroethane	mg/kg																							
Chloromethane	mg/kg																							
bis(2-Ethylhexyl) phthalate	mg/kg																							
Butylbenzyl phthalate	mg/kg																							
Diethyl phthalate	mg/kg																							
n-Dibutyl phthalate	mg/kg																							
n-Dioctyl phthalate	mg/kg																							
Herbicides/Insecticides																								
Aldrin	mg/kg	170								<0.0126			<0.00274											
Dieldrin	mg/kg	170								<0.0314			<0.00685											
Atrazine	mg/kg	9300								<0.0126			<0.00274											
Dichlorvos (DDVP)	mg/kg	140								<0.0126			<0.00274											
Alpha-Endosulfan	mg/kg	5600 (0.003)								<0.00629			<0.00137											
Beta-Endosulfan	mg/kg	6300 (0.00007)								<0.0629			<0.0137											
Alpha-Hexachlorocyclohexanes	mg/kg	170								<0.0126			<0.00274											
Beta-Hexachlorocyclohexanes	mg/kg	65								<0.0126			<0.00274											
Gamma-Hexachlorocyclohexanes	mg/kg	67								<0.00629			<0.00137											
1,2-Dichlorobenzene	mg/kg	2000 (571*)																						
1,3-Dichlorobenzene	mg/kg	30																						
1,4-Dichlorobenzene	mg/kg	4400 (224)																						
1,2,3-Trichlorobenzene	mg/kg	102								<0.00629			<0.00137											
1,2,4-Trichlorobenzene	mg/kg	220																						
1,3,5-Trichlorobenzene	mg/kg	23								<0.00629			<0.00137											

	Screening Criteria	S4UL Reference Page	Sample ID	2K5500SR	2K5500SR	2K5500SR	2K5501SR	2K5501SR	2K5501SR	3K5511DS	3K5511DS	3K5513HP	3K5515HP	3K5515HP	3K5524CT	3K5524CT	3K5525DR	3K5525DR	3K5525DR	3K5525DR	3K5527DR	3K5527DR	3K5527DR	3K5527DR
	GAC Land Use	Commercial	Sample Depth	0.5	1.0	4.5	0.1	1.0	6.0	0.1	1.0	0.5	0.2	0.5	0.2	1.0	0.1	0.5	2.0	6.8	0.2	0.5	3.0	8.3
	SOM	1.0%	Sample GEOL GEOL	MGR	RTD	RTD	TOP	Head	LC	MGR	MGR	LC	TOP	Head			TOP	ALV	ALV		ALV	ALV	LC	LC
Analyte	***Units***		**Lab ID**	G2034-222023042410 2838	G2034-222023042410 3515	G2034-222023042505 1037		G2034-222023030209 3923	G2034-222023031712 1833	#00498040206 90002	#00498040206 90008	#17483436696 90003	#20221586581 40001	#20221586581 40002	G2034-222023102401 2847	G2034-222023102401 3010	#87025322945 20002	#87025322945 20005	#87025322945 20012	#09332106546 10024	#36159566806 60001	#36159566806 60004	G2034-222023110109 3007	G2034-222023110109 4457
Hexachlorobenzene	mg/kg	110 (0.2)								<0.0126			<0.00274											
Hexachloroethane	mg/kg																							
Total CFC (for Haz)	mg/kg																							
Moisture.																								
Moisture Content Ratio (% of as received sample)	%			14.6	19	18.1	25.1	10.2	21.3	20.5	23.5	24.9	27	23.5	23	54.6		19.4	21.2	19.1		20	22.7	24.5
PFOA/PFOS																								
PFOA	mg/kg	0.6																						
PFOS	mg/kg	0.6																						
PFHxS	mg/kg	0.6																						
PFNA	mg/kg	0.6																						
Hazard Quotient	%	1																						

Contamination Assessment Sheet			Selected Files																			
		SOM Value																				
		NA																				
	Screening Criteria	S4UL Reference Page	Sample ID	3K5529HP	3K5529HP	3K5530HP	3K5531DS	3K5531DS	3K5531DS	3K5604HP	3K5606SA	3K5606SA	3K5606SA	3K5607HP	3K5607HP	3K5608HP	3K5608HP	3K5609HP	3K5610HP	3K5610HP	3K7542IT	3K7542IT	3K7544IT
	GAC Land Use	Commercial	Sample Depth	0.2	1.0	1.0	0.5	3.0	5.3	0.5	0.5	4.3	6.2	0.2	0.5	0.3	1.1	1.0	0.1	1.0	0.3	1.0	0.1
	SOM	1.0%	Sample GEOL GEOL	TOP	LC	LC	LC	LC	LC	LC	ALV	LC	LC	TOP	LC	TOP	Head	LC	TOP	LC	MGR	ALV	TOP
Analyte	*Units*		Lab ID	#99293015151 70001	#99293015151 70003	#95193183093 70005	#11232762137 00006	#11232762137 00017	#11232762137 00022	#71466524000 80004	#96129941472 70004	#96129941472 70022	#96129941472 70027	#81078651724 80001	#81078651724 80002	#21467852136 70001	#21467852136 70003	#36339461261 50005	G4011-24 Phase 3B/C20240320 125212	G4011-24 Phase 3B/C20240320 125238	#43852676797 50005	#43852676797 50007	#77855370974 90002
Arsenic	mg/kg	640		10.4	8.8	5.6	14.5	9	9.2	14.2	42.8	13.3	5.5	5.3	7.9	5.6	8	9.5	4.2	11.5	7.1	12.8	
Cadmium	mg/kg	190		<0.2	<0.2	<0.2	0.5	<0.2	0.2	<0.2	0.9	0.2	<0.2	0.2	<0.2	0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	
Chromium	mg/kg	8600		22.5	24.8	24.6	31.7	30.5	18.8	41.6	27	26.4	20.1	9.3	15.4	29.8	39.7	36.3	16.8	27.2	24.2	46.6	
Chromium, Hexavalent	mg/kg	33		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Selenium	mg/kg	12000		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Copper	mg/kg	68000		6.3	14.6	14.4	16.8	21.2	17.8	18.9	566.2	13.9	9.5	39.5	8.7	10.4	15.8	21.2	10.9	11.5	9.1	10.4	
Lead	mg/kg	1100		17.4	13.4	10.9	16.6	12.8	10.1	14.9	471.9	12.2	8.5	24	6.9	34.2	15.1	16.3	31.4	11.9	17.5	13.8	
Elemental Mercury	mg/kg	58 (25.8)																					
Mercury	mg/kg	1100		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Methylmercury	mg/kg	320																					
Nickel	mg/kg	980				27.5												34			12.5		
Zinc	mg/kg	730000		37.5	56.4	57.9	66.3	68.8	59.7	74.4	416.6	57.2	42	52.7	24.1	45.3	63.8	66.4	55.3	44.8	75.5	58.4	
Beryllium	mg/kg	12																					
Boron, water soluble	mg/kg	240000		0.7	<0.5	<0.5	0.8	1.2	1.1	<0.5	<0.5	1.3	0.9	<0.5	<0.5	0.9	0.6	0.9	1.3	<0.5		2.2	
Vanadium	mg/kg	9000																					
Antimony	mg/kg																						
Barium	mg/kg																						
Molybdenum	mg/kg																						
Manganese	mg/kg																						
Inorganics																							
Elemental Sulphur	mg/kg																						
Sulphate, Total	mg/kg			186	<20	253	278	822	684	180	273	2230	466	52	<20	442	<20	362	1580	324	284	77	
Sulphide, Easily liberated	mg/kg					<0.6												<0.7			<0.6		
Chloride	mg/kg																						
Cyanide, Free	mg/kg					<0.6												<0.7					
Cyanide, Total	mg/kg					<0.6												<0.7					
Cyanide, Complex	mg/kg																						
Thiocyanate	mg/kg					<2.5												<2.6					
Ammonia	mg/kg																						
% Stones Greater than 10mm	%			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	31.4	21.4	<0.1	<0.1	<0.1	0.5	<0.1	<0.1	<0.1	
Asbestos	Identifed					NAIIS												NAIIS			NAIIS		NAIIS
pH	pH			7.8	7.6	8.2	7.4	7.9	8.7	8.9	8.8	7.9	8.1	7.8	7.3	8.1	7.8	7.9	7	8.2	7.6	7.8	
Soil Organic Matter	%			1.63	0.44	0.6	1.14	1.13	1.05	0.51	1.17	0.49	0.48	1.3	0.6	3.18	0.66	0.61	6	0.79	1.28	0.65	
Phenols																							
Phenol	mg/kg	440				<0.12												<0.12			<0.12		
Chlorophenols	mg/kg	3500																					
Pentachlorophenol	mg/kg	400																					
Catechol	mg/kg																						
Resorcinol	mg/kg																						
Cresols	mg/kg					0.16												0.2			<0.12		
Xylenols & Ethylphenols	mg/kg					<0.12												<0.12			<0.12		
Naphthols	mg/kg																						
Trimethylphenol	mg/kg					<0.12												<0.12			<0.12		
2,4-Dimethylphenol	mg/kg																						
Total Phenols	mg/kg																						
BTEX																							
Benzene	mg/kg	27				<0.012					<0.013	<0.013	<0.013					<0.013			<0.012		
Toluene	mg/kg	56000 (869)				<0.012					<0.013	<0.013	<0.013					<0.013			<0.012		
Ethylbenzene	mg/kg	5700 (518)				<0.012					<0.013	<0.013	<0.013					<0.013			<0.012		
o-xylene	mg/kg	6600 (478*)				<0.012					<0.013	<0.013	<0.013					<0.013			<0.012		
m-xylene	mg/kg	6200 (625)																					
p-xylene	mg/kg	5900 (576*)																					
m,p-xylene		#N/A				<0.025					<0.027	<0.026	<0.026					<0.026			<0.025		
Total Xylenes (calculated for HWO)	mg/kg	#N/A																					
Total BTEX		#N/A				<0.074					<0.079	<0.078	<0.077					<0.078			<0.074		
MTBE		#N/A				<0.025												<0.026			<0.025		
PAH by GCMS																							
Naphthalene	mg/kg	190 (76.4*)				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Acenaphthylene	mg/kg	83000 (86.1*)				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Acenaphthene	mg/kg	84000 (57*)				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Fluorene	mg/kg	63000 (30.9*)				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Phenanthrene	mg/kg	22000				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Anthracene	mg/kg	520000				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Fluoranthene	mg/kg	23000				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Pyrene	mg/kg	54000				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Benzo(a)anthracene	mg/kg	170				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Chrysene	mg/kg	350				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Benzo(b)fluoranthene	mg/kg	44				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Benzo(k)fluoranthene	mg/kg	1200				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Benzo(a)pyrene	mg/kg	35				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Indeno(1,2,3-cd)pyrene	mg/kg	500				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Dibenzo(a,h)anthracene	mg/kg	3.5				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Benzo(g,h,i)perylene	mg/kg	3900				<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Coronene	mg/kg					<0.10					<0.11	<0.10	<0.10					<0.11			<0.10		
Coal Tar	mg/kg	15																					
Polyaromatic hydrocarbons, Total 17	mg/kg					<1.68					<1.80	<1.76	<1.73					<1.78			<1.67		
Benzo(j)fluoranthene	mg/kg																						

	Screening Criteria	S4UL Reference Page	Sample ID	3K5529HP	3K5529HP	3K5530HP	3K5531DS	3K5531DS	3K5531DS	3K5604HP	3K5606SA	3K5606SA	3K5606SA	3K5607HP	3K5607HP	3K5608HP	3K5608HP	3K5609HP	3K5610HP	3K5610HP	3K7542IT	3K7542IT	3K7544IT
	GAC Land Use	Commercial	Sample Depth	0.2	1.0	1.0	0.5	3.0	5.3	0.5	0.5	4.3	6.2	0.2	0.5	0.3	1.1	1.0	0.1	1.0	0.3	1.0	0.1
	SOM	1.0%	Sample GEOL GEOL	TOP	LC	LC	LC	LC	LC	LC	ALV	LC	LC	TOP	LC	TOP	Head	LC	TOP	LC	MGR	ALV	TOP
Analyte	***Units***		**Lab ID**	#99293015151 70001	#99293015151 70003	#95193183093 70005	#11232762137 00006	#11232762137 00017	#11232762137 00022	#71466524000 80004	#96129941472 70004	#96129941472 70022	#96129941472 70027	#81078651724 80001	#81078651724 80002	#21467852136 70001	#21467852136 70003	#36339461261 50005	G4011-24 Phase 3B/C20240320 125212	G4011-24 Phase 3B/C20240320 125238	#43852676797 50005	#43852676797 50007	#77855370974 90002
Sum of detected PCB 7 Congeners	mg/kg					<0.043												<0.046					
Dioxins and similar PCBs (equiv)	mg/kg																						
Petroleum Hydrocarbon (1% SOM)																							
Aliphatics >C5-C6	mg/kg	3200 (304*)				<0.247												<0.261			<0.245		
Aliphatics >C6-C8	mg/kg	7800 (144*)				<0.247												<0.261			<0.245		
Aliphatics >C8-C10	mg/kg	2000 (78*)				<0.247												<0.261			<0.245		
Aliphatics >C10-C12	mg/kg	9700 (48*)				<4.94												<5.23			<4.90		
Aliphatics >C12-C16	mg/kg	59000 (24*)				<4.94												<5.23			<4.90		
Aliphatics >C16-C21	mg/kg					<4.94												<5.23			<4.90		
Aliphatic EC16 - 35	mg/kg	1600000																					
Aliphatics >C21-C35	mg/kg					<12.4												<13.1			<12.3		
Aliphatics >C35-C44	mg/kg	1600000				<7.42												<7.84			<7.35		
Aromatics >EC5-EC7	mg/kg	26000 (1220*)																					
Aromatics >EC7-EC8	mg/kg	56000 (869)				<0.012												<0.013			<0.012		
Aromatics >EC8-EC10	mg/kg	3500 (613)				<0.049												<0.052			<0.049		
Aromatics >EC10-EC12	mg/kg	16000 (364*)				<4.94												<5.23			<4.90		
Aromatics >EC12-EC16	mg/kg	36000 (169*)				<4.94												<5.23			<4.90		
Aromatics >EC16-EC21	mg/kg	28000				5.04												<5.23			<4.90		
Aromatics >EC21-EC35	mg/kg	28000				13.9												14.6			<12.3		
Aromatics >EC35-EC44	mg/kg	28000				<7.42												<7.84			<7.35		
Ali&Aro EC44-70	mg/kg	28000																					
Petrol Range Organics^	mg/kg																						
Diesel Range Organics^	mg/kg																						
Sum of C5-C44 Ali/Aro (CWG)	mg/kg	#N/A		0	0	18.94	0	0	0	0	0	0	0	0	0	0	0	14.6	0	0	0	0	0
TPH >C10-C40	mg/kg			35.5	43.5	<24.7	161	66.1	50.3	83.5	<26.5	58.3	38.8	24.5	<24.0	51.9	59	31.1	61.7	<26.3	39.9	<25.7	
1,2,4-Trimethylbenzene	mg/kg																						
Isopropylbenzene	mg/kg																						
Propylbenzene	mg/kg																						
Styrene	mg/kg																						
TPH MAX Value				35.5	43.5	18.9	161.0	66.1	50.3	83.5	<26.5	58.3	38.8	24.5	<24.0	51.9	59.0	31.1	61.7	<26.3	39.9	<25.7	
Volatile Organic Compounds																							
Vinyl Chloride	mg/kg	0.059																					
1,1-Dichloroethene	mg/kg																						
Dichloromethane	mg/kg																						
trans-1,2-Dichloroethene	mg/kg																						
1,1-Dichloroethane	mg/kg																						
2,2-Dichloropropane	mg/kg																						
cis-1,2-Dichloroethene	mg/kg																						
Bromochloromethane	mg/kg																						
Chloroform	mg/kg	99																					
1,1,1-Trichloroethane	mg/kg	660																					
Carbontetrachloride	mg/kg	2.9																					
1,1-Dichloropropene	mg/kg																						
1,2-Dichloroethane	mg/kg	0.67																					
1,2-Dichloropropane	mg/kg																						
Dibromomethane	mg/kg																						
Bromodichloromethane	mg/kg																						
trans-1,3-Dichloropropene	mg/kg																						
cis-1,3-Dichloropropene	mg/kg																						
1,1,2-Trichloroethane	mg/kg																						
Bromodichloromethane	mg/kg																						
trans-1,3-Dichloropropene	mg/kg																						
cis-1,3-Dichloropropene	mg/kg																						
1,1,2-Trichloroethane	mg/kg																						
1,3-Dichloropropane	mg/kg																						
Dibromochloromethane	mg/kg																						
1,2-Dibromoethane	mg/kg																						
Chlorobenzene	mg/kg	56																					
1,1,2,2-Tetrachloroethane	mg/kg	270																					
1,1,1,2-Tetrachloroethane	mg/kg	110																					
Trichloroethene	mg/kg	1.2																					
Tetrachloroethene	mg/kg	19																					
2,4,6 Trinitrotoluene (TNT)	mg/kg	1000																					
HMX	mg/kg	110000																					
RDX	mg/kg	210000																					
1,2,3,4-Tetrachlorobenzene (TeCB)	mg/kg	1700 (122)																					
1,2,3,5-Tetrachlorobenzene (TeCB)	mg/kg	49 (39.4)																					
1,2,4,5-Tetrachlorobenzene	mg/kg	42 (19.7*)																					
Pentachlorobenzene (PeCB)	mg/kg	640 (43*)																					
Carbon Disulphide	mg/kg	11																					
Hexachlorobutadiene	mg/kg	31																					
2,4-Dinitrotoluene	mg/kg																						
2,6-Dinitrotoluene	mg/kg																						
2-Chloronaphthalene	mg/kg																						
Biphenyl	mg/kg																						
Bromobenzene	mg/kg																						
Bromoform	mg/kg																						
Chloroethane	mg/kg																						
Chloromethane	mg/kg																						
bis(2-Ethylhexyl) phthalate	mg/kg																						
Butylbenzyl phthalate	mg/kg																						
Diethyl phthalate	mg/kg																						
n-Dibutyl phthalate	mg/kg																						
n-Dioctyl phthalate	mg/kg																						
Herbicides/Insecticides																							
Aldrin	mg/kg	170																					
Dieldrin	mg/kg	170																					
Atrazine	mg/kg	9300																					
Dichlorvos (DDVP)	mg/kg	140																					
Alpha-Endosulfan	mg/kg	5600 (0.003)																					
Beta-Endosulfan	mg/kg	6300 (0.00007)																					
Alpha-Hexachlorocyclohexanes	mg/kg	170																					
Beta-Hexachlorocyclohexanes	mg/kg	65																					
Gamma-Hexachlorocyclohexanes	mg/kg	67																					
1,2-Dichlorobenzene	mg/kg	2000 (571*)																					
1,3-Dichlorobenzene	mg/kg	30																					
1,4-Dichlorobenzene	mg/kg	4400 (224)																					
1,2,3-Trichlorobenzene	mg/kg	102																					
1,2,4-Trichlorobenzene	mg/kg	220																					
1,3,5-Trichlorobenzene	mg/kg	23																					

	Screening Criteria	S4UL Reference Page	Sample ID	3K5529HP	3K5529HP	3K5530HP	3K5531DS	3K5531DS	3K5531DS	3K5604HP	3K5606SA	3K5606SA	3K5606SA	3K5607HP	3K5607HP	3K5608HP	3K5608HP	3K5609HP	3K5610HP	3K5610HP	3K7542IT	3K7542IT	3K7544IT
	GAC Land Use	Commercial	Sample Depth	0.2	1.0	1.0	0.5	3.0	5.3	0.5	0.5	4.3	6.2	0.2	0.5	0.3	1.1	1.0	0.1	1.0	0.3	1.0	0.1
	SOM	1.0%	Sample GEOL GEOL	TOP	LC	LC	LC	LC	LC	LC	ALV	LC	LC	TOP	LC	TOP	Head	LC	TOP	LC	MGR	ALV	TOP
Analyte	***Units***		**Lab ID**	#99293015151 70001	#99293015151 70003	#95193183093 70005	#11232762137 00006	#11232762137 00017	#11232762137 00022	#71466524000 80004	#96129941472 70004	#96129941472 70022	#96129941472 70027	#81078651724 80001	#81078651724 80002	#21467852136 70001	#21467852136 70003	#36339461261 50005	G4011-24 Phase 3B/C20240320 125212	G4011-24 Phase 3B/C20240320 125238	#43852676797 50005	#43852676797 50007	#77855370974 90002
Hexachlorobenzene	mg/kg	110 (0.2)																					
Hexachloroethane	mg/kg																						
Total CFC (for Haz)	mg/kg																						
Moisture.																							
Moisture Content Ratio (% of as received sample)	%			20.4	20.9	19.1	24.2	21.9	19.5	21.3	24.4	22.9	21.6	12.4	16.8	29.8	22.2	23.5	40.6	23.9	18.4	22.3	
PFOA/PFOS																							
PFOA	mg/kg	0.6																					
PFOS	mg/kg	0.6																					
PFHxS	mg/kg	0.6																					
PFNA	mg/kg	0.6																					
Hazard Quotient	%	1																					

				LOC ID	2K5501SR
				DEPTH	6.00
			Assessment Criteria	LAB ID	G2034-222023031712183 3
Analyte	Units	LOD	Human Consumption	LAB RECEIVED DATE	17/03/2023
Alkalinity as CaCO3	µg/l		-		
Arsenic	µg/l	1	10		3
Boron	µg/l	10	1000		280
Cadmium	µg/l	0.02	5		<0.02
Chromium (Total)	µg/l	1	50		<1.0
Chromium Trivalent	µg/l	3	-		<3.0
Chromium Hexavalant	µg/l	3	-		<3.0
Copper	µg/l	1	2000		<1.0
Iron	µg/l		200		
Lead	µg/l	1	10		<1.0
Mercury	µg/l	0.03	1		<0.03
Manganese	µg/l		50		
Fluoride	µg/l	1	1500		600
Nickel	µg/l	1	20		<1.0
Selenium	µg/l	1	10		9
Zinc	µg/l	2	5000		<2.0
Total Ammonia (N)	µg/l	20	-		601.2
Ammoniacal Nitrogen as N	µg/l	20	-		
Ammoniacal Nitrogen as NH3	µg/l	20	-		730
Ammonium (NH4)	µg/l	20	500		772.9
Chloride	µg/l	1000	250000		6000
Chlorine	µg/l		-		
Cyanide	µg/l	20	50		<20.0
Nitrate as NO3	µg/l	900	50000		<900.0
Nitrite as NO2	µg/l	40	500		<40.0
Phenol	µg/l		0.5		
Pentachlorophenol	µg/l	0.04	-		
PCBs	µg/l		-		
Sodium	µg/l		200000		
Sulphate	µg/l	3000	250000		45000
pH	pH Units	1	-		8.8
Dichloromethane	µg/l		-		
1,2 Dichloroethane	µg/l		3		
Trichloroethene (PCE)	µg/l		10		
1,1,1 Trichloroethane	µg/l		-		
1,1,2 Trichloroethane	µg/l		-		
Trichloromethane (Chloroform)	µg/l		100		
1,2,3 Trichlorobenzene	µg/l	0.01	-		
1,2,4 Trichlorobenzene	µg/l		-		
Trichlorobenzene (1,2,3 & 1,2,4)	µg/l		-		
Tetrachloroethene	µg/l		10		
Tetrachloromethane	µg/l		3		
1,1,1,2 Tetrachloroethane	µg/l		-		
Vinyl Chloride (Chloroethene)	µg/l		0.5		
>C5 to C6 Aliphatic	µg/l	100	10		
>C6 to C8 Aliphatic	µg/l	100	10		
>C8 to C10 Aliphatic	µg/l	100	10		
>C10 to C12 Aliphatic	µg/l	10	10		
>C12 to C16 Aliphatic	µg/l	10	10		
>C16 to C21 Aliphatic	µg/l	10	10		
>C21 to C35 Aliphatic	µg/l	10	10		
>C35 to C44 Aliphatic	µg/l	10	10		
Total Aliphatic C5-35	µg/l	340	-		
>C5 to C7 Aromatic	µg/l	5	10		
>C7 to C8 Aromatic	µg/l	5	10		
>C8 to C10 Aromatic	µg/l	20	10		
>C10 to C12 Aromatic	µg/l	10	10		
>C12 to C16 Aromatic	µg/l	10	10		
>C16 to C21 Aromatic	µg/l	10	10		
>C21 to C35 Aromatic	µg/l	10	10		
>C35 to C44 Aromatic	µg/l	10	10		
Total Aromatic C5-C35	µg/l	70	-		

				LOC ID	2K5501SR
				DEPTH	6.00
			Assessment Criteria	LAB ID	G2034-222023031712183 3
Analyte	Units	LOD	Human Consumption	LAB RECEIVED DATE	17/03/2023
TPH Ali/Aro	µg/l	410	10		<314.0 (TPH >C6-40)
Benzene	µg/l	1	1		<1
Ethylbenzene	µg/l	0.5	300		<0.5
Toluene	µg/l	1	700		<1
Xylene	µg/l		500		
M- & P-Xylene	µg/l	1	-		<1
O-Xylene	µg/l	1	-		<1
Total Xylene (M, P & O)	µg/l	2	-		
MTBE	µg/l	1	15		<1
naphthalene	µg/l	0.01	-		0.06
acenaphthylene	µg/l	0.01	-		<0.03
acenaphthene	µg/l	0.01	-		<0.03
fluorene	µg/l	0.01	-		<0.03
phenanthrene	µg/l	0.01	-		<0.03
anthracene	µg/l	0.01	-		<0.03
fluoranthene	µg/l	0.01	-		<0.03
pyrene	µg/l	0.01	-		<0.03
benzo(a)anthracene	µg/l	0.01	-		<0.03
chrysene	µg/l	0.01	-		<0.03
benzo(b)fluoranthene	µg/l	0.01	0.1		<0.03
benzo(k)fluoranthene	µg/l	0.01	0.1		<0.03
benzo(a)pyrene	µg/l	0.01	0.01		<0.03
benzo(g,h,i)perylene	µg/l	0.01	0.1		<0.03
dibenzo(ah)anthracene	µg/l	0.01	-		<0.03
indeno(1,2,3-c,d)pyrene	µg/l	0.01	0.1		<0.03
Sum (benzo b, k, ghi & indeno123cd)	µg/l	0.04	0.1		
Total PAH	µg/l	0.16	-		0.48
PFOA					
PFOS					

				LOC ID	2K5501SR
				DEPTH	6.00
			Assessment Criteria	LAB ID	G2034-222023031712183 3
Analyte	Units	LOD	Fresh Water	LAB RECEIVED DATE	17/03/2023
Alkalinity as CaCO3	µg/l		-		
Arsenic	µg/l	1	50		3
Boron	µg/l	10	-		280
Cadmium	µg/l	0.02	0.08		<0.02
Chromium (Total)	µg/l	1	-		<1.0
Chromium Trivalent	µg/l	3	4.7		<3.0
Chromium Hexavalant	µg/l	3	3.4		<3.0
Copper	µg/l	1	1		<1.0
Iron	µg/l		1000		
Lead	µg/l	1	1.2		<1.0
Mercury	µg/l	0.03	0.07		<0.03
Manganese	µg/l		123		
Fluoride	µg/l	1	-		600
Nickel	µg/l	1	4		<1.0
Selenium	µg/l	1	-		9
Zinc	µg/l	2	10.9		<2.0
Total Ammonia (N)	µg/l	20	200		601.2
Ammoniacal Nitrogen as N	µg/l	20	-		
Ammoniacal Nitrogen as NH3	µg/l	20	-		730
Ammonium (NH4)	µg/l	20	-		772.9
Chloride	µg/l	1000	-		6000
Chlorine	µg/l		2		
Cyanide	µg/l	20	1		<20.0
Nitrate as NO3	µg/l	900	-		<900.0
Nitrite as NO2	µg/l	40	-		<40.0
Phenol	µg/l		7.7		
Pentachlorophenol	µg/l	0.04	0.4		
PCBs	µg/l		-		
Sodium	µg/l		-		
Sulphate	µg/l	3000	-		45000
pH	pH Units	1	-		8.8
Dichloromethane	µg/l		-		
1,2 Dichloroethane	µg/l		10		
Trichloroethene (PCE)	µg/l		10		
1,1,1 Trichloroethane	µg/l		-		
1,1,2 Trichloroethane	µg/l		-		
Trichloromethane (Chloroform)	µg/l		2.5		
1,2,3 Trichlorobenzene	µg/l	0.01	-		
1,2,4 Trichlorobenzene	µg/l		-		
Trichlorobenzene (1,2,3 & 1,2,4)	µg/l		0.4		
Tetrachloroethene	µg/l		10		
Tetrachloromethane	µg/l		12		
1,1,1,2 Tetrachloroethane	µg/l		140		
Vinyl Chloride (Chloroethene)	µg/l		-		
>C5 to C6 Aliphatic	µg/l	100	-		
>C6 to C8 Aliphatic	µg/l	100	-		
>C8 to C10 Aliphatic	µg/l	100	-		
>C10 to C12 Aliphatic	µg/l	10	-		
>C12 to C16 Aliphatic	µg/l	10	-		
>C16 to C21 Aliphatic	µg/l	10	-		
>C21 to C35 Aliphatic	µg/l	10	-		
>C35 to C44 Aliphatic	µg/l	10	-		
Total Aliphatic C5-35	µg/l	340	-		
>C5 to C7 Aromatic	µg/l	5	-		
>C7 to C8 Aromatic	µg/l	5	-		
>C8 to C10 Aromatic	µg/l	20	-		
>C10 to C12 Aromatic	µg/l	10	-		
>C12 to C16 Aromatic	µg/l	10	-		
>C16 to C21 Aromatic	µg/l	10	-		
>C21 to C35 Aromatic	µg/l	10	-		
>C35 to C44 Aromatic	µg/l	10	-		
Total Aromatic C5-C35	µg/l	70	-		

				LOC ID	2K5501SR
				DEPTH	6.00
			Assessment Criteria	LAB ID	G2034-222023031712183 3
Analyte	Units	LOD	Fresh Water	LAB RECEIVED DATE	17/03/2023
TPH Ali/Aro	µg/l	410	-		<314.0 (TPH >C6-40)
Benzene	µg/l	1	10		<1
Ethylbenzene	µg/l	0.5	-		<0.5
Toluene	µg/l	1	74		<1
Xylene	µg/l		30		
M- & P-Xylene	µg/l	1	-		<1
O-Xylene	µg/l	1	-		<1
Total Xylene (M, P & O)	µg/l	2	-		
MTBE	µg/l	1	-		<1
naphthalene	µg/l	0.01	2		0.06
acenaphthylene	µg/l	0.01	-		<0.03
acenaphthene	µg/l	0.01	-		<0.03
fluorene	µg/l	0.01	-		<0.03
phenanthrene	µg/l	0.01	-		<0.03
anthracene	µg/l	0.01	0.1		<0.03
fluoranthene	µg/l	0.01	0.0063		<0.03
pyrene	µg/l	0.01	-		<0.03
benzo(a)anthracene	µg/l	0.01	-		<0.03
chrysene	µg/l	0.01	-		<0.03
benzo(b)fluoranthene	µg/l	0.01	0.017		<0.03
benzo(k)fluoranthene	µg/l	0.01	0.017		<0.03
benzo(a)pyrene	µg/l	0.01	0.00017		<0.03
benzo(g,h,i)perylene	µg/l	0.01	0.0082		<0.03
dibenzo(ah)anthracene	µg/l	0.01	-		<0.03
indeno(1,2,3-c,d)pyrene	µg/l	0.01	-		<0.03
Sum (benzo b, k, ghi & indeno123cd)	µg/l	0.04	-		
Total PAH	µg/l	0.16	-		0.48
PFOA					
PFOS					

				LOC ID	2K5500SR	2K5500SR	2K5500SR	2K5500SR	2K5501SR	2K5501SR	2K5501SR	2K5501SR	3K5525DR	3K5525DR	3K5525DR	3K5606SA	3K5606SA	3K5606SA
				DEPTH	4.50	5.00	5.04	5.65	0.93	1.70	1.95	2.02	4.00	4.97	5.00	3.95	4.02	6.50
			Assessment Criteria	LAB ID		2K5500SRW18 0723102709		#6979965757 090043	2K5501SRW11 /05/23114823	#26765755809 20037	2K5501SRW 2407231028 09	2K5501SRW4 114823	#5648456078780 048					#5314922982500 068
Analyte	Units	LOD	Human Consumption	LAB RECEIVED DATE	05/08/2024	20/07/2023	16/09/2023	25/05/2023	13/05/2023	12/03/2024	26/07/2023	09/04/2024	12/03/2024	13/01/2024	02/12/2023	13/01/2024	02/12/2023	12/03/2024
Alkalinity as CaCO3	µg/l		-															
Arsenic	µg/l	1	10		10	2	3	2	11	16	4	8	<1.0	<1.0	<1.0	<1.0	<1.0	1
Boron	µg/l	10	1000		80	320	220	760	1950	620	1430	550	420	570	530	300	310	430
Cadmium	µg/l	0.02	5		<0.02	<0.02	<0.02	<0.02	0.03	<0.02	0.04	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02
Chromium (Total)	µg/l	1	50		<1.0	<1.0	<1.0	<1.0	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium Trivalent	µg/l	3	-		<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Chromium Hexavalant	µg/l	3	-		<3.0	<3.0	<3.0	5	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Copper	µg/l	1	2000		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Iron	µg/l		200															
Lead	µg/l	1	10		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury	µg/l	0.03	1		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.08	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Manganese	µg/l		50															
Fluoride	µg/l	1	1500		300	200	600	200	200	400	300	300	300	400	200	300	400	200
Nickel	µg/l	1	20		<1.0	<1.0	1	<1.0	65	23	30	21	4	3	<1.0	2	<1.0	1
Selenium	µg/l	1	10		<1.0	<1.0	1	1	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Zinc	µg/l	2	5000		6	<2.0	4	<2.0	35	<2.0	3	9	5	5	<2.0	7	<2.0	8
Total Ammonia (N)	µg/l	20	-		798.8	601.2	502.4	897.6	337.6	296.5	197.6	296.5	82.4	74.1	197.6	700.0	700.0	798.8
Ammoniacal Nitrogen as N	µg/l	20	-															
Ammoniacal Nitrogen as NH3	µg/l	20	-		970	730	610	1090	410	360	240	360	100	90	240	850	850	970
Ammonium (NH4)	µg/l	20	500		1027.1	772.9	645.9	1154.1	434.1	381.2	254.1	381.2	105.9	95.3	254.1	900.0	900.0	1027.1
Chloride	µg/l	1000	250000		22000	77000	36000	785000	593000	204000	377000	145000	206000	338000	444000	113000	123000	150000
Chlorine	µg/l		-															
Cyanide	µg/l	20	50		<20.0	<20.0	<20.0		<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Nitrate as NO3	µg/l	900	50000		<900.0	<900.0	<900.0	1600	<900.0	<900.0	<900.0	<900.0	<900.0	4200	<900.0	3600	25800	<900.0
Nitrite as NO2	µg/l	40	500		<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
Phenol	µg/l		0.5		<0.5													
Pentachlorophenol	µg/l	0.04	-															
PCBs	µg/l		-															
Sodium	µg/l		200000			109000	69000	1270000	649000	335000	426000							
Sulphate	µg/l	3000	250000		24000	50000	31000	276000	123000	<3000.0	3000	7000	228000	243000	245000	588000	575000	602000
pH	pH Units	1	-		7.7	8.2	8.1	7.6	6.2	6.8	6.7	7	7.5	7.6	7.7	7.5	7.2	7.3
Dichloromethane	µg/l		-															
1,2 Dichloroethane	µg/l		3															
Trichloroethene (PCE)	µg/l		10															
1,1,1 Trichloroethane	µg/l		-															
1,1,2 Trichloroethane	µg/l		-															
Trichloromethane (Chloroform)	µg/l		100															
1,2,3 Trichlorobenzene	µg/l	0.01	-															
1,2,4 Trichlorobenzene	µg/l		-															
Trichlorobenzene (1,2,3 & 1,2,4)	µg/l		-															
Tetrachloroethene	µg/l		10															
Tetrachloromethane	µg/l		3															
1,1,1,2 Tetrachloroethane	µg/l		-															
Vinyl Chloride (Chloroethene)	µg/l		0.5															
>C5 to C6 Aliphatic	µg/l	100	10									<100.0						
>C6 to C8 Aliphatic	µg/l	100	10									<100.0						
>C8 to C10 Aliphatic	µg/l	100	10									<100.0						
>C10 to C12 Aliphatic	µg/l	10	10									<40.0						
>C12 to C16 Aliphatic	µg/l	10	10									160						
>C16 to C21 Aliphatic	µg/l	10	10									290						
>C21 to C35 Aliphatic	µg/l	10	10									<40.0						
>C35 to C44 Aliphatic	µg/l	10	10									<40.0						
Total Aliphatic C5-35	µg/l	340	-															
>C5 to C7 Aromatic	µg/l	5	10									<5.0						
>C7 to C8 Aromatic	µg/l	5	10									<5.0						
>C8 to C10 Aromatic	µg/l	20	10									<20.0						
>C10 to C12 Aromatic	µg/l	10	10									<40.0						
>C12 to C16 Aromatic	µg/l	10	10									<40.0						
>C16 to C21 Aromatic	µg/l	10	10									<40.0						
>C21 to C35 Aromatic	µg/l	10	10									<40.0						
>C35 to C44 Aromatic	µg/l	10	10									<40.0						
Total Aromatic C5-C35	µg/l	70	-															
TPH Ali/Aro	µg/l	410	10		<2200.0 (TPH >C6-40)	<100.0 (GRO >C6-10) , 420.0 (EPH >C10-40) , <1100.0 (TPH >C6-40)	<100.0 (GRO >C6-10) , 110.0 (EPH >C10-40) , <1100.0 (TPH >C6-40)	<100.0 (GRO >C6-10) , 10.0 (EPH >C10-40)	1950.0 (GRO >C6-10) , 40200.0 (EPH >C10-40) , 42200.0 (TPH >C6-40)	<100.0 (GRO >C6-10) , 420.0 (EPH >C10-40) , <2200.0 (TPH >C6-40)	242.0 (GRO >C6-10) , 2920.0 (EPH >C10-40) , 3160.0 (TPH >C6-40)	<100.0 (GRO >C5-10) , <440.0 (TPH >C6-40) , 480.0 (Aliphatics >C8-40) , <40.0 (Aromatics >C8-40)	<2200.0 (TPH >C6-40)	120.0 (TPH >C6-40)	<11000.0 (TPH >C6-40)	110.0 (TPH >C6-40)	290.0 (TPH >C6-40)	7210.0 (TPH >C6-40)
Benzene	µg/l	1	1		<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/l	0.5	300		<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/l	1	700		<1	<1	<1		<1	<1	2	<1	<1	<1	<1	<1	<1	<1
Xylene	µg/l		500															
M- & P-Xylene	µg/l	1	-		<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
O-Xylene	µg/l	1	-		<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Xylene (M, P & O)	µg/l	2	-															
MTBE	µg/l	1	15		<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
naphthalene	µg/l	0.01	-		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	0.51	<0.04	<0.20	0.01	<1.00	0.01	<0.01	<0.20
acenaphthylene	µg/l	0.01	-		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
acenaphthene	µg/l	0.01	-		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	0.1	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
fluorene	µg/l	0.01	-		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	0.17	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
phenanthrene	µg/l	0.01	-		<0.20	0.26	<0.10	<0.20	1.32	<0.20	0.17	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
anthracene	µg/l	0.01	-		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
fluoranthene	µg/l	0.01	-		<0.20	0.79	0.12	<0.20	0.52	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	0.02	0.25
pyrene	µg/l	0.01	-		<0.20	0.73	0.13	<0.20	<0.40	<0.20	0.02	<0.04	<0.20	<0.01	<1.00	<0.01	0.02	0.23
benzo(a)anthracene	µg/l	0.01	-		<0.20	0.44	<0.10	<0.20	<0.40	<0.20	0.02	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
chrysene	µg/l	0.01	-		<0.20	0.32	<0.10	<0.20	0.53	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	0.43
benzo(b)fluoranthene	µg/l	0.01	0.1		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
benzo(k)fluoranthene	µg/l	0.01	0.1		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
benzo(a)pyrene	µg/l	0.01	0.01		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
benzo(g,h,i)perylene	µg/l	0.01	0.1		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
dibenzo(ah)anthracene	µg/l	0.01	-		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
indeno(1,2,3-c,d)pyrene	µg/l	0.01	0.1		<0.20	0.26	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20

Groundwater Results highlighting Exceedances above Generic Assessment Criteria

				LOC ID	2K5500SR	2K5500SR	2K5500SR	2K5500SR	2K5501SR	2K5501SR	2K5501SR	2K5501SR	3K5525DR	3K5525DR	3K5525DR	3K5606SA	3K5606SA	3K5606SA
				DEPTH	4.50	5.00	5.04	5.65	0.93	1.70	1.95	2.02	4.00	4.97	5.00	3.95	4.02	6.50
			Assessment Criteria	LAB ID		2K5500SRW180723102709		#6979965757090043	2K5501SRW11/05/23114823	#26765755809 20037	2K5501SRW2407231028 09	2K5501SRW4114823	#5648456078780048					#5314922982500068
Analyte	Units	LOD	Human Consumption	LAB RECEIVED DATE	05/08/2024	20/07/2023	16/09/2023	25/05/2023	13/05/2023	12/03/2024	26/07/2023	09/04/2024	12/03/2024	13/01/2024	02/12/2023	13/01/2024	02/12/2023	12/03/2024
Sum (benzo b, k, ghi & indeno123cd)	µg/l	0.04	0.1															
Total PAH	µg/l	0.16	-		<3.20	3.79	1.64	<3.20	7.56	<3.20	1.09	<0.64	<3.20	0.16	<16.0	0.16	0.17	3.5
PFOS	µg/l	0.01	0.1															
PFOA	µg/l	0.01	0.1															

				LOC ID	2K5500SR	2K5500SR	2K5500SR	2K5500SR	2K5501SR	2K5501SR	2K5501SR	2K5501SR	3K5525DR	3K5525DR	3K5525DR	3K5606SA	3K5606SA	3K5606SA
				DEPTH	4.50	5.00	5.04	5.65	0.93	1.70	1.95	2.02	4.00	4.97	5.00	3.95	4.02	6.50
			Assessment Criteria	LAB ID		2K5500SRW18 0723102709		#6979965757 090043	2K5501SRW11 /05/23114823	#26765755809 20037	2K5501SRW 240723102809	2K5501SRW4 114823	#5648456078780 048					#5314922982500 068
Analyte	Units	LOD	Fresh Water	LAB RECEIVED DATE	05/08/2024	20/07/2023	16/09/2023	25/05/2023	13/05/2023	12/03/2024	26/07/2023	09/04/2024	12/03/2024	13/01/2024	02/12/2023	13/01/2024	02/12/2023	12/03/2024
Alkalinity as CaCO3	µg/l		-															
Arsenic	µg/l	1	50		10	2	3	2	11	16	4	8	<1.0	<1.0	<1.0	<1.0	<1.0	1
Boron	µg/l	10	-		80	320	220	760	1950	620	1430	550	420	570	530	300	310	430
Cadmium	µg/l	0.02	0.08		<0.02	<0.02	<0.02	<0.02	0.03	<0.02	0.04	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02
Chromium (Total)	µg/l	1	-		<1.0	<1.0	<1.0	<1.0	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium Trivalent	µg/l	3	4.7		<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Chromium Hexavalant	µg/l	3	3.4		<3.0	<3.0	<3.0	5	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Copper	µg/l	1	1		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Iron	µg/l		1000															
Lead	µg/l	1	1.2		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury	µg/l	0.03	0.07		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.08	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Manganese	µg/l		123															
Fluoride	µg/l	1	-		300	200	600	200	200	400	300	300	300	400	200	300	400	200
Nickel	µg/l	1	4		<1.0	<1.0	1	<1.0	65	23	30	21	4	3	<1.0	2	<1.0	1
Selenium	µg/l	1	-		<1.0	<1.0	1	1	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Zinc	µg/l	2	10.9		6	<2.0	4	<2.0	35	<2.0	3	9	5	5	<2.0	7	<2.0	8
Total Ammonia (N)	µg/l	20	200		798.8	601.2	502.4	897.6	337.6	296.5	197.6	296.5	82.4	74.1	197.6	700.0	700.0	798.8
Ammoniacal Nitrogen as N	µg/l	20	-															
Ammoniacal Nitrogen as NH3	µg/l	20	-		970	730	610	1090	410	360	240	360	100	90	240	850	850	970
Ammonium (NH4)	µg/l	20	-		1027.1	772.9	645.9	1154.1	434.1	381.2	254.1	381.2	105.9	95.3	254.1	900.0	900.0	1027.1
Chloride	µg/l	1000	-		22000	77000	36000	785000	593000	204000	377000	145000	206000	338000	444000	113000	123000	150000
Chlorine	µg/l		2															
Cyanide	µg/l	20	1		<20.0	<20.0	<20.0		<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Nitrate as NO3	µg/l	900	-		<900.0	<900.0	<900.0	1600	<900.0	<900.0	<900.0	<900.0	<900.0	4200	<900.0	3600	25800	<900.0
Nitrite as NO2	µg/l	40	-		<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
Phenol	µg/l		7.7		<0.5													
Pentachlorophenol	µg/l	0.04	0.4															
PCBs	µg/l		-															
Sodium	µg/l		-			109000	69000	1270000	649000	335000	426000							
Sulphate	µg/l	3000	-		24000	50000	31000	276000	123000	<3000.0	3000	7000	228000	243000	245000	588000	575000	602000
pH	pH Units	1	-		7.7	8.2	8.1	7.6	6.2	6.8	6.7	7	7.5	7.6	7.7	7.5	7.2	7.3
Dichloromethane	µg/l		-															
1,2 Dichloroethane	µg/l		10															
Trichloroethene (PCE)	µg/l		10															
1,1,1 Trichloroethane	µg/l		-															
1,1,2 Trichloroethane	µg/l		-															
Trichloromethane (Chloroform)	µg/l		2.5															
1,2,3 Trichlorobenzene	µg/l	0.01	-															
1,2,4 Trichlorobenzene	µg/l		-															
Trichlorobenzene (1,2,3 & 1,2,4)	µg/l		0.4															
Tetrachloroethene	µg/l		10															
Tetrachloromethane	µg/l		12															
1,1,1,2 Tetrachloroethane	µg/l		140															
Vinyl Chloride (Chloroethene)	µg/l		-															
>C5 to C6 Aliphatic	µg/l	100	-									<100.0						
>C6 to C8 Aliphatic	µg/l	100	-									<100.0						
>C8 to C10 Aliphatic	µg/l	100	-									<100.0						
>C10 to C12 Aliphatic	µg/l	10	-									<40.0						
>C12 to C16 Aliphatic	µg/l	10	-									160						
>C16 to C21 Aliphatic	µg/l	10	-									290						
>C21 to C35 Aliphatic	µg/l	10	-									<40.0						
>C35 to C44 Aliphatic	µg/l	10	-									<40.0						
Total Aliphatic C5-35	µg/l	340	-															
>C5 to C7 Aromatic	µg/l	5	-									<5.0						
>C7 to C8 Aromatic	µg/l	5	-									<5.0						
>C8 to C10 Aromatic	µg/l	20	-									<20.0						
>C10 to C12 Aromatic	µg/l	10	-									<40.0						
>C12 to C16 Aromatic	µg/l	10	-									<40.0						
>C16 to C21 Aromatic	µg/l	10	-									<40.0						
>C21 to C35 Aromatic	µg/l	10	-									<40.0						
>C35 to C44 Aromatic	µg/l	10	-									<40.0						
Total Aromatic C5-C35	µg/l	70	-															
TPH Ali/Aro	µg/l	410	-		<2200.0 (TPH >C6-40)	<100.0 (GRO >C6-10) , 420.0 (EPH >C10-40) , <1100.0 (TPH >C6-40)	<100.0 (GRO >C6-10) , 110.0 (EPH >C10-40) , <1100.0 (TPH >C6-40)	<100.0 (GRO >C6-10) , 10.0 (EPH >C10-40)	1950.0 (GRO >C6-10) , 40200.0 (EPH >C10-40) , 42200.0 (TPH >C6-40)	<100.0 (GRO >C6-10) , 420.0 (EPH >C10-40) , <2200.0 (TPH >C6-40)	242.0 (GRO >C6-10) , 2920.0 (EPH >C10-40) , 3160.0 (TPH >C6-40)	<100.0 (GRO >C5-10) , <440.0 (TPH >C6-40) , 480.0 (Aliphatics >C8-40) , <40.0 (Aromatics >C8-40)	<2200.0 (TPH >C6-40)	120.0 (TPH >C6-40)	<11000.0 (TPH >C6-40)	110.0 (TPH >C6-40)	290.0 (TPH >C6-40)	7210.0 (TPH >C6-40)
Benzene	µg/l	1	10		<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/l	0.5	-		<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/l	1	74		<1	<1	<1		<1	<1	2	<1	<1	<1	<1	<1	<1	<1
Xylene	µg/l		30															
M- & P-Xylene	µg/l	1	-		<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
O-Xylene	µg/l	1	-		<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Xylene (M, P & O)	µg/l	2	-															
MTBE	µg/l	1	-		<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
naphthalene	µg/l	0.01	2		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	0.51	<0.04	<0.20	0.01	<1.00	0.01	<0.01	<0.20
acenaphthylene	µg/l	0.01	-		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
acenaphthene	µg/l	0.01	-		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	0.1	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
fluorene	µg/l	0.01	-		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	0.17	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
phenanthrene	µg/l	0.01	-		<0.20	0.26	<0.10	<0.20	1.32	<0.20	0.17	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
anthracene	µg/l	0.01	0.1		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
fluoranthene	µg/l	0.01	0.0063		<0.20	0.79	0.12	<0.20	0.52	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	0.02	0.25
pyrene	µg/l	0.01	-		<0.20	0.73	0.13	<0.20	<0.40	<0.20	0.02	<0.04	<0.20	<0.01	<1.00	<0.01	0.02	0.23
benzo(a)anthracene	µg/l	0.01	-		<0.20	0.44	<0.10	<0.20	<0.40	<0.20	0.02	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
chrysene	µg/l	0.01	-		<0.20	0.32	<0.10	<0.20	0.53	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	0.43
benzo(b)fluoranthene	µg/l	0.01	0.017		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
benzo(k)fluoranthene	µg/l	0.01	0.017		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
benzo(a)pyrene	µg/l	0.01	0.00017		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
benzo(g,h,i)perylene	µg/l	0.01	0.0082		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
dibenzo(ah)anthracene	µg/l	0.01	-		<0.20	<0.10	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20
indeno(1,2,3-c,d)pyrene	µg/l	0.01	-		<0.20	0.26	<0.10	<0.20	<0.40	<0.20	<0.01	<0.04	<0.20	<0.01	<1.00	<0.01	<0.01	<0.20

Groundwater Results highlighting Exceedances above Generic Assessment Criteria

				LOC ID	2K5500SR	2K5500SR	2K5500SR	2K5500SR	2K5501SR	2K5501SR	2K5501SR	2K5501SR	3K5525DR	3K5525DR	3K5525DR	3K5606SA	3K5606SA	3K5606SA
				DEPTH	4.50	5.00	5.04	5.65	0.93	1.70	1.95	2.02	4.00	4.97	5.00	3.95	4.02	6.50
			Assessment Criteria	LAB ID		2K5500SRW18 0723102709		#6979965757 090043	2K5501SRW11 /05/23114823	#26765755809 20037	2K5501SRW 2407231028 09	2K5501SRW4 114823	#5648456078780 048					#5314922982500 068
Analyte	Units	LOD	Fresh Water	LAB RECEIVED DATE	05/08/2024	20/07/2023	16/09/2023	25/05/2023	13/05/2023	12/03/2024	26/07/2023	09/04/2024	12/03/2024	13/01/2024	02/12/2023	13/01/2024	02/12/2023	12/03/2024
Sum (benzo b, k, ghi & indeno123cd)	µg/l	0.04	-															
Total PAH	µg/l	0.16	-		<3.20	3.79	1.64	<3.20	7.56	<3.20	1.09	<0.64	<3.20	0.16	<16.0	0.16	0.17	3.5
PFOS	µg/l	0.01	-															
PFOA	µg/l	0.01	-															

Appendix E: HazWasteOnline™ Reports

Waste Classification Report

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

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

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

H1Q6F-LPY5Y-M81DT

Job name

Hampshire Water Transfer and Water Recycling Project (HWTWRP)

Description/Comments

Waste classification of soils to be excavated for proposed pipeline.

Boreholes 2K5500SR and 2K5501SR located in agricultural land.

Project

HWTWRP Phase 2 GIR

Site

Section K

Classified by

Name:
Jason Hoyte
Date:
09 Jan 2024 12:15 GMT
Telephone:
01494 557643

Company:
Stantec UK Ltd
Buckingham Court
Frederick Place
High Wycombe
HP11 1JU

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

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	22 Nov 2019
Most recent 3 year Refresher	04 Oct 2022

Next 3 year Refresher due by Oct 2025

Purpose of classification

2 - Material Characterisation

Address of the waste

Approximately 1.7km northeast of Curdridge Village, Hampshire **Post Code** N/A

SIC for the process giving rise to the waste

42910 Construction of water projects

Description of industry/producer giving rise to the waste

Water Industry

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

Excavation of trenches for pipeline installation.

Description of the waste

Made Ground is soft brown/orange sandy slightly gravelly CLAY with gravels of chert, brick, tile, macadam (2K5500SR).
River Terrace deposits in 2K5500SR (1.0m and 4.5m samples)
Head deposits in 2K5502SR (0.1m and 1.0m samples).
London Clay in 2K5502SR 6.0m sample.

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	2K5500SR	0.50	Hazardous	HP 7	3
2	2K5500SR[2]	1.00	Non Hazardous		6
3	2K5500SR[3]	4.50	Non Hazardous		8
4	2K5501SR	0.10	Non Hazardous		11
5	2K5501SR[2]	1.00	Non Hazardous		14
6	2K5501SR[3]	6.00	Non Hazardous		16

Related documents

#	Name	Description
1	GAC Tool Template v4	waste stream template used to create this Job

Report

Created by: Jason Hoyte

Created date: 09 Jan 2024 12:15 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	18
Appendix B: Rationale for selection of metal species	19
Appendix C: Version	20

Classification of sample: 2K5500SR

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

Sample details

Sample name:
2K5500SR
Sample Depth:
0.50 m
Moisture content:
14.6%
(no correction)

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

Hazard properties

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

Hazard Statements hit:

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

Because of determinand:

asbestos: (conc.: 0.147%)

Determinands

Moisture content: 14.6% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.5 mg/kg	1.32	12.543 mg/kg	0.00125 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20.1 mg/kg	1.462	29.377 mg/kg	0.00294 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<**LOD**
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		16.2 mg/kg	1.126	18.239 mg/kg	0.00182 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	14.2 mg/kg	1.56	22.149 mg/kg	0.00142 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<**LOD**
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		5.5 mg/kg	2.976	16.369 mg/kg	0.00164 %		
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		33 mg/kg	2.774	91.547 mg/kg	0.00915 %		
11	asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		1470 mg/kg		1470 mg/kg	0.147 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
				77536-66-4 77536-68-6 77536-67-5 12001-29-5									
12		pH				8.7	pH		8.7	pH	8.7 pH		
				PH									
13		phenol				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
14		monohydric phenols				0.41	mg/kg		0.41	mg/kg	0.000041 %		
				P1186									
15		benzene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
19		naphthalene				<0.09	mg/kg		<0.09	mg/kg	<0.000009 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.09	mg/kg		<0.09	mg/kg	<0.000009 %		<**LOD**
			205-917-1	208-96-8									
21		acenaphthene				<0.09	mg/kg		<0.09	mg/kg	<0.000009 %		<**LOD**
			201-469-6	83-32-9									
22		fluorene				<0.09	mg/kg		<0.09	mg/kg	<0.000009 %		<**LOD**
			201-695-5	86-73-7									
23		phenanthrene				0.48	mg/kg		0.48	mg/kg	0.000048 %		
			201-581-5	85-01-8									
24		anthracene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			204-371-1	120-12-7									
25		fluoranthene				1.53	mg/kg		1.53	mg/kg	0.000153 %		
			205-912-4	206-44-0									
26		pyrene				1.53	mg/kg		1.53	mg/kg	0.000153 %		
			204-927-3	129-00-0									
27		benzo[a]anthracene				0.5	mg/kg		0.5	mg/kg	0.00005 %		
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				0.69	mg/kg		0.69	mg/kg	0.000069 %		
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				0.72	mg/kg		0.72	mg/kg	0.000072 %		
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				0.42	mg/kg		0.42	mg/kg	0.000042 %		
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				0.64	mg/kg		0.64	mg/kg	0.000064 %		
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				0.42	mg/kg		0.42	mg/kg	0.000042 %		
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				0.39	mg/kg		0.39	mg/kg	0.000039 %		
			205-883-8	191-24-2									
35		coronene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			205-881-7	191-07-1									
36		polychlorobiphenyls; PCB				<0.041	mg/kg		<0.041	mg/kg	<0.0000041 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
37		TPH (C6 to C40) petroleum group				75.7	mg/kg		75.7	mg/kg	0.00757 %		
				TPH									
										Total:	0.174 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No liquid phase present. Hazardous limit used represents less than 1% of the waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00757%)

Classification of sample: 2K5500SR[2]

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

Sample details

Sample name:
2K5500SR[2]
Sample Depth:
1.00 m
Moisture content:
19%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 19% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		4.3	mg/kg	1.32	5.677	mg/kg	0.000568 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2	mg/kg	1.142	0.228	mg/kg	0.0000228 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		7.6	mg/kg	1.462	11.108	mg/kg	0.00111 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		<**LOD**
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		10.4	mg/kg	1.126	11.709	mg/kg	0.00117 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	48.2	mg/kg	1.56	75.183	mg/kg	0.00482 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<**LOD**
9	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		42.9	mg/kg	2.774	119.011	mg/kg	0.0119 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5	mg/kg	3.22	<1.61	mg/kg	<0.000161 %		<**LOD**
11	pH			PH		8.7	pH		8.7	pH	8.7 pH		
12	TPH (C6 to C40) petroleum group			TPH		166	mg/kg		166	mg/kg	0.0166 %		
										Total:	0.0365 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No liquid phase present. Hazardous limit used represents less than 1% of the waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0166%)

Classification of sample: 2K5500SR[3]

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

Sample details

Sample name:
2K5500SR[3]
Sample Depth:
4.50 m
Moisture content:
18.1%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 18.1% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.1 mg/kg	1.32	10.695 mg/kg	0.00107 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4 mg/kg	1.142	0.457 mg/kg	0.0000457 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		12.9 mg/kg	1.462	18.854 mg/kg	0.00189 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<**LOD**
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		17.3 mg/kg	1.126	19.478 mg/kg	0.00195 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	124 mg/kg	1.56	193.417 mg/kg	0.0124 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<**LOD**
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		15.5 mg/kg	2.976	46.132 mg/kg	0.00461 %		
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		68.5 mg/kg	2.774	190.029 mg/kg	0.019 %		
11	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.8 mg/kg	3.22	2.576 mg/kg	0.000258 %		
12	asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<100 mg/kg		<100 mg/kg	<0.01 %		<**LOD**
13	pH			PH		7.8 pH		7.8 pH	7.8 pH		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		phenol				<0.12	mg/kg		<0.12	mg/kg	<0.000012 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
15		monohydric phenols				<0.47	mg/kg		<0.47	mg/kg	<0.000047 %		<**LOD**
				P1186									
16		benzene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
22		acenaphthene				0.36	mg/kg		0.36	mg/kg	0.000036 %		
			201-469-6	83-32-9									
23		fluorene				0.47	mg/kg		0.47	mg/kg	0.000047 %		
			201-695-5	86-73-7									
24		phenanthrene				2.76	mg/kg		2.76	mg/kg	0.000276 %		
			201-581-5	85-01-8									
25		anthracene				1.04	mg/kg		1.04	mg/kg	0.000104 %		
			204-371-1	120-12-7									
26		fluoranthene				7.06	mg/kg		7.06	mg/kg	0.000706 %		
			205-912-4	206-44-0									
27		pyrene				6.5	mg/kg		6.5	mg/kg	0.00065 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				2.09	mg/kg		2.09	mg/kg	0.000209 %		
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				2.55	mg/kg		2.55	mg/kg	0.000255 %		
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				2.54	mg/kg		2.54	mg/kg	0.000254 %		
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				1.37	mg/kg		1.37	mg/kg	0.000137 %		
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				2.29	mg/kg		2.29	mg/kg	0.000229 %		
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				1.26	mg/kg		1.26	mg/kg	0.000126 %		
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				0.32	mg/kg		0.32	mg/kg	0.000032 %		
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				1.27	mg/kg		1.27	mg/kg	0.000127 %		
			205-883-8	191-24-2									
36		coronene				0.36	mg/kg		0.36	mg/kg	0.000036 %		
			205-881-7	191-07-1									
37		polychlorobiphenyls; PCB				<0.043	mg/kg		<0.043	mg/kg	<0.0000043 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
38		TPH (C6 to C40) petroleum group				537.4	mg/kg		537.4	mg/kg	0.0537 %		
				TPH									
										Total:	0.108 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No liquid phase present. Hazardous limit used represents less than 1% of the waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0537%)

Classification of sample: 2K5501SR

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

Sample details

Sample name:
2K5501SR
Sample Depth:
0.10 m
Moisture content:
25.1%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 25.1% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.5 mg/kg	1.32	7.262 mg/kg	0.000726 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		30 mg/kg	1.462	43.847 mg/kg	0.00438 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<**LOD**
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		6.1 mg/kg	1.126	6.868 mg/kg	0.000687 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	24 mg/kg	1.56	37.436 mg/kg	0.0024 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<**LOD**
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		12.4 mg/kg	2.976	36.906 mg/kg	0.00369 %		
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		39.4 mg/kg	2.774	109.301 mg/kg	0.0109 %		
11	asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<100 mg/kg		<100 mg/kg	<0.01 %		<**LOD**
12	pH			PH		7.4 pH		7.4 pH	7.4 pH		
13	phenol	604-001-00-2	203-632-7	108-95-2		<0.13 mg/kg		<0.13 mg/kg	<0.000013 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14	●	monohydric phenols		P1186		0.6	mg/kg		0.6	mg/kg	0.00006 %		
15		benzene				<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				0.025	mg/kg		0.025	mg/kg	0.0000025 %		
		601-021-00-3	203-625-9	108-88-3									
17	●	ethylbenzene				0.016	mg/kg		0.016	mg/kg	0.0000016 %		
		601-023-00-4	202-849-4	100-41-4									
18		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				0.042	mg/kg		0.042	mg/kg	0.0000042 %		
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
19		naphthalene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
20	●	acenaphthylene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			205-917-1	208-96-8									
21	●	acenaphthene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			201-469-6	83-32-9									
22	●	fluorene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			201-695-5	86-73-7									
23	●	phenanthrene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			201-581-5	85-01-8									
24	●	anthracene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			204-371-1	120-12-7									
25	●	fluoranthene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			205-912-4	206-44-0									
26	●	pyrene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
32	●	indeno[123-cd]pyrene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
34	●	benzo[ghi]perylene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			205-883-8	191-24-2									
35	●	coronene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			205-881-7	191-07-1									
36	●	polychlorobiphenyls; PCB				<0.047	mg/kg		<0.047	mg/kg	<0.0000047 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
37	●	TPH (C6 to C40) petroleum group				96.488	mg/kg		96.488	mg/kg	0.00965 %		
				TPH									
										Total:	0.0429 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No liquid phase present. Hazardous limit used represents less than 1% of the waste.

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinands:

toluene: (conc.: 2.5e-06%)
ethylbenzene: (conc.: 1.6e-06%)

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

Because of determinands:

o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]: (conc.: 4.2e-06%)
TPH (C6 to C40) petroleum group: (conc.: 0.00965%)

Classification of sample: 2K5501SR[2]

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

Sample details

Sample name:
2K5501SR[2]
Sample Depth:
1.00 m
Moisture content:
10.2%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 10.2% No Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		4.4	mg/kg	1.32	5.809	mg/kg	0.000581 %		
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<**LOD**
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		18.8	mg/kg	1.462	27.477	mg/kg	0.00275 %		
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		<**LOD**
5		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<**LOD**
6		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		6.8	mg/kg	1.126	7.656	mg/kg	0.000766 %		
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	10.3	mg/kg	1.56	16.066	mg/kg	0.00103 %		
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<**LOD**
9		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		18.8	mg/kg	2.774	52.154	mg/kg	0.00522 %		
10		boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5	mg/kg	3.22	<1.61	mg/kg	<0.000161 %		<**LOD**
11		pH			PH		7.4	pH		7.4	pH	7.4 pH		
12		TPH (C6 to C40) petroleum group			TPH		40.9	mg/kg		40.9	mg/kg	0.00409 %		
											Total:	0.0148 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No liquid phase present. Hazardous limit used represents less than 1% of the waste.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00409%)

Classification of sample: 2K5501SR[3]

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

Sample details

Sample name:
2K5501SR[3]
Sample Depth:
6.00 m
Moisture content:
21.3%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 21.3% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		15.4 mg/kg	1.32	20.333 mg/kg	0.00203 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		36 mg/kg	1.462	52.616 mg/kg	0.00526 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		22.1 mg/kg	1.126	24.882 mg/kg	0.00249 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	14 mg/kg	1.56	21.837 mg/kg	0.0014 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		70 mg/kg	2.774	194.19 mg/kg	0.0194 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		4 mg/kg	3.22	12.88 mg/kg	0.00129 %		
11	pH			PH		8.5 pH		8.5 pH	8.5 pH		
12	TPH (C6 to C40) petroleum group			TPH		<25.4 mg/kg		<25.4 mg/kg	<0.00254 %		<LOD
								Total:	0.0346 %		

Key

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

Appendix A: Classifier defined and non GB MCL determinands

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

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

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

monohydric phenols (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

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

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

coronene (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

polychlorobiphenyls; PCB (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

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

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

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass.

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments.

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight.

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight.

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight.

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass.

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.5.5895.10902 (06 Jan 2024)
HazWasteOnline Database: 2024.5.5895.10902 (06 Jan 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023

Waste Classification Report

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

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

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

NBTVP-9FJLQ-MAY9P

Report is invalid if pages are removed.

Job name

Water For Life - Havant Thicket - Section K Phase 3 GI

Description/Comments

Phase 3 GI was carried out between October 2023 and May 2024 by SOCOTEC UK Limited

Laboratory analysis carried out by SOCOTEC Environmental Chemistry

Project

Water for Life

Site

Section K

Classified by

Name:
Samuel Doyle
Date:
16 Dec 2024 16:29 GMT
Telephone:
07505455315

Company:
Stantec UK Ltd
1st Floor, Vision Court
Caxton Place
Cardiff
CF23 8HA

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

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	08 Aug 2024

Next 3 year Refresher due by Aug 2027

Purpose of classification

2 - Material Characterisation

Address of the waste

N/A **Post Code** N/A

SIC for the process giving rise to the waste

42910 Construction of water projects

Description of industry/producer giving rise to the waste

Water Industry

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

Waste created during the excavation for a new pipeline largely through open cut excavation methods.

Description of the waste

Exploratory Hole Locations advanced encountered topsoil, made ground and natural soils

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	3K5511DS	0.1	Non Hazardous		3
2	3K5511DS[2]	1	Non Hazardous		6
3	3K5513HP	0.5	Non Hazardous		9
4	3K5515HP	0.2	Non Hazardous		11
5	3K5515HP[2]	0.5	Non Hazardous		13
6	3K5524CT	0.2	Non Hazardous		15
7	3K5524CT[2]	1	Non Hazardous		17
8	3K5525DR	0.1	Non Hazardous		19
9	3K5525DR[2]	0.5	Non Hazardous		20
10	3K5525DR[3]	2	Non Hazardous		22
11	3K5525DR[4]	6.75	Non Hazardous		24
12	3K5527DR	0.2	Non Hazardous		26
13	3K5527DR[2]	0.5	Non Hazardous		27
14	3K5527DR[3]	3	Non Hazardous		29
15	3K5527DR[4]	8.25	Non Hazardous		31
16	3K5529HP	0.2	Non Hazardous		33
17	3K5529HP[2]	1	Non Hazardous		35
18	3K5530HP	1	Non Hazardous		37
19	3K5531DS	0.5	Non Hazardous		40
20	3K5531DS[2]	3	Non Hazardous		42
21	3K5531DS[3]	5.3	Non Hazardous		44
22	3K5604HP	0.5	Non Hazardous		46
23	3K5606SA	0.5	Non Hazardous		48
24	3K5606SA[2]	4.3	Non Hazardous		50
25	3K5606SA[3]	6.2	Non Hazardous		52
26	3K5607HP	0.2	Non Hazardous		54
27	3K5607HP[2]	0.5	Non Hazardous		56
28	3K5608HP	0.3	Non Hazardous		58
29	3K5608HP[2]	1.1	Non Hazardous		60
30	3K5609HP	1	Non Hazardous		62
31	3K5610HP	0.1	Non Hazardous		65
32	3K5610HP[2]	1	Non Hazardous		67
33	3K5630HP	1	Non Hazardous		69
34	3K7542IT	0.3	Non Hazardous		72
35	3K7542IT[2]	1	Non Hazardous		75
36	3K7544IT	0.1	Non Hazardous		77

Related documents

#	Name	Description
1	GAC Tool Template v4	waste stream template used to create this Job

Report

Created by: Samuel Doyle

Created date: 16 Dec 2024 16:29 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	78
Appendix B: Rationale for selection of metal species	79
Appendix C: Version	80

Classification of sample: 3K5511DS

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

Sample details

Sample name:
3K5511DS
Sample Depth:
0.1 m
Moisture content:
20.5%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 20.5% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14.5 mg/kg	1.32	19.145 mg/kg	0.00191 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		28.2 mg/kg	1.462	41.216 mg/kg	0.00412 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		31.2 mg/kg	1.126	35.128 mg/kg	0.00351 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	30.6 mg/kg	1.56	47.73 mg/kg	0.00306 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		14.5 mg/kg	2.976	43.156 mg/kg	0.00432 %		
10	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		80.8 mg/kg	1.968	159.046 mg/kg	0.0159 %		
11	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.8 mg/kg	3.22	2.576 mg/kg	0.000258 %		
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				0.9 mg/kg	1.884	1.696 mg/kg	0.00017 %		
13	asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
				77536-66-4 77536-68-6 77536-67-5 12001-29-5									
14		pH				7.8	pH		7.8	pH	7.8 pH		
				PH									
15		phenol				0.16	mg/kg		0.16	mg/kg	0.000016 %		
		604-001-00-2	203-632-7	108-95-2									
16		pentachlorophenol				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
17		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
18		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
19		benzene				<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
20		toluene				<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
21		ethylbenzene				<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
22		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
23		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
24		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
25		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
26		phenanthrene				0.23	mg/kg		0.23	mg/kg	0.000023 %		
			201-581-5	85-01-8									
27		anthracene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
			204-371-1	120-12-7									
28		fluoranthene				0.97	mg/kg		0.97	mg/kg	0.000097 %		
			205-912-4	206-44-0									
29		pyrene				0.91	mg/kg		0.91	mg/kg	0.000091 %		
			204-927-3	129-00-0									
30		benzo[a]anthracene				0.54	mg/kg		0.54	mg/kg	0.000054 %		
		601-033-00-9	200-280-6	56-55-3									
31		chrysene				0.49	mg/kg		0.49	mg/kg	0.000049 %		
		601-048-00-0	205-923-4	218-01-9									
32		benzo[b]fluoranthene				1.01	mg/kg		1.01	mg/kg	0.000101 %		
		601-034-00-4	205-911-9	205-99-2									
33		benzo[k]fluoranthene				0.36	mg/kg		0.36	mg/kg	0.000036 %		
		601-036-00-5	205-916-6	207-08-9									
34		benzo[a]pyrene; benzo[def]chrysene				0.81	mg/kg		0.81	mg/kg	0.000081 %		
		601-032-00-3	200-028-5	50-32-8									
35		indeno[123-cd]pyrene				0.6	mg/kg		0.6	mg/kg	0.00006 %		
			205-893-2	193-39-5									
36		dibenz[a,h]anthracene				0.14	mg/kg		0.14	mg/kg	0.000014 %		
		601-041-00-2	200-181-8	53-70-3									
37		benzo[ghi]perylene				0.61	mg/kg		0.61	mg/kg	0.000061 %		
			205-883-8	191-24-2									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
38		coronene				0.15 mg/kg		0.15 mg/kg	0.000015 %		
			205-881-7	191-07-1							
39		TPH (C6 to C40) petroleum group				153 mg/kg		153 mg/kg	0.0153 %		
				TPH							
40		pentachlorobenzene				<0.0062 mg/kg		<0.0062 mg/kg	<0.000000629 %		<LOD
		602-074-00-5	210-172-0	608-93-5							
41		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.025 mg/kg		<0.025 mg/kg	<0.0000025 %		<LOD
		603-181-00-X	216-653-1	1634-04-4							
42		aldrin (ISO)				<0.0126 mg/kg		<0.0126 mg/kg	<0.00000126 %		<LOD
		602-048-00-3	206-215-8	309-00-2							
43		dieldrin (ISO)				<0.0314 mg/kg		<0.0314 mg/kg	<0.00000314 %		<LOD
		602-049-00-9	200-484-5	60-57-1							
44		atrazine (ISO); 2-chloro-4-ethylamine-6-isopropylamine-1,3,5-triazine				<0.0126 mg/kg		<0.0126 mg/kg	<0.00000126 %		<LOD
		613-068-00-7	217-617-8	1912-24-9							
45		dichlorvos (ISO); 2,2-dichlorovinyl dimethyl phosphate				<0.0126 mg/kg		<0.0126 mg/kg	<0.00000126 %		<LOD
		015-019-00-X	200-547-7	62-73-7							
46		endosulfan (ISO); 1,2,3,4,7,7-hexachloro-8,9,10-trinorborn-2-en-5,6-ylenedimethylene sulfite; 1,4,5,6,7,7-hexachloro-8,9,10-trinorborn-5-en-2,3-ylenedimethylene sulfite				0.0692 mg/kg		0.0692 mg/kg	0.00000692 %		
		602-052-00-5	204-079-4	115-29-7							
47		hexachlorocyclohexanes, including lindane				0.0315 mg/kg		0.0315 mg/kg	0.00000315 %		
		602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1							
48		lindane (ISO); g-HCH or g-BHC; g-1,2,3,4,5,6-hexachlorocyclohexane				<0.0062 mg/kg		<0.0062 mg/kg	<0.000000629 %		<LOD
		602-043-00-6	200-401-2	58-89-9							
49		1,2,3-trichlorobenzene				<0.0062 mg/kg		<0.0062 mg/kg	<0.000000629 %		<LOD
			201-757-1	87-61-6							
50		hexachlorobenzene				<0.0126 mg/kg		<0.0126 mg/kg	<0.00000126 %		<LOD
		602-065-00-6	204-273-9	118-74-1							
								Total:	0.0505 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0153%)

Classification of sample: 3K5511DS[2]

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

Sample details

Sample name:
3K5511DS[2]
Sample Depth:
1 m
Moisture content:
23.5%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 23.5% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10 mg/kg	1.32	13.203 mg/kg	0.00132 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25 mg/kg	1.462	36.539 mg/kg	0.00365 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		11.2 mg/kg	1.126	12.61 mg/kg	0.00126 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	20.7 mg/kg	1.56	32.288 mg/kg	0.00207 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		11.9 mg/kg	2.976	35.418 mg/kg	0.00354 %		
10	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		50.4 mg/kg	1.968	99.207 mg/kg	0.00992 %		
11	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.8 mg/kg	3.22	2.576 mg/kg	0.000258 %		
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.7 mg/kg	1.884	<1.319 mg/kg	<0.000132 %		<LOD
13	asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
				77536-66-4 77536-68-6 77536-67-5 12001-29-5									
14		pH				7.3	pH		7.3	pH	7.3 pH		
				PH									
15		phenol				0.54	mg/kg		0.54	mg/kg	0.000054 %		
		604-001-00-2	203-632-7	108-95-2									
16		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.12	mg/kg		<0.12	mg/kg	<0.000012 %		<**LOD**
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
17		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.12	mg/kg		<0.12	mg/kg	<0.000012 %		<**LOD**
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
18		benzene				<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
19		toluene				<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
20		ethylbenzene				<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
21		naphthalene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			201-581-5	85-01-8									
26		anthracene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			204-371-1	120-12-7									
27		fluoranthene				0.16	mg/kg		0.16	mg/kg	0.000016 %		
			205-912-4	206-44-0									
28		pyrene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			205-883-8	191-24-2									
37		coronene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<**LOD**
			205-881-7	191-07-1									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		TPH (C6 to C40) petroleum group				48.3	mg/kg		48.3	mg/kg	0.00483 %		
				TPH									
39		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.026	mg/kg		<0.026	mg/kg	<0.0000026 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
										Total:	0.0284 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%)
because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00483%)

Classification of sample: 3K5513HP

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

Sample details

Sample name:
3K5513HP
Sample Depth:
0.5 m
Moisture content:
24.9%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 24.9% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7.9 mg/kg	1.32	10.431 mg/kg	0.00104 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		29.2 mg/kg	1.462	42.677 mg/kg	0.00427 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		17 mg/kg	1.126	19.14 mg/kg	0.00191 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	15.5 mg/kg	1.56	24.177 mg/kg	0.00155 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		44.3 mg/kg	1.968	87.2 mg/kg	0.00872 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5 mg/kg	3.22	<1.61 mg/kg	<0.000161 %		<LOD
11	pH			PH		7.4 pH		7.4 pH	7.4 pH		
12	TPH (C6 to C40) petroleum group			TPH		36.3 mg/kg		36.3 mg/kg	0.00363 %		
								Total:	0.0215 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00363%)

Classification of sample: 3K5515HP

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

Sample details

Sample name:
3K5515HP
Sample Depth:
0.2 m
Moisture content:
27%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 27% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18.6 mg/kg	1.32	24.558 mg/kg	0.00246 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5 mg/kg	1.142	0.571 mg/kg	0.0000571 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		34.1 mg/kg	1.462	49.839 mg/kg	0.00498 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		27.6 mg/kg	1.126	31.075 mg/kg	0.00311 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	42.2 mg/kg	1.56	65.824 mg/kg	0.00422 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		122.9 mg/kg	1.968	241.916 mg/kg	0.0242 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.1 mg/kg	3.22	3.542 mg/kg	0.000354 %		
11	pH			PH		8.2 pH		8.2 pH	8.2 pH		
12	pentachlorophenol	604-002-00-8	201-778-6	87-86-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
13	TPH (C6 to C40) petroleum group			TPH		534 mg/kg		534 mg/kg	0.0534 %		
14	pentachlorobenzene	602-074-00-5	210-172-0	608-93-5		<0.0013 mg/kg		<0.0013 mg/kg	<0.000000137 %		<LOD
15	aldrin (ISO)	602-048-00-3	206-215-8	309-00-2		<0.0027 mg/kg		<0.0027 mg/kg	<0.000000274 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
16		dieldrin (ISO)				<0.0068 mg/kg		<0.0068 mg/kg	<0.000000685 %		<LOD
		602-049-00-9	200-484-5	60-57-1							
17		atrazine (ISO); 2-chloro-4-ethylamine-6-isopropylamine-1,3,5-triazine				<0.0027 mg/kg		<0.0027 mg/kg	<0.000000274 %		<LOD
		613-068-00-7	217-617-8	1912-24-9							
18		dichlorvos (ISO); 2,2-dichlorovinyl dimethyl phosphate				<0.0027 mg/kg		<0.0027 mg/kg	<0.000000274 %		<LOD
		015-019-00-X	200-547-7	62-73-7							
19		endosulfan (ISO); 1,2,3,4,7,7-hexachloro-8,9,10-trinorborn-2-en-5,6-ylenedimethylene sulfite; 1,4,5,6,7,7-hexachloro-8,9,10-trinorborn-5-en-2,3-ylenedimethylene sulfite				0.0151 mg/kg		0.0151 mg/kg	0.00000151 %		
		602-052-00-5	204-079-4	115-29-7							
20		hexachlorocyclohexanes, including lindane				0.0068 mg/kg		0.0068 mg/kg	0.000000685 %		
		602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1							
21		lindane (ISO); g-HCH or g-BHC; g-1,2,3,4,5,6-hexachlorocyclohexane				<0.0013 mg/kg		<0.0013 mg/kg	<0.000000137 %		<LOD
		602-043-00-6	200-401-2	58-89-9							
22		1,2,3-trichlorobenzene				<0.0013 mg/kg		<0.0013 mg/kg	<0.000000137 %		<LOD
			201-757-1	87-61-6							
23		hexachlorobenzene				<0.0027 mg/kg		<0.0027 mg/kg	<0.000000274 %		<LOD
		602-065-00-6	204-273-9	118-74-1							
								Total:	0.0929 %		

Key

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

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"
Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0534%)

Classification of sample: 3K5515HP[2]

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

Sample details

Sample name:
3K5515HP[2]
Sample Depth:
0.5 m
Moisture content:
23.5%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 23.5% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		3.6 mg/kg	1.32	4.753 mg/kg	0.000475 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		13.6 mg/kg	1.462	19.877 mg/kg	0.00199 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		1.8 mg/kg	1.126	2.027 mg/kg	0.000203 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	2.4 mg/kg	1.56	3.744 mg/kg	0.00024 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		16.6 mg/kg	1.968	32.675 mg/kg	0.00327 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	2.254 mg/kg	0.000225 %		
11	pH			PH		6.4 pH		6.4 pH	6.4 pH		
12	TPH (C6 to C40) petroleum group			TPH		27.1 mg/kg		27.1 mg/kg	0.00271 %		
								Total:	0.00929 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00271%)

Classification of sample: 3K5524CT

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

Sample details

Sample name:
3K5524CT
Sample Depth:
0.2 m
Moisture content:
23%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 23% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11.4 mg/kg	1.32	15.052 mg/kg	0.00151 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		37.9 mg/kg	1.462	55.393 mg/kg	0.00554 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		14.7 mg/kg	1.126	16.551 mg/kg	0.00166 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	16.4 mg/kg	1.56	25.581 mg/kg	0.00164 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		48.6 mg/kg	1.968	95.664 mg/kg	0.00957 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		2.2 mg/kg	3.22	7.084 mg/kg	0.000708 %		
11	pH			PH		8.4 pH		8.4 pH	8.4 pH		
12	TPH (C6 to C40) petroleum group			TPH		<26 mg/kg		<26 mg/kg	<0.0026 %		<LOD
								Total:	0.0234 %		

Key

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

Classification of sample: 3K5524CT[2]

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

Sample details

Sample name:
3K5524CT[2]
Sample Depth:
1 m
Moisture content:
54.6%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 54.6% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12.4	mg/kg	1.32	16.372	mg/kg	0.00164 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		38.4	mg/kg	1.462	56.124	mg/kg	0.00561 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		18.5	mg/kg	1.126	20.829	mg/kg	0.00208 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	14.9	mg/kg	1.56	23.241	mg/kg	0.00149 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		68.9	mg/kg	1.968	135.622	mg/kg	0.0136 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		2.6	mg/kg	3.22	8.372	mg/kg	0.000837 %		
11	pH			PH		8	pH		8	pH	8pH		
12	TPH (C6 to C40) petroleum group			TPH		<44.1	mg/kg		<44.1	mg/kg	<0.00441 %		<LOD
										Total:	0.0298 %		

Key

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

Classification of sample: 3K5525DR

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

Sample details

Sample name:	LoW Code:	
3K5525DR	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.1 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		asbestos 650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
								Total:	0.001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection

Classification of sample: 3K5525DR[2]

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

Sample details

Sample name:
3K5525DR[2]
Sample Depth:
0.5 m
Moisture content:
19.4%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 19.4% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		27.6	mg/kg	1.32	36.441	mg/kg	0.00364 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.7	mg/kg	1.142	0.8	mg/kg	0.00008 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		34.3	mg/kg	1.462	50.131	mg/kg	0.00501 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		148	mg/kg	1.126	166.631	mg/kg	0.0167 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	339.8	mg/kg	1.56	530.025	mg/kg	0.034 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		233.4	mg/kg	1.968	459.424	mg/kg	0.0459 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.6	mg/kg	3.22	1.932	mg/kg	0.000193 %		
11	pH			PH		9.4	pH		9.4	pH	9.4 pH		
12	TPH (C6 to C40) petroleum group			TPH		<24.8	mg/kg		<24.8	mg/kg	<0.00248 %		<LOD
										Total:	0.108 %		

Key

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

Classification of sample: 3K5525DR[3]

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

Sample details

Sample name:
3K5525DR[3]
Sample Depth:
2 m
Moisture content:
21.2%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 21.2% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7.9	mg/kg	1.32	10.431	mg/kg	0.00104 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		**<LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		35.6	mg/kg	1.462	52.031	mg/kg	0.0052 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		**<LOD**
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		**<LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		18.3	mg/kg	1.126	20.604	mg/kg	0.00206 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	12.7	mg/kg	1.56	19.81	mg/kg	0.00127 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		**<LOD**
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		132.1	mg/kg	1.968	260.025	mg/kg	0.026 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		4.8	mg/kg	3.22	15.455	mg/kg	0.00155 %		
11	pH			PH		6.5	pH		6.5	pH	6.5 pH		
12	TPH (C6 to C40) petroleum group			TPH		45.5	mg/kg		45.5	mg/kg	0.00455 %		
										Total:	0.0419 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00455%)

Classification of sample: 3K5525DR[4]

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

Sample details

Sample name:
3K5525DR[4]
Sample Depth:
6.75 m
Moisture content:
19.1%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 19.1% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.5	mg/kg	1.32	12.543	mg/kg	0.00125 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2	mg/kg	1.142	0.228	mg/kg	0.0000228 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		36.5	mg/kg	1.462	53.347	mg/kg	0.00533 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		16	mg/kg	1.126	18.014	mg/kg	0.0018 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	11.5	mg/kg	1.56	17.938	mg/kg	0.00115 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		129	mg/kg	1.968	253.923	mg/kg	0.0254 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		6.5	mg/kg	3.22	20.929	mg/kg	0.00209 %		
11	pH			PH		7.3	pH		7.3	pH	7.3 pH		
12	TPH (C6 to C40) petroleum group			TPH		77.2	mg/kg		77.2	mg/kg	0.00772 %		
										Total:	0.0449 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00772%)

Classification of sample: 3K5527DR

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

Sample details

Sample name:	LoW Code:	
3K5527DR	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.2 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		asbestos 650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
								Total:	0.001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection

Classification of sample: 3K5527DR[2]

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

Sample details

Sample name:
3K5527DR[2]
Sample Depth:
0.5 m
Moisture content:
20%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 20% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		6.2 mg/kg	1.32	8.186 mg/kg	0.000819 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24 mg/kg	1.462	35.077 mg/kg	0.00351 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		8.5 mg/kg	1.126	9.57 mg/kg	0.000957 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	14.2 mg/kg	1.56	22.149 mg/kg	0.00142 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		42 mg/kg	1.968	82.673 mg/kg	0.00827 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	2.254 mg/kg	0.000225 %		
11	pH			PH		7.8 pH		7.8 pH	7.8 pH		
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.013 mg/kg		<0.013 mg/kg	<0.0000013 %		<LOD
13	toluene	601-021-00-3	203-625-9	108-88-3		<0.013 mg/kg		<0.013 mg/kg	<0.0000013 %		<LOD
14	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.013 mg/kg		<0.013 mg/kg	<0.0000013 %		<LOD
15	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
17		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
18		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
19		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
20		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
21		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
22		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
23		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
24		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
25		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
26		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
27		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
28		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
29		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
30		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
31		coronene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-881-7	191-07-1									
32		TPH (C6 to C40) petroleum group				59.9	mg/kg		59.9	mg/kg	0.00599 %		
				TPH									
										Total:	0.0215 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00599%)

Classification of sample: 3K5527DR[3]

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

Sample details

Sample name:
3K5527DR[3]
Sample Depth:
3 m
Moisture content:
22.7%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 22.7% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		28.5 mg/kg	1.32	37.629 mg/kg	0.00376 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		40.7 mg/kg	1.462	59.485 mg/kg	0.00595 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.9 mg/kg	1.405	1.265 mg/kg	0.000126 %		
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		20.9 mg/kg	1.126	23.531 mg/kg	0.00235 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	16.1 mg/kg	1.56	25.113 mg/kg	0.00161 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		103.1 mg/kg	1.968	202.942 mg/kg	0.0203 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.6 mg/kg	3.22	1.932 mg/kg	0.000193 %		
11	pH			PH		9 pH		9 pH	9pH		
12	TPH (C6 to C40) petroleum group			TPH		45.1 mg/kg		45.1 mg/kg	0.00451 %		
								Total:	0.0389 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00451%)

Classification of sample: 3K5527DR[4]

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

Sample details

Sample name:
3K5527DR[4]
Sample Depth:
8.25 m
Moisture content:
24.5%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 24.5% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13.8 mg/kg	1.32	18.22 mg/kg	0.00182 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		30.1 mg/kg	1.462	43.993 mg/kg	0.0044 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		17.4 mg/kg	1.126	19.59 mg/kg	0.00196 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	11.9 mg/kg	1.56	18.562 mg/kg	0.00119 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		98.6 mg/kg	1.968	194.084 mg/kg	0.0194 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5 mg/kg	3.22	<1.61 mg/kg	<0.000161 %		<LOD
11	pH			PH		8.5 pH		8.5 pH	8.5 pH		
12	TPH (C6 to C40) petroleum group			TPH		72.6 mg/kg		72.6 mg/kg	0.00726 %		
								Total:	0.0364 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00726%)

Classification of sample: 3K5529HP

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

Sample details

Sample name:
3K5529HP
Sample Depth:
0.2 m
Moisture content:
20.4%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 20.4% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10.4	mg/kg	1.32	13.731	mg/kg	0.00137 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		**<LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22.5	mg/kg	1.462	32.885	mg/kg	0.00329 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		**<LOD**
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		**<LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		6.3	mg/kg	1.126	7.093	mg/kg	0.000709 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	17.4	mg/kg	1.56	27.141	mg/kg	0.00174 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		**<LOD**
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		37.5	mg/kg	1.968	73.815	mg/kg	0.00738 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.7	mg/kg	3.22	2.254	mg/kg	0.000225 %		
11	pH			PH		7.8	pH		7.8	pH	7.8 pH		
12	TPH (C6 to C40) petroleum group			TPH		35.5	mg/kg		35.5	mg/kg	0.00355 %		
										Total:	0.0184 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00355%)

Classification of sample: 3K5529HP[2]

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

Sample details

Sample name:
3K5529HP[2]
Sample Depth:
1 m
Moisture content:
20.9%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 20.9% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.8	mg/kg	1.32	11.619	mg/kg	0.00116 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		**<LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24.8	mg/kg	1.462	36.247	mg/kg	0.00362 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		**<LOD**
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		**<LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		14.6	mg/kg	1.126	16.438	mg/kg	0.00164 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	13.4	mg/kg	1.56	20.902	mg/kg	0.00134 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		**<LOD**
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		56.4	mg/kg	1.968	111.018	mg/kg	0.0111 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5	mg/kg	3.22	<1.61	mg/kg	<0.000161 %		**<LOD**
11	pH			PH		7.6	pH		7.6	pH	7.6 pH		
12	TPH (C6 to C40) petroleum group			TPH		43.5	mg/kg		43.5	mg/kg	0.00435 %		
										Total:	0.0236 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00435%)

Classification of sample: 3K5530HP

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

Sample details

Sample name:
3K5530HP
Sample Depth:
1 m
Moisture content:
19.1%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 19.1% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.6 mg/kg	1.32	7.394 mg/kg	0.000739 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24.6 mg/kg	1.462	35.954 mg/kg	0.0036 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		14.4 mg/kg	1.126	16.213 mg/kg	0.00162 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	10.9 mg/kg	1.56	17.002 mg/kg	0.00109 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		27.5 mg/kg	2.976	81.847 mg/kg	0.00818 %		
10	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		57.9 mg/kg	1.968	113.97 mg/kg	0.0114 %		
11	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5 mg/kg	3.22	<1.61 mg/kg	<0.000161 %		<LOD
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.6 mg/kg	1.884	<1.13 mg/kg	<0.000113 %		<LOD
13	asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
				77536-66-4 77536-68-6 77536-67-5 12001-29-5									
14		pH				8.2	pH		8.2	pH	8.2 pH		
				PH									
15		phenol				<0.12	mg/kg		<0.12	mg/kg	<0.000012 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
16		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				0.16	mg/kg		0.16	mg/kg	0.000016 %		
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
17		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.12	mg/kg		<0.12	mg/kg	<0.000012 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
18		benzene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
19		toluene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
20		ethylbenzene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
21		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
26		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
27		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
28		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
37		coronene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-881-7	191-07-1									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		TPH (C6 to C40) petroleum group				<24.7	mg/kg		<24.7	mg/kg	<0.00247 %		<**LOD**
				TPH									
39		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.025	mg/kg		<0.025	mg/kg	<0.0000025 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
										Total:	0.0308 %		

Key

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

Classification of sample: 3K5531DS

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

Sample details

Sample name:
3K5531DS
Sample Depth:
0.5 m
Moisture content:
24.2%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 24.2% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14.5 mg/kg	1.32	19.145 mg/kg	0.00191 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5 mg/kg	1.142	0.571 mg/kg	0.0000571 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		31.7 mg/kg	1.462	46.331 mg/kg	0.00463 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		16.8 mg/kg	1.126	18.915 mg/kg	0.00189 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	16.6 mg/kg	1.56	25.893 mg/kg	0.00166 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		66.3 mg/kg	1.968	130.505 mg/kg	0.0131 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.8 mg/kg	3.22	2.576 mg/kg	0.000258 %		
11	pH			PH		7.4 pH		7.4 pH	7.4 pH		
12	TPH (C6 to C40) petroleum group			TPH		161 mg/kg		161 mg/kg	0.0161 %		
								Total:	0.0397 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0161%)

Classification of sample: 3K5531DS[2]

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

Sample details

Sample name:
3K5531DS[2]
Sample Depth:
3 m
Moisture content:
21.9%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 21.9% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9 mg/kg	1.32	11.883 mg/kg	0.00119 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		30.5 mg/kg	1.462	44.577 mg/kg	0.00446 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		21.2 mg/kg	1.126	23.869 mg/kg	0.00239 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	12.8 mg/kg	1.56	19.966 mg/kg	0.00128 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		68.8 mg/kg	1.968	135.426 mg/kg	0.0135 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.2 mg/kg	3.22	3.864 mg/kg	0.000386 %		
11	pH			PH		7.9 pH		7.9 pH	7.9 pH		
12	TPH (C6 to C40) petroleum group			TPH		66.1 mg/kg		66.1 mg/kg	0.00661 %		
								Total:	0.03 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00661%)

Classification of sample: 3K5531DS[3]

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

Sample details

Sample name:
3K5531DS[3]
Sample Depth:
5.3 m
Moisture content:
19.5%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 19.5% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.2	mg/kg	1.32	12.147	mg/kg	0.00121 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2	mg/kg	1.142	0.228	mg/kg	0.0000228 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		18.8	mg/kg	1.462	27.477	mg/kg	0.00275 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		17.8	mg/kg	1.126	20.041	mg/kg	0.002 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	10.1	mg/kg	1.56	15.754	mg/kg	0.00101 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		59.7	mg/kg	1.968	117.513	mg/kg	0.0118 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.1	mg/kg	3.22	3.542	mg/kg	0.000354 %		
11	pH			PH		8.7	pH		8.7	pH	8.7 pH		
12	TPH (C6 to C40) petroleum group			TPH		50.3	mg/kg		50.3	mg/kg	0.00503 %		
										Total:	0.0243 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00503%)

Classification of sample: 3K5604HP

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

Sample details

Sample name:
3K5604HP
Sample Depth:
0.5 m
Moisture content:
21.3%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 21.3% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14.2 mg/kg	1.32	18.749 mg/kg	0.00187 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		41.6 mg/kg	1.462	60.801 mg/kg	0.00608 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		18.9 mg/kg	1.126	21.279 mg/kg	0.00213 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	14.9 mg/kg	1.56	23.241 mg/kg	0.00149 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		74.4 mg/kg	1.968	146.449 mg/kg	0.0146 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5 mg/kg	3.22	<1.61 mg/kg	<0.000161 %		<LOD
11	pH			PH		8.9 pH		8.9 pH	8.9 pH		
12	TPH (C6 to C40) petroleum group			TPH		83.5 mg/kg		83.5 mg/kg	0.00835 %		
								Total:	0.0349 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00835%)

Classification of sample: 3K5606SA

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

Sample details

Sample name:
3K5606SA
Sample Depth:
0.5 m
Moisture content:
24.4%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 24.4% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		42.8	mg/kg	1.32	56.51	mg/kg	0.00565 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.9	mg/kg	1.142	1.028	mg/kg	0.000103 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		27	mg/kg	1.462	39.462	mg/kg	0.00395 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.3	mg/kg	1.405	1.827	mg/kg	0.000183 %		
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		566.2	mg/kg	1.126	637.478	mg/kg	0.0637 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	471.9	mg/kg	1.56	736.077	mg/kg	0.0472 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		1.3	mg/kg	1.353	1.76	mg/kg	0.000176 %		
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		416.6	mg/kg	1.968	820.034	mg/kg	0.082 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5	mg/kg	3.22	<1.61	mg/kg	<0.000161 %		<LOD
11	pH			PH		8.8	pH		8.8	pH	8.8 pH		
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
13	toluene	601-021-00-3	203-625-9	108-88-3		<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
14	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
15	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		acenaphthylene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
			205-917-1	208-96-8									
17		acenaphthene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
			201-469-6	83-32-9									
18		fluorene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
			201-695-5	86-73-7									
19		phenanthrene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
			201-581-5	85-01-8									
20		anthracene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
			204-371-1	120-12-7									
21		fluoranthene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
			205-912-4	206-44-0									
22		pyrene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
			204-927-3	129-00-0									
23		benzo[a]anthracene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
24		chrysene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
25		benzo[b]fluoranthene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
26		benzo[k]fluoranthene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
27		benzo[a]pyrene; benzo[def]chrysene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
28		indeno[123-cd]pyrene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
			205-893-2	193-39-5									
29		dibenz[a,h]anthracene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
30		benzo[ghi]perylene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
			205-883-8	191-24-2									
31		coronene				<0.11	mg/kg		<0.11	mg/kg	<0.000011 %		<LOD
			205-881-7	191-07-1									
32		TPH (C6 to C40) petroleum group				<26.5	mg/kg		<26.5	mg/kg	<0.00265 %		<LOD
				TPH									
										Total:	0.206 %		

Key

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

Classification of sample: 3K5606SA[2]

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

Sample details

Sample name:
3K5606SA[2]
Sample Depth:
4.3 m
Moisture content:
22.9%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 22.9% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13.3	mg/kg	1.32	17.56	mg/kg	0.00176 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2	mg/kg	1.142	0.228	mg/kg	0.0000228 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		26.4	mg/kg	1.462	38.585	mg/kg	0.00386 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		13.9	mg/kg	1.126	15.65	mg/kg	0.00156 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	12.2	mg/kg	1.56	19.03	mg/kg	0.00122 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		57.2	mg/kg	1.968	112.592	mg/kg	0.0113 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.3	mg/kg	3.22	4.186	mg/kg	0.000419 %		
11	pH			PH		7.9	pH		7.9	pH	7.9 pH		
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
13	toluene	601-021-00-3	203-625-9	108-88-3		<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
14	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
15	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
17		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
18		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
19		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
20		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
21		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
22		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
23		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
24		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
25		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
26		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
27		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
28		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
29		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
30		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
31		coronene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-881-7	191-07-1									
32		TPH (C6 to C40) petroleum group				58.3	mg/kg		58.3	mg/kg	0.00583 %		
				TPH									
										Total:	0.0263 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00583%)

Classification of sample: 3K5606SA[3]

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

Sample details

Sample name:
3K5606SA[3]
Sample Depth:
6.2 m
Moisture content:
21.6%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 21.6% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.5	mg/kg	1.32	7.262	mg/kg	0.000726 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20.1	mg/kg	1.462	29.377	mg/kg	0.00294 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		9.5	mg/kg	1.126	10.696	mg/kg	0.00107 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	8.5	mg/kg	1.56	13.258	mg/kg	0.00085 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		42	mg/kg	1.968	82.673	mg/kg	0.00827 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.9	mg/kg	3.22	2.898	mg/kg	0.00029 %		
11	pH			PH		8.1	pH		8.1	pH	8.1 pH		
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
13	toluene	601-021-00-3	203-625-9	108-88-3		<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
14	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
15	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
17		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
18		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
19		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
20		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
21		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
22		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
23		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
24		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
25		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
26		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
27		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
28		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
29		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
30		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
31		coronene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-881-7	191-07-1									
32		TPH (C6 to C40) petroleum group				38.8	mg/kg		38.8	mg/kg	0.00388 %		
				TPH									
										Total:	0.0184 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00388%)

Classification of sample: 3K5607HP

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

Sample details

Sample name:
3K5607HP
Sample Depth:
0.2 m
Moisture content:
12.4%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 12.4% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.3 mg/kg	1.32	6.998 mg/kg	0.0007 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		9.3 mg/kg	1.462	13.592 mg/kg	0.00136 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		39.5 mg/kg	1.126	44.473 mg/kg	0.00445 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	24 mg/kg	1.56	37.436 mg/kg	0.0024 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		52.7 mg/kg	1.968	103.734 mg/kg	0.0104 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5 mg/kg	3.22	<1.61 mg/kg	<0.000161 %		<LOD
11	pH			PH		7.8 pH		7.8 pH	7.8 pH		
12	TPH (C6 to C40) petroleum group			TPH		24.5 mg/kg		24.5 mg/kg	0.00245 %		
								Total:	0.0221 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00245%)

Classification of sample: 3K5607HP[2]

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

Sample details

Sample name:
3K5607HP[2]
Sample Depth:
0.5 m
Moisture content:
16.8%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 16.8% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7.9 mg/kg	1.32	10.431 mg/kg	0.00104 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15.4 mg/kg	1.462	22.508 mg/kg	0.00225 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		0.2 mg/kg	1.923	0.385 mg/kg	0.0000385 %		
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		8.7 mg/kg	1.126	9.795 mg/kg	0.00098 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	6.9 mg/kg	1.56	10.763 mg/kg	0.00069 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		24.1 mg/kg	1.968	47.438 mg/kg	0.00474 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5 mg/kg	3.22	<1.61 mg/kg	<0.000161 %		<LOD
11	pH			PH		7.3 pH		7.3 pH	7.3 pH		
12	TPH (C6 to C40) petroleum group			TPH		<24 mg/kg		<24 mg/kg	<0.0024 %		<LOD
								Total:	0.0125 %		

Key

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

Supplementary Hazardous Property Information

HP 2: Oxidizing "waste which may, generally by providing oxygen, cause or contribute to the combustion of other materials"
Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%) because: CrVI concentrations too low to form chromates.

Hazard Statements hit:

Ox. Sol. 1; H271 "May cause fire or explosion; strong oxidiser."

Because of determinand:

chromium(VI) oxide (compound conc.: 0.00003%)

Classification of sample: 3K5608HP

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

Sample details

Sample name:
3K5608HP
Sample Depth:
0.3 m
Moisture content:
29.8%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 29.8% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.6 mg/kg	1.32	7.394 mg/kg	0.000739 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		29.8 mg/kg	1.462	43.554 mg/kg	0.00436 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		10.4 mg/kg	1.126	11.709 mg/kg	0.00117 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	34.2 mg/kg	1.56	53.346 mg/kg	0.00342 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		45.3 mg/kg	1.968	89.168 mg/kg	0.00892 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.9 mg/kg	3.22	2.898 mg/kg	0.00029 %		
11	pH			PH		8.1 pH		8.1 pH	8.1 pH		
12	TPH (C6 to C40) petroleum group			TPH		51.9 mg/kg		51.9 mg/kg	0.00519 %		
								Total:	0.0243 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00519%)

Classification of sample: 3K5608HP[2]

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

Sample details

Sample name:
3K5608HP[2]
Sample Depth:
1.1 m
Moisture content:
22.2%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 22.2% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8	mg/kg	1.32	10.563	mg/kg	0.00106 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		39.7	mg/kg	1.462	58.024	mg/kg	0.0058 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15.8	mg/kg	1.126	17.789	mg/kg	0.00178 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	15.1	mg/kg	1.56	23.553	mg/kg	0.00151 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		63.8	mg/kg	1.968	125.584	mg/kg	0.0126 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.6	mg/kg	3.22	1.932	mg/kg	0.000193 %		
11	pH			PH		7.8	pH		7.8	pH	7.8 pH		
12	TPH (C6 to C40) petroleum group			TPH		59	mg/kg		59	mg/kg	0.0059 %		
										Total:	0.029 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0059%)

Classification of sample: 3K5609HP

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

Sample details

Sample name:
3K5609HP
Sample Depth:
1 m
Moisture content:
23.5%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 23.5% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.5 mg/kg	1.32	12.543 mg/kg	0.00125 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		36.3 mg/kg	1.462	53.054 mg/kg	0.00531 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		21.2 mg/kg	1.126	23.869 mg/kg	0.00239 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	16.3 mg/kg	1.56	25.425 mg/kg	0.00163 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		34 mg/kg	2.976	101.193 mg/kg	0.0101 %		
10	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		66.4 mg/kg	1.968	130.701 mg/kg	0.0131 %		
11	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.9 mg/kg	3.22	2.898 mg/kg	0.00029 %		
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.7 mg/kg	1.884	<1.319 mg/kg	<0.000132 %		<LOD
13	asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
14		pH				7.9 pH		7.9 pH	7.9 pH		
				PH							
15		phenol				<0.12 mg/kg		<0.12 mg/kg	<0.000012 %		<LOD
		604-001-00-2	203-632-7	108-95-2							
16		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				0.2 mg/kg		0.2 mg/kg	0.00002 %		
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]							
17		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.12 mg/kg		<0.12 mg/kg	<0.000012 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]							
18		benzene				<0.013 mg/kg		<0.013 mg/kg	<0.0000013 %		<LOD
		601-020-00-8	200-753-7	71-43-2							
19		toluene				<0.013 mg/kg		<0.013 mg/kg	<0.0000013 %		<LOD
		601-021-00-3	203-625-9	108-88-3							
20		ethylbenzene				<0.013 mg/kg		<0.013 mg/kg	<0.0000013 %		<LOD
		601-023-00-4	202-849-4	100-41-4							
21		naphthalene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
		601-052-00-2	202-049-5	91-20-3							
22		acenaphthylene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
			205-917-1	208-96-8							
23		acenaphthene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
			201-469-6	83-32-9							
24		fluorene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
			201-695-5	86-73-7							
25		phenanthrene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
			201-581-5	85-01-8							
26		anthracene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
			204-371-1	120-12-7							
27		fluoranthene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
			205-912-4	206-44-0							
28		pyrene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
			204-927-3	129-00-0							
29		benzo[a]anthracene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
		601-033-00-9	200-280-6	56-55-3							
30		chrysene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
		601-048-00-0	205-923-4	218-01-9							
31		benzo[b]fluoranthene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
		601-034-00-4	205-911-9	205-99-2							
32		benzo[k]fluoranthene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
		601-036-00-5	205-916-6	207-08-9							
33		benzo[a]pyrene; benzo[def]chrysene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
		601-032-00-3	200-028-5	50-32-8							
34		indeno[123-cd]pyrene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
			205-893-2	193-39-5							
35		dibenz[a,h]anthracene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
		601-041-00-2	200-181-8	53-70-3							
36		benzo[ghi]perylene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
			205-883-8	191-24-2							
37		coronene				<0.11 mg/kg		<0.11 mg/kg	<0.000011 %		<LOD
			205-881-7	191-07-1							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		TPH (C6 to C40) petroleum group				31.1	mg/kg		31.1	mg/kg	0.00311 %		
				TPH									
39		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.026	mg/kg		<0.026	mg/kg	<0.0000026 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
										Total:	0.0387 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00311%)

Classification of sample: 3K5610HP

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

Sample details

Sample name:
3K5610HP
Sample Depth:
0.1 m
Moisture content:
40.6%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 40.6% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		4.2	mg/kg	1.32	5.545	mg/kg	0.000555 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3	mg/kg	1.142	0.343	mg/kg	0.0000343 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16.8	mg/kg	1.462	24.554	mg/kg	0.00246 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		**<LOD**
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		**<LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		10.9	mg/kg	1.126	12.272	mg/kg	0.00123 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	31.4	mg/kg	1.56	48.978	mg/kg	0.00314 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		**<LOD**
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		55.3	mg/kg	1.968	108.852	mg/kg	0.0109 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.3	mg/kg	3.22	4.186	mg/kg	0.000419 %		
11	pH			PH		7	pH		7	pH	7pH		
12	TPH (C6 to C40) petroleum group			TPH		61.7	mg/kg		61.7	mg/kg	0.00617 %		
										Total:	0.025 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00617%)

Classification of sample: 3K5610HP[2]

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

Sample details

Sample name:
3K5610HP[2]
Sample Depth:
1 m
Moisture content:
23.9%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 23.9% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11.5 mg/kg	1.32	15.184 mg/kg	0.00152 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		27.2 mg/kg	1.462	39.754 mg/kg	0.00398 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		11.5 mg/kg	1.126	12.948 mg/kg	0.00129 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	11.9 mg/kg	1.56	18.562 mg/kg	0.00119 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		44.8 mg/kg	1.968	88.184 mg/kg	0.00882 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5 mg/kg	3.22	<1.61 mg/kg	<0.000161 %		<LOD
11	pH			PH		8.2 pH		8.2 pH	8.2 pH		
12	TPH (C6 to C40) petroleum group			TPH		<26.3 mg/kg		<26.3 mg/kg	<0.00263 %		<LOD
								Total:	0.0198 %		

Key

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

Classification of sample: 3K5630HP

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

Sample details

Sample name:
3K5630HP
Sample Depth:
1 m
Moisture content:
19.1%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 19.1% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.6 mg/kg	1.32	7.394 mg/kg	0.000739 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24.6 mg/kg	1.462	35.954 mg/kg	0.0036 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		14.4 mg/kg	1.126	16.213 mg/kg	0.00162 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	10.9 mg/kg	1.56	17.002 mg/kg	0.00109 %		
8	mercury { rcury dichloride } me	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		27.5 mg/kg	2.976	81.847 mg/kg	0.00818 %		
10	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		57.9 mg/kg	1.968	113.97 mg/kg	0.0114 %		
11	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.5 mg/kg	3.22	<1.61 mg/kg	<0.000161 %		<LOD
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.6 mg/kg	1.884	<1.13 mg/kg	<0.000113 %		<LOD
13	asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
				77536-66-4 77536-68-6 77536-67-5 12001-29-5									
14		pH				8.2	pH		8.2	pH	8.2 pH		
				PH									
15		phenol				<0.12	mg/kg		<0.12	mg/kg	<0.000012 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
16		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				0.16	mg/kg		0.16	mg/kg	0.000016 %		
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
17		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.12	mg/kg		<0.12	mg/kg	<0.000012 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
18		benzene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
19		toluene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
20		ethylbenzene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
21		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
26		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
27		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
28		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
37		coronene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-881-7	191-07-1									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		TPH (C6 to C40) petroleum group				<24.7	mg/kg		<24.7	mg/kg	<0.00247 %		<**LOD**
				TPH									
39		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.025	mg/kg		<0.025	mg/kg	<0.0000025 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
										Total:	0.0308 %		

Key

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

Classification of sample: 3K7542IT

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

Sample details

Sample name:
3K7542IT
Sample Depth:
0.3 m
Moisture content:
18.4%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 18.4% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7.1 mg/kg	1.32	9.374 mg/kg	0.000937 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24.2 mg/kg	1.462	35.37 mg/kg	0.00354 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		9.1 mg/kg	1.126	10.246 mg/kg	0.00102 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	17.5 mg/kg	1.56	27.297 mg/kg	0.00175 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		12.5 mg/kg	2.976	37.203 mg/kg	0.00372 %		
10	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		75.5 mg/kg	1.968	148.614 mg/kg	0.0149 %		
11	asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
12	pH			PH		7.6 pH		7.6 pH	7.6 pH		
13	phenol	604-001-00-2	203-632-7	108-95-2		<0.12 mg/kg		<0.12 mg/kg	<0.000012 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
14		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]									
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]		<0.12 mg/kg		<0.12 mg/kg	<0.000012 %		<LOD
15		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]									
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]		<0.12 mg/kg		<0.12 mg/kg	<0.000012 %		<LOD
16		benzene									
		601-020-00-8	200-753-7	71-43-2		<0.012 mg/kg		<0.012 mg/kg	<0.0000012 %		<LOD
17		toluene									
		601-021-00-3	203-625-9	108-88-3		<0.012 mg/kg		<0.012 mg/kg	<0.0000012 %		<LOD
18		ethylbenzene									
		601-023-00-4	202-849-4	100-41-4		<0.012 mg/kg		<0.012 mg/kg	<0.0000012 %		<LOD
19		naphthalene									
		601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20		acenaphthylene									
			205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21		acenaphthene									
			201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22		fluorene									
			201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23		phenanthrene									
			201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24		anthracene									
			204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25		fluoranthene									
			205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26		pyrene									
			204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27		benzo[a]anthracene									
		601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28		chrysene									
		601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29		benzo[b]fluoranthene									
		601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30		benzo[k]fluoranthene									
		601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31		benzo[a]pyrene; benzo[def]chrysene									
		601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32		indeno[123-cd]pyrene									
			205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33		dibenz[a,h]anthracene									
		601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34		benzo[ghi]perylene									
			205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35		coronene									
			205-881-7	191-07-1		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36		TPH (C6 to C40) petroleum group									
				TPH		39.9 mg/kg		39.9 mg/kg	0.00399 %		
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.025 mg/kg		<0.025 mg/kg	<0.0000025 %		<LOD
								Total:	0.0312 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 10000 mg/kg (1%) because: No liquid phase present. Insufficient concentration to produce a liquid phase. Substances contained in soil matrix includes a moisture content between 12.4% to 54.6%, reducing the risk of flammability.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00399%)

Classification of sample: 3K7542IT[2]

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

Sample details

Sample name:
3K7542IT[2]
Sample Depth:
1 m
Moisture content:
22.3%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 22.3% No Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12.8	mg/kg	1.32	16.9	mg/kg	0.00169 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		46.6	mg/kg	1.462	68.108	mg/kg	0.00681 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.1	mg/kg	1.923	<0.192	mg/kg	<0.0000192 %		<LOD
5	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		10.4	mg/kg	1.126	11.709	mg/kg	0.00117 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	13.8	mg/kg	1.56	21.525	mg/kg	0.00138 %		
8	mercury { rcury dichloride me }	080-010-00-X	231-299-8	7487-94-7		<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
9	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		58.4	mg/kg	1.968	114.954	mg/kg	0.0115 %		
10	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		2.2	mg/kg	3.22	7.084	mg/kg	0.000708 %		
11	pH			PH		7.8	pH		7.8	pH	7.8 pH		
12	TPH (C6 to C40) petroleum group			TPH		<25.7	mg/kg		<25.7	mg/kg	<0.00257 %		<LOD
										Total:	0.026 %		

Key

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

Classification of sample: 3K7544IT

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

Sample details

Sample name:	LoW Code:	
3K7544IT	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:		
0.1 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		asbestos 650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
								Total:	0.001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection

Appendix A: Classifier defined and non GB MCL determinands

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

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

salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

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

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

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

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

- **1,2,3-trichlorobenzene** (EC Number: 201-757-1, CAS Number: 87-61-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 3; H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass.

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments.

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight.

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight.

zinc {trizinc bis(orthophosphate)}

Not enough CrVI to form worst case CLP compound.

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide].

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.347.6405.11699 (12 Dec 2024)
HazWasteOnline Database: 2024.347.6405.11699 (12 Dec 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023
GB MCL List v3.0 - version 3.0 of 11th January 2024
GB MCL List v4.0 - version 4.0 of 2nd March 2024
GB MCL List v5.0 - version 5.0 of 26th June 2024

Appendix F: Gas Monitoring Results

Table F1: Ground Gas Monitoring Results Summary for 2K5500SR

Peak Gas Concentrations (minimum for Oxygen)								
Monitoring Date	CH_4 %vol	CO_2 %vol	O_2 %vol	CO ppm	H_2S ppm	VOC ppmv	Max Gas Flow Rate (pk) l/hr	Atmospheric Pressure (mbar)
24 May 2023	0.3	0.1	18.1	3	1	0.2	20.9*	1024
19 June 2023	0.4	0.3	17.5	2	1	<0.1	0.4*	1023
18 July 2023	<0.1	0.1 [A]	20.3	<1	1	0.5	<0.1	1016
15 August 2023	<0.1 [B]	0.6 [B]	18.2 [B]	1 [B]	1 [B]	0.9[C]	**	1015
12 September 2023	<0.1	0.3 [A]	20.4 [A]	<1	<1	0.3	<0.1	1012
10 October 2023	<0.1	0.3 [A]	20.9 [A]	<1	<1	0.1	<0.1	1016
13 November 2023	0.6	0.6	19.8 [A]	<1	<1	<0.1	**	996
30 November 2023	2	-	17.5	4	-	0	-	998
12 December 2023	-	-	-	-	-	0.3	-	997

Peak Gas Concentrations (minimum for Oxygen)								
Monitoring Date	CH_4 %vol	CO_2 %vol	O_2 %vol	CO ppm	H_2S ppm	VOC ppmv	Max Gas Flow Rate (pk) l/hr	Atmospheric Pressure (mbar)
10 January 2024	0.1	0.2	21.3	-	-	<0.1	-	1025
23 January 2024	-	-	8.8	-	-	0.8	-8.6	1013
9 February 2024	-	-	-	-	-	-	-	976
7 March 2024	-	-	-	-	-	-	-	1014
4 April 2024	0.8	0.1	19.1	0	-	0.5	<0.1	1004

*Pump flow failed
**Pump flow failed after 2 minutes
CH_4 - Methane, CO_2 – Carbon Dioxide, O_2 – Oxygen, CO – Carbon Monoxide, H_2S – Hydrogen Sulphide, VOC – Volatile Organic Compounds.
ppmv - Part per Million Volume
[A] Concentration as reported in the AGS.
[B] Concentration as report in Final Factual Report (SOCOTEC, 2023)
[C] Concentrations report as VOC in AGS format

Table F2: Ground Gas Monitoring Results Summary for 2K5501SR

Peak Gas Concentrations (minimum for Oxygen)								
Monitoring Date	CH_4 %vol	CO_2 %vol	O_2 %vol	CO ppm	H_2S ppm	VOC ppmv	Max Gas Flow Rate (pk) l/hr	Atmospheric Pressure (mbar)
09 April 2024	8.7	2.3	16.2	0	25	6.4	0	1004

CH_4 - Methane, CO_2 – Carbon Dioxide, O_2 – Oxygen, CO – Carbon Monoxide, H_2S – Hydrogen Sulphide, VOC – Volatile Organic Compounds.
ppmv - Part per Million Volume

Table F3: Ground Gas Monitoring Results Summary for 3K5525DR

Peak Gas Concentrations (minimum for Oxygen)								
	CH_4 %vol	CO_2 %vol	O_2 %vol	CO ppm	H_2S ppm	VOC ppmv	Max Gas Flow Rate (pk) l/hr	Atmospheric Pressure (mbar)
30 November 2023	0.1	0.7	17.5	4	<1	<0.1	3.9	993
11 December 2023	<1	1.5	6.2	<1	<1	<0.1	None recorded	998
10 January 2024	0.1	1.9	1	<1	<1	0.4	-19.3	1019
23 January 2024	0.1	2.1	8.8	<1	<1	0.6	-8.6	1009
8 February 2024	0.1	2.2	9.3	<1	<1	<0.1	<0.1	986
8 March 2024	0.2	2.6	6.4	<1	<1	<0.1	-0.1	997
9 April 2024	0.1	0.3	19.3	0	<10	<0.1	46.3	995

CH_4 - Methane, CO_2 – Carbon Dioxide, O_2 – Oxygen, CO – Carbon Monoxide, H_2S – Hydrogen Sulphide, VOC – Volatile Organic Compounds.
ppmv - Part per Million Volume

Table F4: Ground Gas Monitoring Results Summary for 3K5606SA

Peak Gas Concentrations (minimum for Oxygen)								
	CH_4 %vol	CO_2 %vol	O_2 %vol	CO ppm	H_2S ppm	VOC ppmv	Max Gas Flow Rate (pk) l/hr	Atmospheric Pressure (mbar)
30 November 2023	0.1	0.1	22.2	1	<1	<0.1	<0.1	998
11 December 2023	0.1	<0.1	21.4	3	<1	1.9	-0.1	998
10 January 2024	0.1	0.1	9.6	10	<1	1.1	-15.1	1033
23 January 2024	0.1	0.1	19.6	<1	<1	0.8	None recorded	1013
8 February 2024	0.1	0.6	19	<1	<1	<0.1	-0.2	986
8 March 2024	0.2	3.2	14.4	<1	<1	0.7	-12.7	1001
9 April 2024	<0.1	0.1	19,3	0	<10	<0.1	54.1	997

CH_4 - Methane, CO_2 – Carbon Dioxide, O_2 – Oxygen, CO – Carbon Monoxide, H_2S – Hydrogen Sulphide, VOC – Volatile Organic Compounds.
ppmv - Part per Million Volume

Appendix G: Guidance for the Assessment of Land Contamination

Selection of Soil Assessment Criteria Protective of Human Health

Generic Assessment Criteria (GAC)

To evaluate potential risks to human health receptors, including future Site users, the soil analytical results have been assessed against the following Generic Assessment Criteria (GAC):

- Suitable for Use Values (S4ULs) for commercial land use (Nathanail et al, 2015) adopting a 1% soil organic matter (SOM) value.
- Lead was compared against the Defra Category 4 Screening Level (C4SL) for a commercial end use, (Defra, 2014) because a S4UL for lead has not been published, also adopting a 1% SOM value.
- Cyanide (free) was compared to the Society of Brownfield Risk Assessment (SoBRA) Acute Generic Risk Assessment criteria for assessing risks to human health from contaminants in soil (Society of Brownfield Risk Assessment (SoBRA), 2020) since there are currently no C4SLs or S4ULs for cyanide. The assessment criteria used evaluates potential for acute harm to a child by inhalation of free cyanide. This is a conservative assessment criterion used as generic assessment criteria as allows the criteria to be adjusted if the Site-specific conditions are suitable.

The GAC for a Commercial/industrial end-use have been selected as these are considered to be the most appropriate for the protection of construction workers undertaking the development and the maintenance workers who may undertake maintenance/operational work at these locations. The GAC have been generated assuming short exposure periods over a long timescale.

The GAC have been generated using assumptions regarding soil characteristics. Where the published GAC are dependent upon Soil Organic Matter (SOM), a value of 1% has been used to provide a conservative assessment. Consideration of the default soil properties used to generate the soil GAC for protection of human health is important as these influence the fate, transport and behaviour of contaminants.

- Soil type – the model default is set as Sandy Loam and assumes a dry and relatively porous soil. The default is considered sufficiently similar to the soils which are variably clayey/ sandy.
- pH – pH influences the cation exchange capacity and the portioning behaviour of a chemical between soil and water. The default is pH 7. The ground encountered have been found to have a pH of typically between 7.4 and 8.7.

Selection of Water Assessment Criteria Protective of Aquatic Eco-Systems (Controlled Waters)

Generic Assessment Criteria (GAC)

To evaluate potential risks to human health and controlled waters receptors, including the underlying Secondary A Aquifers and nearby surface water receptor such as the River Hamble and the unnamed watercourse, the leachate analysis results (2:1) and groundwater analysis results were assessed against the following:

- Environmental Quality Standards (EQS) annual average (AA) concentrations and maximum allowable concentrations (MAC) used where there is no AA.
- In the absence of a TPH threshold within the Water Supply [2](Water Quality) Regs 2021, the value of 10 µg/l as presented within the withdrawn Water Supply (Water Quality) Regs 1989 has been used for reference purposes. These thresholds are considered protective of human health.

When assessing ground condition data and the potential to harm Controlled Waters, the approach presented in Groundwater Protection Policy and Practice (GP3) (EA, 2017) has been used.

Bioavailable Environmental Quality Standards (EQS)

Bioavailable Environmental Quality Standards (EQS) have been developed for UK Specific Pollutants copper, zinc and manganese and the EU priority substances lead and nickel. An EQS is the concentration of a chemical in the environment below which there is not expected to be an adverse effect on the specific endpoint being considered, e.g., the protection of aquatic life.

The bioavailability of a metal depends on a number of physico-chemical factors which govern both metal behaviour and the interactions of the toxic forms of the metals with a biological receptor.

The EQS bioavailable corresponds to the bioavailable fraction (BioF) of dissolved metal in a sample, as determined by the physico-chemical characteristics of the water and can be calculated using a biotic ligand model (BLM) or other calculation method. To assess compliance, the bioavailable fraction of dissolved metal can be compared to the EQS bioavailable. However, bioavailable metal is not the same metric as dissolved metal as only a fraction of the dissolved metal will usually be bioavailable.

It is very difficult to measure the bioavailable concentration of a metal directly. Biotic Ligand Models (BLMs) are a predictive tool that can take account of water quality parameters such as pH, and calcium to determine the amount of bioavailable metal present. However, the complexity of the models, the runtime per sample, input data requirements and level of operator skill needed to interpret the model outputs mean that few regulatory organisations have adopted the full BLMs. The UK has developed simplified Metal Bioavailability Assessment Tool (M-BAT) for copper, zinc, nickel and manganese.

Geo-environmental laboratory analyses required to generate Site-specific Predicted No Effect Concentrations (PNEC) suitable for the protection of the identified receptors has not been undertaken. On this basis, to provide

[1] DWI (2021) Guidance on The Water Supply (Water Quality) Regulations 2016 (as amended) specific to PFOS and PFOA concentrations in drinking water DWI, January 2021.

a conservative assessment the results have been compared against the EQS for copper, zinc, manganese, lead and nickel without a correction for bioavailability.

Limit of Detection vs. Generic Assessment Criteria (GAC)

Where the concentration of a determinand is below the limits of detection and the limits of detection are below the relevant threshold criterion, the concentrations recorded are not considered to present a hazard to human health or controlled waters.

Where the concentration of a determinand is below the limit of detection and the limit of detection is greater than the relevant threshold criterion, ultra-low analysis or further Detailed Quantitative Risk Assessment would be required to robustly conclude that these can be eliminated as hazards.

Appendix H: Risk Assessment Tables

Table H1: Contaminated Land Risk Assessment for Section K

PSC 119	Infilled Land - Channel – Section K (2K5501SR)					
Potential Source of Contamination	**Potential Contaminants of Concern**	**Potential Receptors**	**Potential Pathways**	**Potential Consequence of Pollutant Linkage**	**Probability of Pollutant Linkage**	**Risk (without mitigation measures)**
Infilled Channels (on Site). Made Ground with potential for infill of unknown material. Location of proposed trenchless crossing.	Potential for metals, inorganics, asbestos, petroleum hydrocarbons, PAHs, BTEX, total phenols and ground gas (methane, carbon dioxide, carbon monoxide, hydrogen sulphide). Findings of GI: ▪ No Made Ground encountered at 2K5501SR. No exceedances of GAC in soil. No asbestos detected. ▪ Exceedances the GAC for TPH, metals and PAHs (fluoranthene), total ammonia (N) and phenol in groundwater. ▪ Exceedance of the GAC for total ammonia (N) and ammonium (NH_4) in soil leachate. ▪ Ground gas monitoring recorded peak concentrations of methane at 8.7 % vol, carbon dioxide at 2.3 % vol, VOCs at 6.4 ppm and hydrogen sulphide at 25 ppm.	**Construction, maintenance workers and future Site users:** Construction workers during open cut excavations/construction, maintenance workers during operation.	Direct dermal contact, ingestion and inhalation of dusts.	Medium	Low Likelihood	Moderate/Low*
			Inhalation of gases and vapours	Medium	Low Likelihood	Moderate/Low*
		Adjacent land users: Farmland.	Direct dermal contact, ingestion and inhalation of dusts, gases and vapours during excavation works and stockpiling.	Medium	Low Likelihood	Moderate/Low
		On Site existing and future property (buildings and buried services): No building structures as part of scheme.	Direct contact and gas migration / accumulation.	Medium	Unlikely No existing or future buildings proposed. Trenchless reception pit is a temporary structure	Low
		Surface water bodies/watercourses: River Hamble 65 m south. A tributary to the River Hamble 45 m west. A field drain may have been present > 10m of GI location. Temporary reception pits to be constructed	Surface water runoff from stockpiles and migration through groundwater and underground utilities.	Medium	Likely	Moderate
		Groundwater: Superficial deposits River Terrace Deposits (Secondary A Aquifer) and Alluvium (Secondary A Aquifer). Bedrock is London Clay Formation (unproductive stratum)).	Leaching through unsaturated and saturated soil.	Medium	Likely	Moderate
		Ecological receptors (flora and fauna): No statutory designated areas within 250m.	Plant uptake, direct contact, ingestion and inhalation of dusts, gases and vapours by animals.	Mild	Unlikely	Very Low

* The potential for the presence of gas and the associated risks during trenchless crossing techniques will need to be evaluated and assessed in accordance with BS 6164:2019 H&S in Tunnelling in the Construction Industry - Code of Practice.

Table H2: Contaminated Land Risk Assessment for Section K

PSC 132	Infilled Land - Pond – Section K (2K5502DS, 2K5503DS, 2K5534DS and 2K5535DS)					
Potential Source of Contamination	**Potential Contaminants of Concern**	**Potential Receptors**	**Potential Pathways**	**Potential Consequence of Pollutant Linkage**	**Probability of Pollutant Linkage**	**Risk (without mitigation measures)**
Former pond (potential for infill of unknown material) (on Site). Proposed route crosses the former pond.	Potential for metals, inorganics, asbestos, petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene (BTEX), total phenols and ground gas (methane, carbon dioxide, hydrogen sulphide). Findings of GI: ▪ Made Ground encountered at one GI location only to 0.6 m bgl, ▪ No soil chemical data provided by the GI (lab error) but no visual/olfactory evidence of contamination. GI locations terminated at 0.9 m bgl (hand pits) due to high water table and soft ground conditions, hence due to the absence of GI data a moderate/low risk rating has been applied for construction, maintenance workers, and future site users. ▪ No installation for gas/ groundwater monitoring.	**Construction, maintenance workers and future Site users:** Construction workers during open cut excavations/construction, maintenance workers during operation.	Direct dermal contact, ingestion and inhalation of dusts	Medium	Low Likelihood	Moderate/Low Due to a lack of available GI data
			Inhalation of gases and vapours	Medium	Low Likelihood Due to lack of available GI data	Moderate/Low Due to a lack of available GI data
		Adjacent land users: Farmland, closest residential properties approximately 60m northeast of pipeline.	Direct dermal contact, ingestion and inhalation of dusts, gases and vapours during excavation works and stockpiling.	Mild	Low Likelihood	Low
		On Site existing and future property (buildings and buried services): No building structures present or proposed as part of scheme.	Direct contact and gas migration/ accumulation.	Mild	Unlikely Infilled areas may be present, no existing or future buildings proposed.	Very Low
		Surface water bodies/watercourses: Drain flows in a southwest direction across the former pond area. A tributary to Ford Lake.	Surface water runoff from stockpiles and migration through groundwater and underground utilities.	Medium	Low Likelihood	Moderate/Low Due to a lack of available GI data
		Groundwater: London Clay Formation (unproductive stratum). Within a groundwater Source Protection Zone II.	Leaching through unsaturated and saturated soil.	Mild	Low Likelihood London Clay is likely to limit potential contaminant migration.	Low
		Ecological receptors (flora and fauna): No statutory designated areas within 250m.	Plant uptake, direct contact, ingestion and inhalation of dusts, gases and vapours by animals.	Mild	Unlikely	Very Low

Table H3: Contaminated Land Risk Assessment for Section K

	Infilled Land – Made Ground (asbestos) – Section K (2K5500SR)					
Potential Source of Contamination	**Potential Contaminants of Concern**	**Potential Receptors**	**Potential Pathways**	**Potential Consequence of Pollutant Linkage**	**Probability of Pollutant Linkage**	**Risk (without mitigation measures)**
Made Ground with potential for infill of unknown material (on Site). Location of trenchless crossing. 2K5500SR located c. 65 m south of PSCs 121, 122 and 123 (Infilled Land – Channels).	Potential for metals, inorganics, asbestos, petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene (BTEX), total phenols and ground gas. Potential for ground gas from PSCs 121, 122 and 123 Findings of GI: ■ No exceedances of GAC in soil. However, asbestos cement (Chrysotile) identified in Made Ground at 2K5500SR at 0.5 m bgl at southern point of trenchless crossing (south of Botley Road). Concentration of asbestos exceeds the hazardous properties threshold. ■ Exceedances of the GAC for TPH (max. 42,200 µg/l), metals, total ammonia (N), ammonia and PAHs (fluoranthene and benzo(ghi)perylene) in groundwater. ■ Ground gas monitoring detected peak concentrations of methane at 0.6% vol, carbon dioxide at 0.6 % vol, carbon monoxide at 4 ppm and hydrogen sulphide at 1 ppm, with a minimum concentration of oxygen at 8.8% vol.	**Construction, maintenance workers and future Site users:** Construction workers during open cut excavations/construction, maintenance workers during operation.	Direct dermal contact, ingestion and inhalation of dusts (asbestos fibres).	Severe	Likely	High* At location where asbestos identified
			Inhalation of gases and vapours	Medium	Low Likelihood	Moderate/Low* Based on recorded concentrations
		Adjacent land users: Farmland.	Direct dermal contact, ingestion and inhalation of dusts (asbestos fibres).	Medium	Likely	Moderate At location where asbestos identified
			Inhalation of gases and vapours during excavation works and stockpiling.	Medium	Unlikely	Low
		On Site existing and future property (buildings and buried services): No building structures as part of scheme.	Direct contact and gas migration / accumulation.	Medium	Unlikely No existing or future buildings proposed. Trenchless reception pit is a temporary structure	Low
		Surface water bodies/watercourses: Trenchless crossing beneath River Hamble. Temporary reception pits to be constructed	Surface water runoff from stockpiles and migration through groundwater and underground utilities.	Medium	Likely	Moderate
		Groundwater: Superficial deposits River Terrace Deposits (Secondary A Aquifer) and Alluvium (Secondary A Aquifer). Bedrock is London Clay Formation (unproductive stratum).	Leaching through unsaturated and saturated soil.	Medium	Likely Notable TPH concentrations detected in groundwater	Moderate
		Ecological receptors (flora and fauna): No statutory designated areas within 250m.	Plant uptake, direct contact, ingestion and inhalation of dusts, gases and vapours by animals.	Mild	Unlikely	Very Low

* The potential for the presence of gas and the associated risks during trenchless crossing techniques will need to be evaluated and assessed in accordance with BS 6164:2019 H&S in Tunnelling in the Construction Industry - Code of Practice.

Table H4: Contaminated Land Risk Assessment for Section K

PSC 530	Worked Ground - unspecified – Section K (3K5511DS)					
Potential Source of Contamination	**Potential Contaminants of Concern**	**Potential Receptors**	**Potential Pathways**	**Potential Consequence of Pollutant Linkage**	**Probability of Pollutant Linkage**	**Risk (without mitigation measures)**
Worked Ground - unspecified (on Site). Made Ground with potential for infill of unknown material.	Potential for metals, inorganics, asbestos, petroleum hydrocarbons, PAHs, BTEX, total phenols and ground gas (methane, carbon dioxide, carbon monoxide, hydrogen sulphide). Findings of GI: ▪ Made Ground encountered to 1.6 m bgl in 3K5511DS. No exceedances of GAC in soil. No asbestos detected. ▪ No soil leachate, groundwater or ground gas monitoring data.	**Construction, maintenance workers and future Site users:** Construction workers during open cut excavations/construction, maintenance workers during operation.	Direct dermal contact, ingestion and inhalation of dusts.	Medium	Unlikely	Low
			Inhalation of gases and vapours	Medium	Low Likelihood No gas data available	Moderate/Low
		Adjacent land users: Farmland.	Direct dermal contact, ingestion and inhalation of dusts, gases and vapours during excavation works and stockpiling.	Medium	Unlikely	Low
		On Site existing and future property (buildings and buried services): No building structures as part of scheme.	Direct contact and gas migration / accumulation.	Medium	Unlikely No existing or future buildings proposed	Low
		Surface water bodies/watercourses: On Site drainage channel.	Surface water runoff from stockpiles and migration through groundwater and underground utilities.	Medium	Low Likelihood	Moderate/Low
		Groundwater: Superficial deposits Alluvium (Secondary A Aquifer). Bedrock is (London Clay Formation (unproductive stratum)).	Leaching through unsaturated and saturated soil.	Medium	Low Likelihood	Moderate/Low
		Ecological receptors (flora and fauna): No statutory designated areas within 250m.	Plant uptake, direct contact, ingestion and inhalation of dusts, gases and vapours by animals.	Mild	Unlikely	Very Low

Table H5: Contaminated Land Risk Assessment for Section K

PSC No. N/A	Section K (3K5606SA)					
Potential Source of Contamination	**Potential Contaminants of Concern**	**Potential Receptors**	**Potential Pathways**	**Potential Consequence of Pollutant Linkage**	**Probability of Pollutant Linkage**	**Risk (without mitigation measures)**
N/A	Findings from GI: ▪ Exceedances of groundwater GAC for fluoranthene, sulphate, TPH (max. 7,210 µg/l), total ammonia (N) and ammonium (NH_4). ▪ Carbon dioxide concentrations exceed STL gas thresholds. ▪ No exceedances of GAC in soil. No soil leachate testing completed.	**Construction, maintenance workers and future Site users:** Construction workers during open cut excavations/construction, maintenance workers during operation.	Direct dermal contact (soils and groundwater), ingestion and inhalation	Medium	Unlikely	Low
			Inhalation of gases and vapours	Medium	Low Likelihood	Moderate/Low
		Adjacent land users: Farmland, closest residential properties approximately 60 m northeast of DoL.	Direct dermal contact, ingestion and inhalation of dusts, gases and vapours during excavation works and stockpiling.	Medium	Unlikely	Low
		On Site existing and future property (buildings and buried services): No building structures as part of scheme.	Direct contact	Medium	Unlikely	Low
		Surface water bodies/watercourses: Unnamed tributary of the River Hamble located approximately 40 m east.	Surface water runoff from stockpiles and migration through groundwater and underground utilities.	Medium	Low Likelihood (Potential risk of run-off. Although high TPH concentration detected in groundwater, London Clay is likely to limit potential contaminant migration to surface water).	Moderate / Low
		Groundwater: Bedrock is London Clay Formation (unproductive stratum).	Leaching through unsaturated and saturated soil.	Mild	Unlikely (London Clay will limit migration)	Very Low
		Ecological receptors (flora and fauna): No statutory designated areas within 250m.	Plant uptake, direct contact, ingestion and inhalation of dusts, gases and vapours by animals.	Mild	Unlikely	Very Low

Table H6: Contaminated Land Risk Assessment for BPT-K AGP within Section K

PSC 474	Wintershill Hall (former military/civilian base) - Section K (3K5521CT, 3K5540CT, 3K5541CT, 3K5525DR and 3K5527DR)					
Potential Source of Contamination	**Potential Contaminants of Concern**	**Potential Receptors**	**Potential Pathways**	**Potential Consequence of Pollutant Linkage**	**Probability of Pollutant Linkage**	**Risk (without mitigation measures)**
Wintershill Hall (military/civilian base) located approximately 35 m south of BPT-K.	Potential for metals, inorganics, asbestos, petroleum hydrocarbons, PAHs, volatile organic compounds (VOCs) and total phenols. Findings of GI: ▪ No exceedances of GAC in soil. No asbestos detected. ▪ Exceedances of GAC for TPH and chloride in groundwater (3K5525DR). ▪ Exceedance of the GAC for phenol in soil leachate (3K5525DR). ▪ Ground gas detected coupled with high flow rates. The GSV for 3K5525DR corresponds to a moderate risk (CS3) whereby gas protection measures would be required for new buildings. The gas source detected during GI may not be attributable to PSC 474.	**Construction, maintenance workers and future Site users:** Construction workers during open cut excavations/construction, maintenance workers during operation.	Direct dermal contact, ingestion and inhalation of dusts	Medium	Unlikely	Low
			Inhalation of gases and vapours	Severe	Low likelihood	Moderate
		Adjacent land users: arable farming	Direct dermal contact, ingestion and inhalation of dusts, gases and vapours during excavation works and stockpiling	N/A for PSCs outside BPT-K		
		On Site existing and future property (buildings and buried services): AGP BPT-K	Direct contact and gas migration/ accumulation	Medium	Unlikely	Low
			Gas migration and accumulation	Severe	Low likelihood	Moderate
		Surface water bodies/watercourses: None within 250 m	Surface water runoff from stockpiles and migration through groundwater and underground utilities.	N/A for a PSC outside BPT-K		
		Groundwater: London Clay Formation (unproductive stratum).	Leaching through unsaturated and saturated soil.	Mild	Unlikely London Clay is likely to limit potential contaminant migration.	Very Low
		Ecological receptors (flora and fauna): Kimbers Copse, an ancient woodland c.185 m southeast.	Plant uptake, direct contact, ingestion and inhalation of dusts, gases and vapours by animals.	N/A for a PSC outside BPT-K		

Appendix I: Risk Assessment Methodology

Risk Assessment Methodology

Risk Classification Methodology

The method of risk evaluation adopted in this document is consistent with CIRIA C552 (2001). Hence, risk is considered to be a function of both the probability (likelihood) of contamination occurring at the study site and also the potential severity (consequence) of the environmental impacts associated with this contamination.

The classification system used to define contaminant probability, consequence and risk is described in the following tables.

Table A: Classification of probability

Classification	Definition
High Likelihood	There is a contaminant linkage and an event that appears either very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a contaminant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term, and likely over the long term.
Low Likelihood	There is a contaminant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place and is less likely in the shorter term.
Unlikely	There is contaminant linkage but circumstances are such that it is improbable that an event would occur even in the long term.

Table B: Classification of consequence

Classification	Receptor	Definition	Examples
Severe	Humans	Short-term (acute) risk to human health likely to result in "significant harm" as defined in the Environmental Protection Act 1990, Part 2a.	High concentrations of cyanide on the surface of an informal recreation area
	Controlled waters	Short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource	Major spillage of contaminants from site into controlled water
	Property	Catastrophic damage to buildings/property	Explosion, causing building collapse (can also equate to an acute human health risk if buildings are occupied)
	Ecology	A short-term risk to a particular ecosystem, or organism forming part of such eco-system	Potentially long term derogation of a designated site or protected species
Medium	Humans	Chronic damage to human health ("significant harm" as defined in the Environmental Protection Act 1990, Part 2a.)	Concentrations of a contaminant from a residential site exceed the site-specific assessment criteria
	Controlled waters	Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering significance of pollution)	Leaching of contaminants from a site to a principal or secondary aquifer
	Property	Significant damage to crops, buildings, structures and services	Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
	Ecology	A significant change in a particular ecosystem	Death of a species within a designated nature reserve
Mild	Humans	Contamination present although unlikely to constitute a significant chronic health risk	Concentrations of a contaminant from a public access site moderately exceed the generic assessment criteria
	Controlled waters	Pollution of non-water resources	Pollution of non-classified groundwater
	Property	Damage to sensitive. buildings/structures/services	Aggressive ground conditions leading to potential for long term degradation of buried concrete
	Ecology	Damage to the environment	Localised damage to aquatic habitat causing temporary relocation of certain species
Minor	Humans	Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.)	The presence of contaminants at such concentrations that protective equipment is required during site works.
	Controlled waters	Potential minor release of contamination to local water features	Short term or low volume release of potentially polluting material to a secondary surface water course of low existing quality
	Property	Easily reparable effects of damage to buildings, structures and services. Harm which may result in a financial loss, or expenditure to resolve.	The loss of plants in a landscaping scheme. Discolouration of concrete
	Ecology	Short term, localised damage may occur; consequences are spatially and temporally limited	Short term or localised disruption to in situ flora or fauna; no lasting effects

Table C: Risk classification (comparison of consequence and probability)

Probability (likelihood)		Consequence (severity)			
		Severe	***Medium***	***Mild***	***Minor***
	High likelihood	Very high risk	High risk	Moderate risk	Moderate/low risk
	Likely	High risk	Moderate risk	Moderate/low risk	Low risk
	Low likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely	Moderate/low risk	Low risk	Very low risk	Very low risk

Appendix J: Bearing Resistance and Settlement at BPT-K

FOUNDATION ANALYSIS

In accordance with EN1997-1:2004 + A1:2013 incorporating corrigendum February 2009 and the UK National Annex incorporating corrigendum No.1

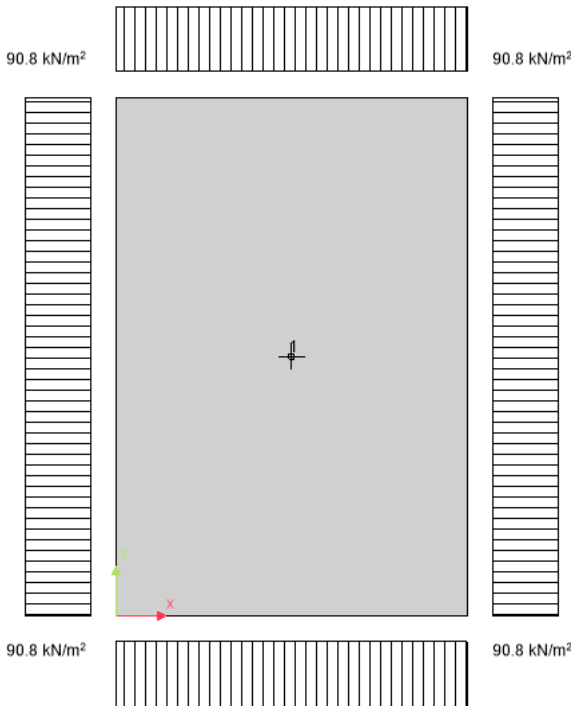
Tedds calculation version 3.3.05

Summary table

Description	Unit	Allowable	Actual	Utilisation	Result
Base pressure	kN/m²	625.6	90.8	0.145	Pass

Pad foundation details

Length of foundation	L_x = **21000** mm
Width of foundation	L_y = **31000** mm
Foundation area	$A = L_x \times L_y$ = **651.000** m²
Depth of foundation	h = **600** mm
Depth of soil over foundation	h_{soil} = **600** mm
Level of water	h_{water} = **0** mm
Density of water	γ_{water} = **9.8** kN/m³
Density of concrete	γ_{conc} = **25.0** kN/m³



Column no.1 details

Length of column	l_{x1} = **300** mm
Width of column	l_{y1} = **300** mm
position in x-direction	x_1 = **10500** mm
position in y-direction	y_1 = **15500** mm

Soil properties

Density of soil	γ_{soil} = **18.0** kN/m³
Characteristic cohesion	c'_k = **0** kN/m²

Characteristic effective shear resistance angle ϕ'_k = **23** deg

Characteristic friction angle δ_k = **23** deg

Foundation loads

Permanent surcharge load F_{Gsur} = **65.0** kN/m^2

Self weight $F_{swt} = h \times \gamma_{conc}$ = **15.0** kN/m^2

Soil weight $F_{soil} = h_{soil} \times \gamma_{soil}$ = **10.8** kN/m^2

Column no.1 loads

Permanent axial load F_{Gz1} = **0.0** kN

Design approach 1

Partial factors on actions - Combination1

Partial factor set A1

Permanent unfavourable action - Table A.3 γ_G = **1.35**

Permanent favourable action - Table A.3 γ_{Gf} = **1.00**

Variable unfavourable action - Table A.3 γ_Q = **1.50**

Variable favourable action - Table A.3 γ_{Qf} = **0.00**

Partial factors for soil parameters - Combination1

Soil factor set M1

Angle of shearing resistance - Table A.4 $\gamma_{\phi'}$ = **1.00**

Effective cohesion - Table A.4 $\gamma_{c'}$ = **1.00**

Weight density - Table A.4 γ_γ = **1.00**

Partial factors for spread foundations - Combination1

Resistance factor set R1

Bearing - Table A.5 $\gamma_{R.v}$ = **1.00**

Sliding - Table A.5 $\gamma_{R.h}$ = **1.00**

Bearing resistance (Section 6.5.2)

Forces on foundation

Force in z-direction $F_{dz} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) + F_{Gz1})$ = **79799.6** kN

Moments on foundation

Moment in x-direction $M_{dx} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) \times L_x / 2 + F_{Gz1} \times x_1)$ = **837895.6** kNm

Moment in y-direction $M_{dy} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) \times L_y / 2 + F_{Gz1} \times y_1)$ = **1236893.5** kNm

Eccentricity of base reaction

Eccentricity of base reaction in x-direction $e_x = M_{dx} / F_{dz} - L_x / 2$ = **-0** mm

Eccentricity of base reaction in y-direction $e_y = M_{dy} / F_{dz} - L_y / 2$ = **-0** mm

Effective area of base

Effective length $L'_x = L_x + 2 \times e_x$ = **21000** mm

Effective width $L'_y = L_y + 2 \times e_y$ = **31000** mm

Effective area $A' = L'_x \times L'_y$ = **651.000** m^2

Pad base pressure

Design base pressure $f_{dz} = F_{dz} / A'$ = **122.6** kN/m^2

Ultimate bearing capacity under drained conditions (Annex D.4)

Design angle of shearing resistance $\phi'_d = \text{atan}(\tan(\phi'_k) / \gamma_{\phi'})$ = **23.000** deg

Design effective cohesion $c'_d = c'_k / \gamma_{c'}$ = **0.000** kN/m^2

Effective overburden pressure	$q = (h + h_{soil}) \times \gamma_{soil} - h_{water} \times \gamma_{water}$ = **21.600** kN/m²
Design effective overburden pressure	$q' = q / \gamma_\gamma$ = **21.600** kN/m²
Bearing resistance factors	$N_q = Exp(\pi \times \tan(\phi'_d)) \times (\tan(45 \text{ deg} + \phi'_d / 2))^2$ = **8.661**
	$N_c = (N_q - 1) \times \cot(\phi'_d)$ = **18.049**
	$N_\gamma = 2 \times (N_q - 1) \times \tan(\phi'_d)$ = **6.504**
Foundation shape factors	$s_q = 1 + (L'_x / L'_y) \times \sin(\phi'_d)$ = **1.265**
	$s_\gamma = 1 - 0.3 \times (L'_x / L'_y)$ = **0.797**
	$s_c = (s_q \times N_q - 1) / (N_q - 1)$ = **1.299**
Load inclination factors	H = **0.0** kN
	$m_y = [2 + (L'_y / L'_x)] / [1 + (L'_y / L'_x)]$ = **1.404**
	$m_x = [2 + (L'_x / L'_y)] / [1 + (L'_x / L'_y)]$ = **1.596**
	m = m_x = **1.596**
	$i_q = [1 - H / (F_{dz} + A' \times c'_d \times \cot(\phi'_d))]^m$ = **1.000**
	$i_\gamma = [1 - H / (F_{dz} + A' \times c'_d \times \cot(\phi'_d))]^{m+1}$ = **1.000**
	$i_c = i_q - (1 - i_q) / (N_c \times \tan(\phi'_d))$ = **1.000**
Ultimate bearing capacity	$n_f = c'_d \times N_c \times s_c \times i_c + q' \times N_q \times s_q \times i_q + 0.5 \times \gamma_{soil} \times L'_x \times N_\gamma \times s_\gamma \times i_\gamma$ = **1216.0** kN/m²
	PASS - Ultimate bearing capacity exceeds design base pressure

Design approach 1

Partial factors on actions - Combination2

Partial factor set	A2
Permanent unfavourable action - Table A.3	γ_G = **1.00**
Permanent favourable action - Table A.3	γ_{Gf} = **1.00**
Variable unfavourable action - Table A.3	γ_Q = **1.30**
Variable favourable action - Table A.3	γ_{Qf} = **0.00**

Partial factors for soil parameters - Combination2

Soil factor set	M2
Angle of shearing resistance - Table A.4	$\gamma_{\phi'}$ = **1.25**
Effective cohesion - Table A.4	$\gamma_{c'}$ = **1.25**
Weight density - Table A.4	γ_γ = **1.00**

Partial factors for spread foundations - Combination2

Resistance factor set	R1
Bearing - Table A.5	$\gamma_{R.v}$ = **1.00**
Sliding - Table A.5	$\gamma_{R.h}$ = **1.00**

Bearing resistance (Section 6.5.2)

Forces on foundation

Force in z-direction	$F_{dz} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) + F_{Gz1})$ = **59110.8** kN

Moments on foundation

Moment in x-direction	$M_{dx} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) \times L_x / 2 + F_{Gz1} \times x_1)$ = **620663.4** kNm
Moment in y-direction	$M_{dy} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) \times L_y / 2 + F_{Gz1} \times y_1)$ = **916217.4** kNm

Eccentricity of base reaction

Eccentricity of base reaction in x-direction	$e_x = M_{dx} / F_{dz} - L_x / 2$ = **-0** mm
Eccentricity of base reaction in y-direction	$e_y = M_{dy} / F_{dz} - L_y / 2$ = **-0** mm

Effective area of base

Effective length	$L'_x = L_x + 2 \times e_x =$ **21000** mm
Effective width	$L'_y = L_y + 2 \times e_y =$ **31000** mm
Effective area	$A' = L'_x \times L'_y =$ **651.000** m^2

Pad base pressure

Design base pressure	$f_{dz} = F_{dz} / A' =$ **90.8** kN/m^2

Ultimate bearing capacity under drained conditions (Annex D.4)

Design angle of shearing resistance	$\phi'_d = \text{atan}(\tan(\phi'_k) / \gamma_{\phi'}) =$ **18.756** deg
Design effective cohesion	$c'_d = c'_k / \gamma_{c'} =$ **0.000** kN/m^2
Effective overburden pressure	$q = (h + h_{soil}) \times \gamma_{soil} - h_{water} \times \gamma_{water} =$ **21.600** kN/m^2
Design effective overburden pressure	$q' = q / \gamma_\gamma =$ **21.600** kN/m^2
Bearing resistance factors	$N_q = \text{Exp}(\pi \times \tan(\phi'_d)) \times (\tan(45 \text{ deg} + \phi'_d / 2))^2 =$ **5.661**
	$N_c = (N_q - 1) \times \cot(\phi'_d) =$ **13.725**
	$N_\gamma = 2 \times (N_q - 1) \times \tan(\phi'_d) =$ **3.165**
Foundation shape factors	$s_q = 1 + (L'_x / L'_y) \times \sin(\phi'_d) =$ **1.218**
	$s_\gamma = 1 - 0.3 \times (L'_x / L'_y) =$ **0.797**
	$s_c = (s_q \times N_q - 1) / (N_q - 1) =$ **1.265**
Load inclination factors	$H =$ **0.0** kN
	$m_y = [2 + (L'_y / L'_x)] / [1 + (L'_y / L'_x)] =$ **1.404**
	$m_x = [2 + (L'_x / L'_y)] / [1 + (L'_x / L'_y)] =$ **1.596**
	$m = m_x =$ **1.596**
	$i_q = [1 - H / (F_{dz} + A' \times c'_d \times \cot(\phi'_d))]^m =$ **1.000**
	$i_\gamma = [1 - H / (F_{dz} + A' \times c'_d \times \cot(\phi'_d))]^{m+1} =$ **1.000**
	$i_c = i_q - (1 - i_q) / (N_c \times \tan(\phi'_d)) =$ **1.000**
Ultimate bearing capacity	$n_f = c'_d \times N_c \times s_c \times i_c + q' \times N_q \times s_q \times i_q + 0.5 \times \gamma_{soil} \times L'_x \times N_\gamma \times s_\gamma \times i_\gamma =$ **625.6** kN/m^2

PASS - Ultimate bearing capacity exceeds design base pressure

Ultimate Bearing Resistance (q_n) - Undrained case - for Twin cell tank at BPT-K

C_u for stiff/high strength clay is minimum 75 kPa

q_n is $(\pi+2) * C_u$

q_n is 5.14 * 75

q_n is **385.5** kPa
approximately 400 kPa

Comparison to Drained case calculated on Tekla Tedds, drained case for q_n is 625kPa (that has had partial facto

Therefore ultimate bearing resistance (q_n) in the undrained case of 385.5 kPa is most critical

rs applied also)

FOUNDATION ANALYSIS

In accordance with EN1997-1:2004 + A1:2013 incorporating corrigendum February 2009 and the UK National Annex incorporating corrigendum No.1

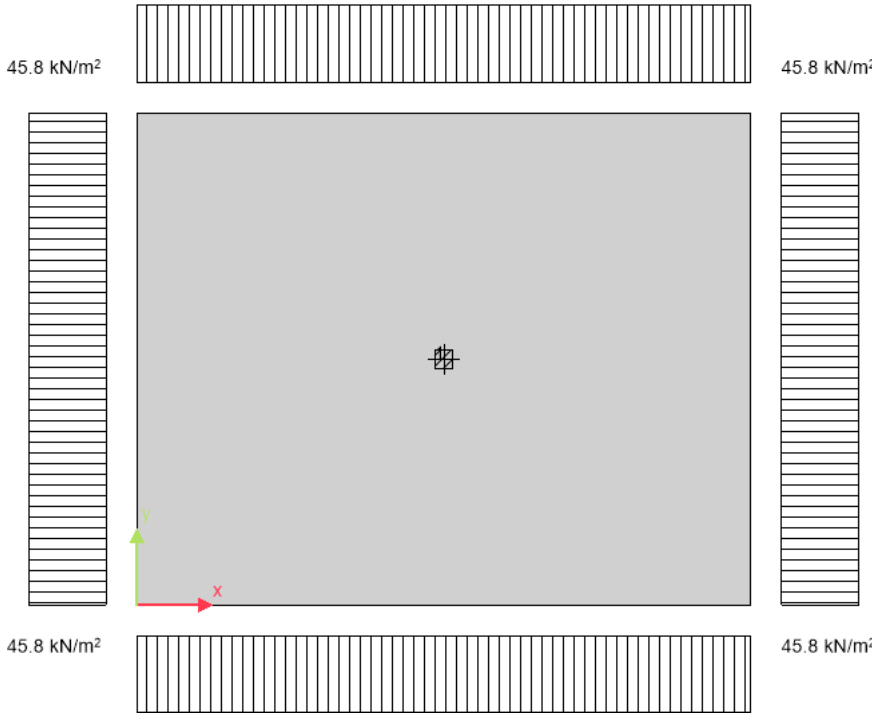
Tedds calculation version 3.3.05

Summary table

Description	Unit	Allowable	Actual	Utilisation	Result
Base pressure	kN/m²	326.9	45.8	0.140	Pass

Pad foundation details

Length of foundation	L_x = **10000** mm
Width of foundation	L_y = **8000** mm
Foundation area	$A = L_x \times L_y$ = **80.000** m²
Depth of foundation	h = **600** mm
Depth of soil over foundation	h_{soil} = **600** mm
Level of water	h_{water} = **0** mm
Density of water	γ_{water} = **9.8** kN/m³
Density of concrete	γ_{conc} = **25.0** kN/m³



Column no.1 details

Length of column	l_{x1} = **300** mm
Width of column	l_{y1} = **300** mm
position in x-direction	x_1 = **5000** mm
position in y-direction	y_1 = **4000** mm

Soil properties

Density of soil	γ_{soil} = **18.0** kN/m³
Characteristic cohesion	c'_k = **0** kN/m²

Characteristic effective shear resistance angle ϕ'_k = **23** deg

Characteristic friction angle δ_k = **23** deg

Foundation loads

Permanent surcharge load F_{Gsur} = **20.0** kN/m^2

Self weight $F_{swt} = h \times \gamma_{conc}$ = **15.0** kN/m^2

Soil weight $F_{soil} = h_{soil} \times \gamma_{soil}$ = **10.8** kN/m^2

Column no.1 loads

Permanent axial load F_{Gz1} = **0.0** kN

Design approach 1

Partial factors on actions - Combination1

Partial factor set A1

Permanent unfavourable action - Table A.3 γ_G = **1.35**

Permanent favourable action - Table A.3 γ_{Gf} = **1.00**

Variable unfavourable action - Table A.3 γ_Q = **1.50**

Variable favourable action - Table A.3 γ_{Qf} = **0.00**

Partial factors for soil parameters - Combination1

Soil factor set M1

Angle of shearing resistance - Table A.4 $\gamma_{\phi'}$ = **1.00**

Effective cohesion - Table A.4 $\gamma_{c'}$ = **1.00**

Weight density - Table A.4 γ_γ = **1.00**

Partial factors for spread foundations - Combination1

Resistance factor set R1

Bearing - Table A.5 $\gamma_{R.v}$ = **1.00**

Sliding - Table A.5 $\gamma_{R.h}$ = **1.00**

Bearing resistance (Section 6.5.2)

Forces on foundation

Force in z-direction $F_{dz} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) + F_{Gz1})$ = **4946.4** kN

Moments on foundation

Moment in x-direction $M_{dx} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) \times L_x / 2 + F_{Gz1} \times x_1)$ = **24732.0** kNm

Moment in y-direction $M_{dy} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) \times L_y / 2 + F_{Gz1} \times y_1)$ = **19785.6** kNm

Eccentricity of base reaction

Eccentricity of base reaction in x-direction $e_x = M_{dx} / F_{dz} - L_x / 2$ = **0** mm

Eccentricity of base reaction in y-direction $e_y = M_{dy} / F_{dz} - L_y / 2$ = **0** mm

Effective area of base

Effective length $L'_x = L_x - 2 \times e_x$ = **10000** mm

Effective width $L'_y = L_y - 2 \times e_y$ = **8000** mm

Effective area $A' = L'_x \times L'_y$ = **80.000** m^2

Pad base pressure

Design base pressure $f_{dz} = F_{dz} / A'$ = **61.8** kN/m^2

Ultimate bearing capacity under drained conditions (Annex D.4)

Design angle of shearing resistance $\phi'_d = \text{atan}(\tan(\phi'_k) / \gamma_{\phi'})$ = **23.000** deg

Design effective cohesion $c'_d = c'_k / \gamma_{c'}$ = **0.000** kN/m^2

Effective overburden pressure $q = (h + h_{soil}) \times \gamma_{soil} - h_{water} \times \gamma_{water}$ = **21.600** kN/m^2

Design effective overburden pressure	$q' = q / \gamma_\gamma$ = **21.600** kN/m^2
Bearing resistance factors	$N_q = \text{Exp}(\pi \times \tan(\phi'_d)) \times (\tan(45\text{ deg} + \phi'_d / 2))^2$ = **8.661**
	$N_c = (N_q - 1) \times \cot(\phi'_d)$ = **18.049**
	$N_\gamma = 2 \times (N_q - 1) \times \tan(\phi'_d)$ = **6.504**
Foundation shape factors	$s_q = 1 + (L'_y / L'_x) \times \sin(\phi'_d)$ = **1.313**
	$s_\gamma = 1 - 0.3 \times (L'_y / L'_x)$ = **0.760**
	$s_c = (s_q \times N_q - 1) / (N_q - 1)$ = **1.353**
Load inclination factors	H = **0.0** kN
	$m_y = [2 + (L'_y / L'_x)] / [1 + (L'_y / L'_x)]$ = **1.556**
	$m_x = [2 + (L'_x / L'_y)] / [1 + (L'_x / L'_y)]$ = **1.444**
	m = m_x = **1.444**
	$i_q = [1 - H / (F_{dz} + A' \times c'_d \times \cot(\phi'_d))]^m$ = **1.000**
	$i_\gamma = [1 - H / (F_{dz} + A' \times c'_d \times \cot(\phi'_d))]^{m+1}$ = **1.000**
	$i_c = i_q - (1 - i_q) / (N_c \times \tan(\phi'_d))$ = **1.000**
Ultimate bearing capacity	$n_f = c'_d \times N_c \times s_c \times i_c + q' \times N_q \times s_q \times i_q + 0.5 \times \gamma_{soil} \times L'_y \times N_\gamma \times s_\gamma \times i_\gamma$ = **601.5** kN/m^2
	PASS - Ultimate bearing capacity exceeds design base pressure

Design approach 1

Partial factors on actions - Combination2

Partial factor set	A2
Permanent unfavourable action - Table A.3	γ_G = **1.00**
Permanent favourable action - Table A.3	γ_{Gf} = **1.00**
Variable unfavourable action - Table A.3	γ_Q = **1.30**
Variable favourable action - Table A.3	γ_{Qf} = **0.00**

Partial factors for soil parameters - Combination2

Soil factor set	M2
Angle of shearing resistance - Table A.4	$\gamma_{\phi'}$ = **1.25**
Effective cohesion - Table A.4	$\gamma_{c'}$ = **1.25**
Weight density - Table A.4	γ_γ = **1.00**

Partial factors for spread foundations - Combination2

Resistance factor set	R1
Bearing - Table A.5	$\gamma_{R.v}$ = **1.00**
Sliding - Table A.5	$\gamma_{R.h}$ = **1.00**

Bearing resistance (Section 6.5.2)

Forces on foundation

Force in z-direction	$F_{dz} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) + F_{Gz1})$ = **3664.0** kN

Moments on foundation

Moment in x-direction	$M_{dx} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) \times L_x / 2 + F_{Gz1} \times x_1)$ = **18320.0** kNm
Moment in y-direction	$M_{dy} = \gamma_G \times (A \times (F_{swt} + F_{soil} + F_{Gsur}) \times L_y / 2 + F_{Gz1} \times y_1)$ = **14656.0** kNm

Eccentricity of base reaction

Eccentricity of base reaction in x-direction	$e_x = M_{dx} / F_{dz} - L_x / 2$ = **0** mm
Eccentricity of base reaction in y-direction	$e_y = M_{dy} / F_{dz} - L_y / 2$ = **0** mm

Effective area of base

Effective length $L'_x = L_x - 2 \times e_x = \mathbf{10000}$ mm

Effective width $L'_y = L_y - 2 \times e_y = \mathbf{8000}$ mm

Effective area $A' = L'_x \times L'_y = \mathbf{80.000}$ m²

Pad base pressure

Design base pressure $f_{dz} = F_{dz} / A' = \mathbf{45.8}$ kN/m²

Ultimate bearing capacity under drained conditions (Annex D.4)

Design angle of shearing resistance $\phi'_d = \text{atan}(\tan(\phi'_k) / \gamma_{\phi'}) = \mathbf{18.756}$ deg

Design effective cohesion $c'_d = c'_k / \gamma_{c'} = \mathbf{0.000}$ kN/m²

Effective overburden pressure $q = (h + h_{soil}) \times \gamma_{soil} - h_{water} \times \gamma_{water} = \mathbf{21.600}$ kN/m²

Design effective overburden pressure $q' = q / \gamma_\gamma = \mathbf{21.600}$ kN/m²

Bearing resistance factors $N_q = \text{Exp}(\pi \times \tan(\phi'_d)) \times (\tan(45 \text{ deg} + \phi'_d / 2))^2 = \mathbf{5.661}$

$N_c = (N_q - 1) \times \cot(\phi'_d) = \mathbf{13.725}$

$N_\gamma = 2 \times (N_q - 1) \times \tan(\phi'_d) = \mathbf{3.165}$

Foundation shape factors $s_q = 1 + (L'_y / L'_x) \times \sin(\phi'_d) = \mathbf{1.257}$

$s_\gamma = 1 - 0.3 \times (L'_y / L'_x) = \mathbf{0.760}$

$s_c = (s_q \times N_q - 1) / (N_q - 1) = \mathbf{1.312}$

Load inclination factors $H = \mathbf{0.0}$ kN

$m_y = [2 + (L'_y / L'_x)] / [1 + (L'_y / L'_x)] = \mathbf{1.556}$

$m_x = [2 + (L'_x / L'_y)] / [1 + (L'_x / L'_y)] = \mathbf{1.444}$

$m = m_x = \mathbf{1.444}$

$i_q = [1 - H / (F_{dz} + A' \times c'_d \times \cot(\phi'_d))]^m = \mathbf{1.000}$

$i_\gamma = [1 - H / (F_{dz} + A' \times c'_d \times \cot(\phi'_d))]^{m+1} = \mathbf{1.000}$

$i_c = i_q - (1 - i_q) / (N_c \times \tan(\phi'_d)) = \mathbf{1.000}$

Ultimate bearing capacity $n_f = c'_d \times N_c \times s_c \times i_c + q' \times N_q \times s_q \times i_q + 0.5 \times \gamma_{soil} \times L'_y \times N_\gamma \times s_\gamma \times i_\gamma = \mathbf{326.9}$ kN/m²

PASS - Ultimate bearing capacity exceeds design base pressure

Ultimate Bearing Resistance (q_n) - Undrained case - for Valve house at BPT-K

C_u for stiff/high strength clay is minimum 75 kPa

q_n is $(\pi+2) * C_u$

q_n is 5.14 * 75

q_n is **385.5** kPa
approximately 400 kPa

Comparison to Drained case calculated on Tekla Tedds, drained case for q_n is 327kPa (that has had partial facto

Therefore ultimate bearing resistance (q_n) in the **drained case** of 327 kPa is most critical

rs applied also)

FILENAME : TILSET.WK1 BLANK FILENAME : SURSET.WRK

SETTLEMENTS BENEATH RECTANGULAR,UNIFORMLY LOADED,FLEXIBLE FOOTING

FOUNDED AT THE SURFACE.(Settlements calculated for sands & clays in layers)

****

JOB No. : BY : AC

JOB NAME : **BPT K AGP Site** FOX'S CORRECTION FACTOR

NOTES : BPT Tank

TIME & DATE: 05:27 PM 05/09/24

		TOTAL SETTLEMENT (mm)	RIGID FOUNDATION (mm)	WITH FOX'S CORRECTION
FOUNDATION BREADTH (m):	15			
FOUNDATION LENGTH (m):	20	CENTRE : 1	84.4	67.5	0.0
LOAD ON FOUNDATION (kN/m^2):	45.0	CORNER :		

LAYER NUMBER	DEPTH FROM (m)	DEPTH TO (m)	EFFECTIVE UNIT Wt. (kN/m^3)	VOID RATIO (eo) (SAND = 0)	PRECONSOL. PRESSURE (kN/m^2)	CLAY Cr	CLAY Cc	CLAY mv (m^2/MN)	SAND qc (kN/m^2)	INITIAL STRESS (kN/m^2)	INCREASE IN STRESS (kN/m^2)	TOTAL EFF. STRESS (kN/m^2)	DEPTH FROM SURFACE (m)	LAYER SETTLEMENT (mm)	TOTAL SETTLEMENT (mm)
1	0.0	0.5	18.0	0.300		Alluvium		0.300		4.50	45.00	49.50	0.25	6.7	84.4
2	0.5	1.0	18.0	0.300		Alluvium		0.300		13.50	44.98	58.48	0.75	6.7	77.6
3	1.0	2.0	18.0	0.300		Alluvium		0.300		27.00	44.81	71.81	1.50	13.4	70.9
4	2.0	3.0	18.0	0.300		London Clay Formation		0.100		45.00	44.20	89.20	2.50	4.4	57.4
5	3.0	4.0	18.0	0.300		London Clay Formation		0.100		63.00	43.02	106.02	3.50	4.3	53.0
6	4.0	5.0	18.0	0.300		London Clay Formation		0.100		81.00	41.29	122.29	4.50	4.1	48.7
7	5.0	6.0	18.0	0.300		London Clay Formation		0.100		99.00	39.13	138.13	5.50	3.9	44.6
8	6.0	7.0	18.0	0.300		London Clay Formation		0.100		117.00	36.69	153.69	6.50	3.7	40.7
9	7.0	8.0	18.0	0.300		London Clay Formation		0.100		135.00	34.13	169.13	7.50	3.4	37.0
10	8.0	9.0	18.0	0.300		London Clay Formation		0.100		153.00	31.55	184.55	8.50	3.2	33.6
11	9.0	10.0	18.0	0.300		London Clay Formation		0.100		171.00	29.06	200.06	9.50	2.9	30.4
12	10.0	11.0	18.0	0.300		London Clay Formation		0.100		189.00	26.69	215.69	10.50	2.7	27.5
13	11.0	12.0	18.0	0.300		London Clay Formation		0.100		207.00	24.48	231.48	11.50	2.4	24.8
14	12.0	13.0	18.0	0.300		London Clay Formation		0.100		225.00	22.45	247.45	12.50	2.2	22.4
15	13.0	14.0	18.0	0.300		London Clay Formation		0.100		243.00	20.60	263.60	13.50	2.1	20.1
16	14.0	15.0	18.0	0.300		London Clay Formation		0.100		261.00	18.91	279.91	14.50	1.9	18.1
17	15.0	16.0	18.0	0.300		London Clay Formation		0.100		279.00	17.39	296.39	15.50	1.7	16.2
18	16.0	17.0	18.0	0.300		London Clay Formation		0.100		297.00	16.01	313.01	16.50	1.6	14.5
19	17.0	18.0	18.0	0.300		London Clay Formation		0.100		315.00	14.76	329.76	17.50	1.5	12.9
20	18.0	19.0	18.0	0.300		London Clay Formation		0.100		333.00	13.64	346.64	18.50	1.4	11.4
21	19.0	20.0	18.0	0.300		London Clay Formation		0.100		351.00	12.62	363.62	19.50	1.3	10.0
22	20.0	21.0	18.0	0.300		London Clay Formation		0.100		369.00	11.71	380.71	20.50	1.2	8.8
23	21.0	22.0	18.0	0.300		London Clay Formation		0.100		387.00	10.88	397.88	21.50	1.1	7.6
24	22.0	23.0	18.0	0.300		London Clay Formation		0.100		405.00	10.13	415.13	22.50	1.0	6.5
25	23.0	24.0	18.0	0.300		London Clay Formation		0.100		423.00	9.44	432.44	23.50	0.9	5.5
26	24.0	25.0	18.0	0.300		London Clay Formation		0.100		441.00	8.82	449.82	24.50	0.9	4.5
27	25.0	26.0	18.0	0.300		London Clay Formation		0.100		459.00	8.26	467.26	25.50	0.8	3.7
28	26.0	27.0	18.0	0.300		London Clay Formation		0.100		477.00	7.74	484.74	26.50	0.8	2.8
29	27.0	28.0	18.0	0.300		London Clay Formation		0.100		495.00	7.27	502.27	27.50	0.7	2.1
30	28.0	29.0	18.0	0.300		London Clay Formation		0.100		513.00	6.84	519.84	28.50	0.7	1.3
31	29.0	30.0	18.0	0.300		London Clay Formation		0.100		531.00	6.44	537.44	29.50	0.6	0.6
32	30.0									540.00	0.00	540.00	0.00	0.0	0.0
33	0.0									540.00	0.00	540.00	0.00	0.0	0.0
34	0.0									540.00	0.00	540.00	0.00	0.0	0.0
35	0.0									540.00	0.00	540.00	0.00	0.0	0.0
36	0.0									540.00	0.00	540.00	0.00	0.0	0.0
37	0.0									540.00	0.00	540.00	0.00	0.0	0.0
38	0.0									540.00	0.00	540.00	0.00	0.0	0.0
39	0.0									540.00	0.00	540.00	0.00	0.0	0.0
40	0.0									540.00	0.00	540.00	0.00	0.0	0.0

FILENAME : TILSET.WK1 BLANK FILENAME : SURSET.WRK

SETTLEMENTS BENEATH RECTANGULAR,UNIFORMLY LOADED,FLEXIBLE FOOTING
FOUNDED AT THE SURFACE.(Settlements calculated for sands & clays in layers)

****

JOB No. : BY : AC

JOB NAME : **BPT K AGP Site**

NOTES : Valve house

TIME & DATE: 05:28 PM 05/09/24

FOX'S CORRECTION FACTOR

		TOTAL SETTLEMENT (mm)	RIGID FOUNDATION (mm)	WITH FOX'S CORRECTION
FOUNDATION BREADTH (m):	11.5			
FOUNDATION LENGTH (m):	10.2	CENTRE : 1	6.9	5.5	0.0
LOAD ON FOUNDATION (kN/m^2):	5.0	CORNER :			

LAYER NUMBER	DEPTH FROM (m)	DEPTH TO (m)	EFFECTIVE UNIT Wt. (kN/m^3)	VOID RATIO (eo) (SAND = 0)	PRECONSOL. PRESSURE (kN/m^2)	CLAY Cr	CLAY Cc	CLAY mv (m^2/MN)	SAND qc (kN/m^2)	INITIAL STRESS (kN/m^2)	INCREASE IN STRESS (kN/m^2)	TOTAL EFF. STRESS (kN/m^2)	DEPTH FROM SURFACE (m)	LAYER SETTLEMENT (mm)	TOTAL SETTLEMENT (mm)
1	0.0	0.5	18.0	0.300		Alluvium		0.300		4.50	5.00	9.50	0.25	0.7	6.9
2	0.5	1.0	18.0	0.300		Alluvium		0.300		13.50	4.99	18.49	0.75	0.7	6.1
3	1.0	2.0	18.0	0.300		Alluvium		0.300		27.00	4.93	31.93	1.50	1.5	5.4
4	2.0	3.0	18.0	0.300		London Clay Formation		0.100		45.00	4.71	49.71	2.50	0.5	3.9
5	3.0	4.0	18.0	0.300		London Clay Formation		0.100		63.00	4.35	67.35	3.50	0.4	3.4
6	4.0	5.0	18.0	0.300		London Clay Formation		0.100		81.00	3.91	84.91	4.50	0.4	3.0
7	5.0	6.0	18.0	0.300		London Clay Formation		0.100		99.00	3.46	102.46	5.50	0.3	2.6
8	6.0	7.0	18.0	0.300		London Clay Formation		0.100		117.00	3.02	120.02	6.50	0.3	2.3
9	7.0	8.0	18.0	0.300		London Clay Formation		0.100		135.00	2.63	137.63	7.50	0.3	2.0
10	8.0	9.0	18.0	0.300		London Clay Formation		0.100		153.00	2.29	155.29	8.50	0.2	1.7
11	9.0	10.0	18.0	0.300		London Clay Formation		0.100		171.00	2.00	173.00	9.50	0.2	1.5
12	10.0	11.0	18.0	0.300		London Clay Formation		0.100		189.00	1.75	190.75	10.50	0.2	1.3
13	11.0	12.0	18.0	0.300		London Clay Formation		0.100		207.00	1.54	208.54	11.50	0.2	1.1
14	12.0	13.0	18.0	0.300		London Clay Formation		0.100		225.00	1.36	226.36	12.50	0.1	0.9
15	13.0	14.0	18.0	0.300		London Clay Formation		0.100		243.00	1.21	244.21	13.50	0.1	0.8
16	14.0	15.0	18.0	0.300		London Clay Formation		0.100		261.00	1.08	262.08	14.50	0.1	0.7
17	15.0	16.0	18.0	0.300		London Clay Formation		0.100		279.00	0.97	279.97	15.50	0.1	0.6
18	16.0	17.0	18.0	0.300		London Clay Formation		0.100		297.00	0.87	297.87	16.50	0.1	0.5
19	17.0	18.0	18.0	0.300		London Clay Formation		0.100		315.00	0.79	315.79	17.50	0.1	0.4
20	18.0	19.0	18.0	0.300		London Clay Formation		0.100		333.00	0.72	333.72	18.50	0.1	0.3
21	19.0	20.0	18.0	0.300		London Clay Formation		0.100		351.00	0.65	351.65	19.50	0.1	0.2
22	20.0	21.0	18.0	0.300		London Clay Formation		0.100		369.00	0.60	369.60	20.50	0.1	0.2
23	21.0	22.0	18.0	0.300		London Clay Formation		0.100		387.00	0.55	387.55	21.50	0.1	0.1
24	22.0	23.0	18.0	0.300		London Clay Formation		0.100		405.00	0.50	405.50	22.50	0.1	0.1
25	23.0									414.00	0.00	414.00	0.00	0.0	0.0
26	0.0									414.00	0.00	414.00	0.00	0.0	0.0
27	0.0									414.00	0.00	414.00	0.00	0.0	0.0
28	0.0									414.00	0.00	414.00	0.00	0.0	0.0
29	0.0									414.00	0.00	414.00	0.00	0.0	0.0
30	0.0									414.00	0.00	414.00	0.00	0.0	0.0
31	0.0									414.00	0.00	414.00	0.00	0.0	0.0
32	0.0									414.00	0.00	414.00	0.00	0.0	0.0
33	0.0									414.00	0.00	414.00	0.00	0.0	0.0
34	0.0									414.00	0.00	414.00	0.00	0.0	0.0
35	0.0									414.00	0.00	414.00	0.00	0.0	0.0
36	0.0									414.00	0.00	414.00	0.00	0.0	0.0
37	0.0									414.00	0.00	414.00	0.00	0.0	0.0
38	0.0									414.00	0.00	414.00	0.00	0.0	0.0
39	0.0									414.00	0.00	414.00	0.00	0.0	0.0
40	0.0									414.00	0.00	414.00	0.00	0.0	0.0