Appendix 3: Supplementary Land Quality Statement and Outline Remediation Strategy

CampbellReith
consulting engineers

Confidential

Daedalus Waterfront Infrastructure

Phase 1

Supplementary Land Quality Statement and Outline Remediation Strategy

For

Homes & Communities Agency

12575

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1.0 EXECUTIVE SUMMARY

SITE LOCATION	The site is the Waterfront area of the former HMS Daedalus Naval Air Base. It is located on the Gosport Peninsula, situated adjacent to the west of Broom Way / B3885 in Lee-on-the-Solent, Hampshire, PO13 9YA, at approximate National Grid Reference of 456002E, 102050N. As part of Phase 1 Infrastructure Works, this report refers to the road alignment, and residential Plots 1 and 2 as shown on Figure 2.
ENVIRONMENTAL SETTING	The geological sequence at the site typically consists of Made Ground, overlying Superficial Deposits (Brickearth and River Terrace Deposits) followed by the Bracklesham Beds. London Clay is likely to underlay the Bracklesham Beds. The environmental sensitivity of the site is summarised as follows: **Medium** sensitivity with respect to hydrogeology due to the designation of both the underlying superficial deposits and bedrock geology as Secondary A aquifers. **High** sensitivity with respect to hydrology due to the proximity to the nearest surface water receptor (The Solent approximately <50.0m to the south west). **Medium** sensitivity with respect to sensitive land uses due to The Solent being categorised as a Special Protection Areas (SPA), Ramsar Site and Site of Special Scientific Interest (SSSI).
CURRENT USE AND SITE HISTORY	The site was first established in 1917 as RNAS Lee-on-Solent and was operated by the Royal Navy until 2006, when the site was acquired by SEEDA (now part of the Homes and Communities Agency, HCA) and the Maritime Coastguard Agency (MCA). Since then, the HCA have acquired the airfield (north of Waterfront) and the adjacent DIO site from the MCA. Plots 1 and 2 refer to two proposed residential areas situated in the west and east of the Waterfront site, respectively: • The west sector is currently occupied by open space (grassed), numerous former MoD buildings and associated access roads and areas of hard standing; • The east sector is predominantly occupied by former MoD buildings and associated access roads and areas of hard standing.
SITE INVESTIGATION WORKS UNDERTAKEN	The entire Waterfront area was previously investigated and the findings reported by CampbellReith in a Supplementary Land Quality Statement in September 2014 (Ref: 11575); as well as a preceding Land Quality Statement dated March 2011 (Ref: 10500). More recently, additional ground investigation has been undertaken in Plots 1 and 2 to more fully characterise the ground conditions present. This recent investigation entailed: • 47 no. machine dig trial pits to approximately 3.0m below ground level (bgl); • 4 no. cable percussive boreholes advanced to 15.0m bgl; • Analysis of soil samples taken from beneath the site for a range of potential contaminants concern, including asbestos; and, • 2 no. rounds of hazardous ground gas monitoring in borehole installations.
CONTAMINATION ISSUES	**Previous Investigations** Previous investigations undertaken across the wider Waterfront area concluded that hydrocarbon concentrations encountered within Made Ground material to represent a potential site wide risk. In addition hotspots of elevated metal concentrations were also identified. Analysis for the potential presence of radioactive materials derived from the areas military history did encounter some elevated radioactive material levels, one small area of which was in close proximity to the north east sector of the western area of land addressed by this report. Ground gas monitoring undertaken encountered elevated concentrations of carbon dioxide but no methane or positive gas flow rates. These CO_2 concentrations were sufficient to classify the site as Characteristic Situation 2 under relevant ground

	gas guidance. **Recent Investigation** The recently undertaken ground investigation works only encountered minor exceedance of screening criteria for lead. The ground investigation increased the resolution of data points within the residential plots, and consequently (excluding statistical outliers) it has been concluded that PAH and TPH contamination is not a site wide risk. The screening assessment conducted within this report has been conducted in order to identify hotspots of contamination which require removal. Following hotspot removal, and specific development proposals being made available, this outline remediation strategy should be updated. The gas monitoring undertaken to date (2 of 3 proposed monitoring rounds had been completed at the time of writing) confirmed the previously encountered gas regime, with elevated carbon dioxide concentrations sufficient to classify the site as Characteristic Situation 2 identified.
REMEDIAL STRATEGY	The proposed remedial measures detailed herein should be considered within the context of the works to be undertaken as part of the Reserve Matter application of August/September 2016 relating to planning permission 11/00282/OUT. Based on the results of the historic and recent investigations and the results of the subsequent risks assessments undertaken, the following remedial actions are considered to be required: **Soils**: Identified hotspots of PAH and TPH contamination in Plots 1 and 2 require remediation assuming they could reside within proposed soft landscaping/ private garden areas. Isolated instances of asbestos have been identified, and the potential for bulk asbestos to be encountered during slab removal should not be discounted. This will take the form of targeted hotspot removal; with contaminated soils to be removed from site, the bases and sides of excavations validated to indicate remaining surrounding soils are not contaminated above typical levels for the surrounding area, to be backfilled with chemically validated material. No specific remediation is considered to be required for the construction of the road, with the exception of the likely requirement for protective water supply pipes. It is considered that a volume of topsoil material on site may be suitable for use as topsoil. When detailed proposals of topsoil reuse are known, existing topsoil on the site will require visual and chemical validation to ensure that the material does not pose unacceptable risks to end users considering its proposed use. With regards to the potential for radioactive material to be present, a review of the previous ground investigation information relating indicates the area of radioactive material nearby to the north east of Plot 1. It is proposed to further assess, and potentially remove these hotspots as part of the Phase 1 infrastructure work in accordance with relevant guidance. **Controlled Waters**: No specific remedial measures are considered to be required in relation to groundwater contamination within the two areas addressed by this report. Works to address these issues are being undertaken elsewhere in the Waterfront area under separate appointments and contracts in response to the Outline Planning Conditions. **Buildings**: The site has been classified as gas **Characteristic Situation 2**. The Phase 1 infrastructure works currently proposed do not include the construction of buildings and as such the elevated gas concentrations identified are not considered to present a potential risk requiring remedial measures at this time. Based on the assumption that any future development of the site will include private residential dwellings – classified as building Type A under BS 8485:2015 – gas protection measures sufficient to achieve a gas protection score of at least 3.5 points will likely be required. **Potable Water Supply Pipes**: Based on a review of guidance presented in UKWIR guidance document 04/WM/03/21: Guidance for the Selection of Water Supply Pipes, barrier piping is considered likely to be required based on hydrocarbon concentrations being elevated above criteria presented therein. It

	should be noted however that there is no legal requirement for the local water utility provider to adopt this guidance and they may have an alternative list of preferred materials or produces. Discussion should therefore be undertaken with the provider to agree the piping materials to be used. **Future Ground Workers**: Based on the anticipated exposure frequency and duration associated with any such future receptors exposure, and on the basis that normal personal protective equipment (PPE) and good site practice can be reasonably assumed to address any potential risks, no specific remedial actions are considered to be required. **Watching Brief**: The potential for previously unidentified contamination or other materials of potential concern to exist cannot be discounted. As such a watching brief will be maintained during all below ground works in order to readily identify any such media. **Verification Reporting**: As works are progressed on site it will be necessary to collect a range of information in order to demonstrate the proposed remedial measures detailed herein have been implemented as agreed. These are proposed to include, but not necessarily be limited to: • Site diaries and photographs, detailing the phases of work and works undertaken; • Validation sampling from the base and sides of excavations, demonstrating that identified hotspots of elevated PAH compound concentrations have been removed, with remaining PAH concentrations being within those to be expected within the wider Waterfront site; • Waste classification sampling, demonstrating materials being removed from site are proposed to be taken to an appropriate facility/facilities; • Waste licences for any facilities proposed to be used to accept materials from the site; • Waste tickets, detailing both the removal of materials from the site as well as its acceptance to the document facility/facilities; and, • Validation sampling in relation to any materials to be imported onto the site for their proposed use. It is proposed that generic screening criteria derived to be protective of end users at a commercial development be employed for this purpose.
OTHER ISSUES	**Radon**: The site has not been identified as being within an area where radon gas protection measures are required.

2.0 INTRODUCTION

2.1. Appointment

2.1.1. This report has been produced by Campbell Reith Hill LLP (CampbellReith) on behalf of the Homes and Communities Agency (HCA; the Client). Its aim is to present additional Ground investigation information and an appropriate remediation strategy for the proposed Phase 1 Infrastructure Works to be undertaken on Daedalus Waterfront (hereafter referred to as 'the site').

2.1.2. Contained within this document is as follows;

- Assessment of additional ground investigation data from shallow soils;
- Remediation strategy & site works controls required to permit the construction of the road alignment as detailed below; and,
- Outline remediation strategy for the two residential plots to the east and the west of the Waterfront.

2.2. Context

2.2.1. This report has been produced ahead of the submission of a Reserved Matters planning application pursuant to outline planning permission 11/00282/OUT. It is intended that this report will discharge condition 35 for this phase of work.

2.2.2. The development of the Waterfront is split into a number of separate phases. Phase 1 is the reserved matters application detailed below, and Phase 2 will be the construction of 200 new homes, 40% of which will be Starter Homes.

2.2.3. The application is being submitted in respect of Phase 1 and proposes the upgrade of existing estate roads and construction of new estate roads, demolition of buildings 67, 70/71 and 154, and provision of all associated services, landscaping works including foul water pump house, at land at Daedalus, Chalk Lane, Lee-on-the-Solent, Hampshire.

2.2.4. This reserved matters application follows two planning application submissions with regards to the demolition of buildings 3, 4, 5, 6, 7, 14, 15, 18, 20, 27, 135, 145, 146, 147, 164, 375, 387 and part demolition of buildings 142 and 165 together with the removal of slabs of buildings 148, 149, 150, 155, 159, 160 and 162, and follows extensive pre-application consultation with Debbie Gore, Andy Amery and Rob Harper of Gosport Borough Council.

2.2.5. By way of background, planning permission has already been granted for the redevelopment of the Waterfront area within Daedalus.

2.3. Site Location & Layout

2.3.1. Figures 1 and 2 show the site location and site layout. The works are focused on the northern part of the Waterfront Area, with the road alignment around the central commercial area, and two proposed residential areas to the east and west. Figure 2 refers to the residential areas to the west and east as Plots 1 and 2.

2.4. Objectives

2.4.1. To assess shallow soils and identify the potential risks from shallow soils to end users associated with the proposed residential land use of Plot 1 and 2. It has been assumed that the residential plots may include private gardens.

2.4.2. The risk assessment detailed herein and resultant proposed remedial measures are based upon multiple phases of ground investigation.

2.4.3. This report aims to:

- Identify feasible remediation measures to address the identified potential pollutant linkages;
- Develop and present an appropriate remediation strategy to allow the road to be constructed;
- Outline removal of radiological hotspots within the two plots;
- Outline the potential suitable remediation measures required in order to facilitate the planned residential use of Plot 1 and 2;
- Outline the requirements and responsibilities to ensure remediation is undertaken successfully and information required to validate these works adequately collected.

2.4.4. This report has been prepared in general accordance with the technical procedures for site investigation, interpretation and reporting set out in CLR 11. This assessment considers the objectives of the National Planning Policy Framework (NPPF) which requires information to demonstrate that a site is suitable for its new use (taking account of ground conditions and land instability) and not capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990 (after remediation). This also requires adequate site investigation information, prepared by a competent person.

2.4.5. The references and limitations associated with this report follow the main text.

2.5. Existing Environmental Reports

2.5.1. The following site specific information has been reviewed as part of the process of producing this Remediation Strategy. It should be noted that this information was fully considered and where necessary supplemented by the more recent ground investigation designed and commissioned on behalf of the client by CampbellReith in July/August 2016:

Table 2.1: Previously Existing Site Specific Information

Report Title	Author	Date	Reference
Daedalus, Lee-on-the-Solent – Waterfront: Land Quality Statement	CampbellReith	March 2011	10500
Daedalus, Lee-on-the-Solent – Waterfront: Supplementary Land Quality Statement	CampbellReith	Sept 2014	11575

3.0 GROUND INVESTIGATION

3.1. Introduction

3.1.1. Further ground investigation work was conducted in order to increase the resolution of data within the residential plots. The additional works are summarised below.

3.2. Scope of Works

3.2.1. The recently undertaken additional ground investigation works comprised:

- 4 no. Cable Percussive Boreholes to a maximum depth of 15.0m bgl; and,
- 47 no. Machine Dig Trial Pits to a maximum depth of 3.0m bgl.

3.3. Soils

3.3.1. Soil samples were collected from all the exploratory locations advanced. These were analysed for a range of common organic and inorganic elements and compounds, the presence of asbestos, and several other parameters such as sulphate and organic content.

3.4. Hazardous Ground Gases

3.4.1. Previous gas monitoring undertaken by CampbellReith at the entire Waterfront site totalled 4 no. rounds at a total of 20 no. locations.

3.4.2. In summary these monitoring rounds identified some slightly elevated concentrations of carbon dioxide, as well as instances of depleted oxygen; however no positive gas flow rates were identified.

3.4.3. The carbon dioxide concentrations previously encountered were considered sufficient to classify the area of Characteristic Situation 2.

3.4.4. 3 no. additional monitoring rounds are proposed at the 4 no. new boreholes installed on the site, two of which have already been undertaken.

3.4.5. The results of these additional monitoring rounds are presenting in ground investigation data presented in Appendix B and have thus far confirmed the previously encountered gas regime at the site.

3.5. Groundwater

3.5.1. The previous investigations undertaken in the Waterfront area identified some significant groundwater contamination issues, and considerable additional intrusive investigation works have been undertaken in this regards in order to identify source zones and delineate the resultant plumes.

3.5.2. The findings of these works have culminated in a targeted in-situ groundwater remediation scheme being designed and is currently underway in order to address these issues.

3.5.3. Previous risk assessments concluded that the groundwater contamination across the waterfront area does not present a significant risk to human health. Therefore it is considered that the contamination of, and subsequent remediation of the groundwater across the Waterfront does not preclude the Phase 1 Infrastructure works.

4.0 SUMMARY OF CONCEPTUAL SITE MODEL

4.1. Summary of Environmental Setting

4.1.1. Reference to the British Geological Survey (BGS) 1:50,000 Geological Sheet for Portsmouth indicates the site is underlain by the River Terrace Deposits over the Bracklesham Beds, with the Wittering Formation in the northern portion of the site and the Selsey Sand Formation in the southern portion of the site adjacent to Lee-on-Solent. The London Clay is indicated at depth. The Bracklesham Beds is shown to run parallel to the coastline in a northwest and southeast alignment and gently dipping towards the south.

4.1.2. Ground investigations have confirmed the presence of a variable thickness of Made Ground to be present overlying these natural strata, typically 0.40m-1.50m, but occasionally up to 2.40m in some areas.

4.1.3. The site is considered to have a **Moderate** hydrogeological sensitivity due to the designation of the aforementioned deposits as Secondary A aquifers (River Terrace Deposits and Bracklesham Beds).

4.1.4. The site is considered to have a **High** hydrological sensitivity given the proximity of The Solent, situated nearby to the south.

4.1.5. The Solent is also noted as being a designated Special Protection Area (SPA), Ramsar Site and Site of Special Scientific Interest (SSSI). As such a **Moderate** sensitivity is adjudged with respect to these.

4.2. Proposed Development

4.2.1. It should be noted that this report has been produced ahead of a submission of documents in relation to the aforementioned Reserved Matters planning application relating to the upgrade of existing estate roads and construction of new estate roads, demolition of numerous buildings, and provision of all associated services, landscaping and other works (e.g. foul water pump house). In addition Plots 1 and 2 are due for residential development, however the specific layout's are not known.

4.2.2. The road alignment is considered to be a **Low** end user sensitivity, and the residential plots are considered to be **High** end user sensitivity.

4.3. Summary of Previously Identified Contamination

4.3.1. Full details of the contamination previously identified and assessed is included in the reports detailed in Section 2.5.

4.3.2. With regards to soil contamination, the 2014 Land Quality Statement identified elevated PAH concentrations to present a statistically significant site wide risk across the wider Waterfront area; with some hotspots of elevated metal concentrations also identified outside of Plots 1 and 2.

4.3.3. In addition to the above, as report in the 2014 LQS report, an area of elevated radioactivity was identified near to the north east Plot 1.

4.3.4. With regards to groundwater, some potentially significant groundwater contamination has previously been identified beneath the wider Waterfront area, notably a tetrachloroethylene (PCE) plume in the central sector (beneath Dunning and Swann hangars), as well as a smaller benzene plume in close proximity to a former vehicle refuelling point nearby to the south of this.

4.3.5. With regards to hazardous ground gases, gas monitoring identified the presence of elevated carbon dioxide and depleted oxygen concentrations; however no positive flow readings or elevated methane concentrations were noted.

4.4. Summary of Identified Potential Risks

Human Health – Soils and Waters

4.4.1. Considering the **Low** sensitivity of the end users for the road alignment, no remediation measures are considered to be required.

4.4.2. Given the potential for ground workers to come into contact with soils containing elevated contaminants concentrations, as well as the potential for asbestos to be present, adequate risk assessments, method statements and health and safety procedures will be required to be in place to mitigate potential risks.

4.4.3. Based on the understanding of the groundwater regime and contamination present in the wider Waterfront area, the potential risks associated with ground workers and end users coming into contact with contamination in this media are considered to be appropriately addressed by good site practice and the provision of basic PPE.

4.4.4. Plots 1 and 2 are of **High** End user sensitivity, and the ground investigation data is assessed in Section 6.

Hazardous Ground Gases and Vapours

4.4.5. Previous ground investigations identified elevated ground gas concentrations at the site and the monitoring suggested that the site may be classified as a Characteristic Situation 2.

4.4.6. Additional investigation was therefore considered necessary in order to collect sufficient data to assess the potential risks and this monitoring has confirmed the previously encountered gas regime.

4.4.7. The elevated gas concentrations identified are not considered to present a potential risk requiring any specific measures with regard to the road construction.

4.4.8. Some gas protection measures are however considered likely to be required for residential properties on Plots 1 and 2, which should be implemented by the developer once specific layouts and construction types are known.

Controlled Waters

4.4.9. As outlined in previous sections, some groundwater contamination issues have been identified in the wider Waterfront area which will require remediation works to address. These are being undertaken under separate appointments and contracts; however given the nature, depth and location of these issues these are not considered to present any potential risks to receptors within the two areas addressed by this report.

5.0 HAZARDOUS GROUND GAS RISK ASSESSMENT

5.1. Basis of Assessment

5.1.1. Guidance consulted as part of the design of the additional site monitoring and sampling undertaken is provided in Table 5.1 below:

Table 5.1: Relevant Ground Gas Risk Assessment Guidance

Title	Author	Date
BS 8485: Code of practice for the characterization and remediation from ground gas in affected developments	British Standard	2015
C665: Assessing Risks Posed by Hazardous Ground Gasses to Buildings	CIRIA	2007
Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are present	NHBC	2007

5.2. Previous Investigation Findings

5.2.1. Previous investigations undertaken at the site classified the Waterfront area as Characteristic Situation 2 under relevant ground gas guidance, based on elevated carbon dioxide concentrations exceeding 5.0%v/v; and no elevated methane concentrations or positive gas flow rates were recorded. The full details of previous gas monitoring undertaken are presenting in the reports detailed in Section 2.5.

5.3. Recent CampbellReith Gas Monitoring

5.3.1. 2 no. additional rounds of monitoring have recently been undertaken by CampbellReith in order to improve the understanding of the ground gas regime at the site, however a third round is yet to be undertaken.

5.3.2. The results of the two monitoring round undertaken are summarised in Table 5.2. These have been analysed in line with guidance presented in BS 8485:2015:

Table 5.2: Summary of May-June 2016 Gas Monitoring

Borehole	Date	Gas Concentration (%)			Average Flow Rate (l/hr)	GSV	Situation
		CH_4	CO_2	O_2			
BH501	04/08/16	0.0	0.4	20.6	<0.1	0.0004	1
	19/08/16	0.0	2.9	19.5	<0.1	0.0029	1
BH502	04/08/16	0.0	**5.6**	8.7	<0.1	0.0056	2*
	19/08/16	0.0	**7.6**	11.6	<0.1	0.0076	2*
BH503	04/08/16	0.0	0.3	20.30	<0.1	0.0003	1
	19/08/16	0.0	3.7	18.4	<0.1	0.0037	1
BH504	04/08/16	0.1	**6.7**	10.0	<0.1	0.0067	2*
	19/08/16	0.0	**7.7**	10.7	<0.1	0.0077	2*

*- increased based on maximum concentration(s) encountered

5.4. Risk Assessment

5.4.1. Based upon some carbon dioxide concentration being in excess of 5% (v/v) the site is considered to be characterised as **Characteristic Situation 2** under current best practice guidance (BS 8485:2015 / C665).

5.4.2. It should be noted that the classification of the site as CS2 is driven by the maximum carbon dioxide concentrations encountered in some locations. Calculation of the gas screening value for the results collected using the very low or absent flow rates observed alone would classify the site as CS1.

6.0 GENERIC QUANTITATIVE RISK ASSESSMENT

6.1. Assessment Framework

6.1.1. This assessment comprises comparison of identified contaminant levels to generic screening values that have been prepared to assess the risk to human, controlled water and gas risk receptors. The guidance used to provide this initial screening is listed in Table 6.1.

6.1.2. With respect to Human Health Risk Assessment the selection of screening values for Plots 1 and 2 has been based on a land use of residential with plant uptake. The assessment assumes a Soil Organic Matter (SOM) content of 1% based on average site derived SOM data from the Made Ground of 1.77%.

6.1.3. For further detailed information on the current Regulations and selection of appropriate threshold values, please refer to the rear of this report text.

TABLE 6.1 Generic Quantitative Screening Values

	Key Guidance
Soil	LQM/CIEH S4ULs for Human Health Risk Assessment.*
	Defra Development of Category 4 Screening Levels Main Report and Appendix H.
	Environment Agency, Soil Guideline Values based upon Contaminated Land Exposure Assessment Model (CLEA) and the CLEA 1.06 software. SGV Reports SC050021/SGV.
	Generic Assessment Criteria based upon Environment Agency CLEA Version 1.06 software. Environment Agency Science Reports SC050021 SR2/SR3, Toxicological Reports SC050021/Tox. EA Toxicological Reports 1-25.
	Generic Assessment Criteria published by CL:AIRE. The Soil Generic Assessment Criteria for Human Health Risk Assessment. December 2009.
	Defra Development of Category 4 Screening Levels Main Report and Appendix H
	Generic Assessment Criteria based upon Environment Agency CLEA UK Beta Version 1.0. Environment Agency Toxicological Reports: 1-25.

6.2. Soils - Plot 1

6.2.1. The results of the ground investigation for Plots 1 and 2 have been assessed separately.

6.2.2. The statistics associated with soil analysis for Plot 1 are summarised in Table 6.2. The Mean Value (95%ile) and Maximum Value Tests were undertaken on the sample population. For those parameters exceeding the screening levels. Where the 95%ile exceeds the screening values, these results are highlighted and discussed. The 95%ile calculations do not include outliers noted in Table 6.3. The remainder are not considered indicative of significant contamination for the proposed end use.

TABLE 6.2: Summary of Soil Analysis - Plot 1

Contaminant	Units	Exceeding	Max	95%ile	Tier 2 Screen
Metals					
Arsenic	mg/kg	0/ 24	23	10.86	37
Cadmium	mg/kg	0/ 24	3.2	0.66	11
Chromium	mg/kg	0/ 24	35	22.27	910

Contaminant	Units	Exceeding	Max	95%ile	Tier 2 Screen
Copper	mg/kg	0/ 24	92	37.36	2400
Inorganic Mercury	mg/kg	0/ 24	0.8	0.46	40
Nickel	mg/kg	0/ 24	37	18.43	130
Lead	mg/kg	2/ 24	**460**	93.06	200 B
Selenium	mg/kg	0/ 24	1.5	1.09	250
Zinc	mg/kg	0/ 24	260	93.79	3700
Inorganics					
Cyanide	mg/kg	1	1.00	18.6 C	18.6 C
Organics					
Phenol (Monohydric)	mg/kg	0/ 24	1	1.00	120
TPH					
TPH C06C10	mg/kg	0/ 24	0.1	0.10	27
TPH C10C40	mg/kg	5/ 24	**3300**	55.59*	74
Speciated Hydrocarbons					
Aromatics >EC6-EC35	mg/kg	2/ 4	**2700**	NC	34
Aromatics > EC5-EC6	mg/kg	0/ 4	0.1	NC	42
Aromatics > EC6-EC7	mg/kg	0/ 4	0.1	NC	70
Aromatics > EC7-EC8	mg/kg	0/ 4	0.1	NC	130
Aromatics >EC8-EC10	mg/kg	0/ 4	0.1	NC	27
Aromatics > EC10-EC12	mg/kg	0/ 4	8.7	NC	74
Aromatics > EC12-EC16	mg/kg	1/ 4	**160**	NC	140
Aromatics > EC16-EC21	mg/kg	1/ 4	**930**	NC	260
Aromatics > EC21-EC35	mg/kg	1/ 4	**1600**	NC	1100
Aromatics > EC35-EC44	mg/kg	0/ 4	400	NC	1100
Aliphatics >EC5-EC35	mg/kg	1/ 4	**240**	NC	27
Aliphatics > EC6-EC8	mg/kg	0/ 4	0.1	NC	100
Aliphatics > EC8-EC10	mg/kg	0/ 4	0.1	NC	27
Aliphatics > EC10-EC12	mg/kg	0/ 4	21	NC	130
Aliphatics > EC12-EC16	mg/kg	0/ 4	59	NC	1100
Aliphatics > EC16-EC21	mg/kg	0/ 4	34	NC	65000
Aliphatics > EC21-EC35	mg/kg	0/ 4	130	NC	65000
Aliphatics > EC35EC44	mg/kg	0/ 4	60	NC	65000
Speciated Polyaromatic Hydrocarbons					
Naphthalene	mg/kg	1/ 24	**2.6**	0.05*	2.3
Acenaphthylene	mg/kg	0/ 24	1.1	0.21	170
Acenaphthene	mg/kg	0/ 24	5.2	0.68	210
Fluorene	mg/kg	0/ 24	4.8	0.63	170
Phenanthrene	mg/kg	0/ 24	73	8.87	95
Anthracene	mg/kg	0/ 24	22	2.62	2400
Fluoranthene	mg/kg	0/ 24	130	15.83	280
Pyrene	mg/kg	0/ 24	100	12.29	620

Contaminant	Units	Exceeding	Max	95%ile	Tier 2 Screen
Chrysene	mg/kg	1/ 24	**52**	1.01*	15
Benzo (a) anthracene	mg/kg	1/ 24	**55**	0.77*	7.2
Benzo (b) fluoranthene	mg/kg	1/ 24	**49**	0.85*	2.6
Benzo (k) fluoranthene	mg/kg	0/ 24	35	4.34	77
Benzo (a) pyrene	mg/kg	1/ 24	**48**	0.68*	2.2
Indeno (1,2,3 - cd) pyrene	mg/kg	0/ 24	26	3.16	27
Benzo (ghi) perylene	mg/kg	0/ 24	29	3.52	320
Dibenzo (ah) anthracene	mg/kg	1/ 24	**7.1**	0.12*	0.24
Other					
Asbestos	N/A	3/22			

Residential with Plant Uptake assuming 1.0 % SOM
C SGV/GAC based on CLEA UK Beta Version at 1%, 2.5% and 5%
D GAC from CL:AIRE V1.06 : 1%, 2.5% and 6% SOM (note: 2.5% SOM rather than 3%)
E GAC from CLEA V1.06 at 1%, 3% and 6% SOM
CLEA GACs assume that no free product is present
X Oral GAC used, no inhalation GAC derived (inhalation data not available)
S Soil Saturation limit used as a cap to GAC due to high value of oral GAC and absence of inhalation GAC (No data available)
NC Not Calculated (for samples less than 4)
* Outliers identified using the maximum value test (omitted from the 95th percentile calculation)

TABLE 6.3: List of Outliers - Plot 1

Contaminant	Hole Ref	Depth	Concentration (mg/kg)
Benzo (a) anthracene	TP512	0.1	55
Benzo (a) pyrene	TP512	0.1	48
Benzo (b) fluoranthene	TP512	0.1	49
C10C40	TP512	0.1	3300
Aromatics >EC12-EC16	TP512	0.1	160
Aromatics >EC16-EC21	TP512	0.1	930
Aromatics >EC21-EC35	TP512	0.1	1600
Aliphatics >EC5-EC35	TP512	0.1	240
C06C40	TP512	0.1	3300
Chrysene	TP512	0.1	52
Dibenzo (ah) anthracene	TP512	0.1	7.1
Naphthalene	TP512	0.1	2.6
Polynuclear aromatic hydrocarbons (Total)	TP512	0.1	643
Naphthalene	TP523	0.1	0.18

Heavy Metals

6.2.3. Two exceedances of Lead were encountered in TP512 and TP508 however the 95%ile is below the screening criteria, suggesting that these locations are statically considered as hotspots. It is considered that material identified in the locations exceeding the screening criteria would not be suitable for use in the top 1m of residential properties.

6.2.4. Lead has been assessed using the Category 4 Screening levels (C4SLs). The C4SLs have been developed as indicative of a Low Risk, rather than Minimal Risk; however, in the absence of any other screening level they are considered to be appropriate for use, particularly as they are significantly lower than the withdrawn SGVs and they represent values below which there will not be an unacceptable risk.

PAHs

6.2.5. The exceedances of PAHs noted above are located from a single exploratory location, TP512. Exploratory logs for this location noted a chemical odour during the ground investigation. TP 512 is considered a hotspot which requires remediation.

TPH

6.2.6. Five locations of 24 tested exceed the screening criteria for TPH C10 – C40. This includes locations as detailed in Table 6.4 below.

TABLE 6.4: Exceedances of TPH C10-C40 - Plot 1

Contaminant	Hole ID	Concentration (mg/kg)	Tier2 Screen Value	Depth
TPH C10-C40	TP512	3300	74	0.1
TPH C10-C40	TP514	130	74	0.1
TPH C10-C40	TP515	79	74	0.5
TPH C10-C40	TP518	130	74	0.1
TPH C10-C40	TP523	140	74	0.1

6.2.7. The concentration encountered in TP512 is an elevated concentration which presents a significant risk to residential end users. The remaining exceedances of the screening criteria are relatively minor exceedances which may not exceed the speciated TPH criteria for residential use if tested.

Asbestos

6.2.8. The locations of the positive asbestos screens are detailed in Table 6.5 below.

TABLE 6.5: Asbestos Detections – Plot 1

Location	Depth	Asbestos Type
TP 512	0.1	Chrysotile - Loose fibres
TP 514	0.1	Chrysotile- Rope
TP 518	0.1	Chrysotile- Loose fibres

6.2.9. Considering the intrinsically heterogeneous nature of asbestos contamination, it should be assumed that asbestos contamination of made ground may be present across the site. This should be further assessed before material is utilised in high sensitivity settings.

6.3. Soils – Plot 2

6.3.1. The statistics associated with soil analysis for Plot 1 are summarised in Table 6.2. The Mean Value (95%ile) and Maximum Value Tests were undertaken on the sample population. For

those parameters exceeding the screening levels. Where the 95%ile exceeds the screening values, these results are highlighted and discussed. The 95%ile calculations do not include outliers noted in Table 6.6. The remainder are not considered indicative of significant contamination for the proposed end use.

TABLE 6.5: Summary of Soil Analysis – Plot 2

Contaminant	Units	Exceeding	Max	95%ile	Tier 2 Screen
Metals					
Arsenic	mg/kg	0/ 23	34	13.37	37
Cadmium	mg/kg	0/ 23	1.2	0.41	11
Chromium	mg/kg	0/ 23	37	24.42	910
Copper	mg/kg	0/ 23	96	37.51	2400
Inorganic Mercury	mg/kg	0/ 23	**1**	0.47	40
Nickel	mg/kg	0/ 23	48	20.46	130
Lead	mg/kg	1/ 23	**240**	74.77	200 B
Selenium	mg/kg	0/ 23	1.8	1.20	250
Zinc	mg/kg	0/ 23	800	172.28	3700
Inorganics					
Cyanide	mg/kg	0/ 23	1	1.00	18.6 C
Organics					
Phenol (Monohydric)	mg/kg	0/ 23	1	1.00	120
TPH					
TPH C06C10	mg/kg	0/ 23	0.1	0.10	27
TPH C10C40	mg/kg	6/ 23	**5800**	61.11*	74
Speciated Polyaromatic Hydrocarbons					
Naphthalene	mg/kg	1/ 23	**3.9**	0.05*	2.3
Acenaphthylene	mg/kg	0/ 23	2.1	0.35	170
Acenaphthene	mg/kg	0/ 23	33	4.12	210
Fluorene	mg/kg	0/ 23	24	3.10	170
Phenanthrene	mg/kg	1/ 23	**230**	3.19*	95
Anthracene	mg/kg	0/ 23	75	9.43	2400
Fluoranthene	mg/kg	1/ 23	**350**	8.15*	280
Pyrene	mg/kg	0/ 23	280	36.66	620
Chrysene	mg/kg	2/ 23	**130**	3.87*	15
Benzo (a) anthracene	mg/kg	4/ 23	**160**	4.22*	7.2
Benzo (b) fluoranthene	mg/kg	5/ 23	**140**	2.24*	2.6
Benzo (k) fluoranthene	mg/kg	1/ 23	**79**	2.92*	77
Benzo (a) pyrene	mg/kg	5/ 23	**120**	2.08*	2.2
Indeno (1,2,3 - cd) pyrene	mg/kg	1/ 23	**52**	1.16*	27
Benzo (ghi) perylene	mg/kg	0/ 23	61	8.57	320
Dibenzo (ah) anthracene	mg/kg	5/ 23	**20**	0.12*	0.24
Other					
Asbestos	N/A	2/20			

TABLE 6.6: List of Outliers – Plot 2

Contaminant	Hole Ref	Depth	Concentration (mg/kg)
Dibenzo (ah) anthracene	BH503	0.2	0.87
TPH C10C40	BH504	0.2	470
Dibenzo (ah) anthracene	BH504	0.2	0.95
TPH C10C40	TP530	0.1	5800
Benzo (a) anthracene	TP530	0.1	160
Benzo (a) pyrene	TP530	0.1	120
Benzo (b) fluoranthene	TP530	0.1	140
Benzo (k) fluoranthene	TP530	0.1	79
Chrysene	TP530	0.1	130
Dibenzo (ah) anthracene	TP530	0.1	20
Fluoranthene	TP530	0.1	350
Indeno (1,2,3 - cd) pyrene	TP530	0.1	52
Naphthalene	TP530	0.1	3.9
Phenanthrene	TP530	0.1	230
TPH C10C40	TP535	0.1	1000
Benzo (a) pyrene	TP535	0.1	28
Benzo (b) fluoranthene	TP535	0.1	35
Dibenzo (ah) anthracene	TP535	0.1	2.4
Indeno (1,2,3 - cd) pyrene	TP535	0.1	12
Naphthalene	TP535	0.1	0.93
Dibenzo (ah) anthracene	TP554	0.1	0.34

Metals

6.3.2. A single location noted a minor exceedance of Lead in TP535. This is located close to the road alignment, and therefore is likely to either be under hard standing or pavement, and therefore not of concern to residential receptors.

6.3.3. Lead has been assessed using the Category 4 Screening levels (C4SLs). The C4SLs have been developed as indicative of a Low Risk, rather than Minimal Risk; however, in the absence of any other screening level they are considered to be appropriate for use, particularly as they are significantly lower than the withdrawn SGVs and they represent values below which there will not be an unacceptable risk.

PAHs

6.3.4. Although a number of PAHs exceed the screening criteria for residential properties, following the removal of statistical outliers from the data set, the 95%ile does not exceed the screening criteria for any PAHs, therefore it is not considered that there is a site wide risk. Concentrations of PAHs at TP 530 and TP 535 require remediation.

TPH

6.3.5. Six locations exceed the screening criteria for TPH C10-C40. Three of which are statistical outliers, and therefore should be treated as hotspots and removed.

6.3.6. The remaining three locations which exceeded the screening criteria should not be used as material in the top 1m of residential gardens.

Asbestos

6.3.7. Table 6.7 details the detected asbestos from the 20 asbestos screens in Plot 2.

TABLE 6.7: Asbestos Detections – Plot 2

Location	Depth	Asbestos Type
TP 535	0.1	Chrysotile – Loose Fibres
TP552	0.1	Chrysotile & Crocidolite Loose Fibres

6.3.8. Considering the intrinsically heterogeneous nature of asbestos contamination, it should be assumed that asbestos contamination of made ground may be present across the site. This will be further assessed before material is utilised in high sensitivity settings.

6.4. Summary

6.4.1. The screening assessment detailed above identifies a number of hotspots of contamination which require removal. Subject to these being removed, it is considered that there is not a site wide contamination risk presented by shallow soils on either Plot 1 or Plot 2.

6.4.2. It should be noted however that it is expected that further hotspots of contamination may be encountered during the demolition of buildings and excavation of ground slabs. Should further hotspots of contamination be identified they will be assessed and remediation undertaken.

6.4.3. It is proposed that as part of the Phase 1 Infrastructure Works on the Waterfront, hotspots of contamination as specified in Section 7 are due to be remediated.

6.4.4. In the absence of specific site layout proposals for Plots 1 and 2, the objective of this remedial work is to remediate identified hotspots. It is not the objective of this work to remediate the entire site to the standards required for residential properties.

6.4.5. Following the removal of hotspots of contamination, a volume of shallow material on the site will remain which presents a potentially significant risk to human health. A volume of this material exists under hard standing, which is unlikely to be a suitable growth medium for residential gardens.

6.4.6. When specific development proposals for the residential plots, the data should be reappraised in light of the proposed land use across Plots 1 and 2 (ie, areas under roads, verges, communal open space etc).

6.4.7. It is considered that a volume of topsoil material on site may be suitable for use as topsoil. When detailed proposals of topsoil reuse are known, existing topsoil on the site will require visual and chemical validation to ensure that the material does not pose unacceptable risks to end users considering its proposed use.

7.0 REMEDIATION STRATEGY

7.1. Road Alignment

7.1.1. It is considered that remediation along the road alignment is limited to;

- A watching brief for grossly contaminated soils (ie free phase oil and bulk asbestos) which if encountered should be further assessed/ removed;
- protective water supply pipes; and,
- mitigation measures for construction workers due to the presence of hydrocarbon contamination and asbestos.

7.2. Residential Plots 1 and 2

7.2.1. As stated in Section 6, for the residential Plots this Remediation Strategy is intended as an outline strategy for residential development, and this document will require updating when specific layout and development proposals are made available for Plots 1 and 2.

7.2.2. Table 7.1 below presents the pollutant linkages at the site identified as requiring further action as part of the proposed remedial strategy for Plots 1 and 2:

Table 7.1: Identified Pollutant Linkages

Contaminant	Pathway/ Exposure	Receptors	Details
Human Health – End Users			
PAHs and TPH	Exposure through dermal absorption, ingestion of soil and dust	Site end users	On both Plots 1 and 2, elevated hotspots of hydrocarbon contamination have been identified. These will require remediation. Statistical outliers excluded, the 95%ile for PAHs and TPH did not exceed the screening criteria, and therefore it is not considered that there is a site wide risk. It should be expected however that further hotspots of contamination not encountered during this investigation may remain.
Asbestos	Inhalation of free fibres	Site end users	Any potential source-pathway-target linkage involving asbestos should be removed; either by demonstrably severing the potential exposure pathway or removing these materials entirely.
Human Health – Ground Workers and Maintenance Workers			
PAHs & TPH	Exposure through dermal absorption, ingestion of soil and dust	Current and future site workers	Given the limited exposure frequency and duration associated with any such works, good site practice and the provision of basic PPE is considered appropriate to deal with any potential risks.
Asbestos	Inhalation of free fibres	Current and future site workers	Given the potential exposure of workers to asbestos containing materials and asbestos fibres during any ground works undertaken; all of the existing site information will be provided to potential Contractors at tender stage in order

			for them to review and assess the risks present. Any Contractor employed will be suitably qualified and experienced to safely undertake the required works in light of these potential risks and appropriate risk assessment, method statements and site controls be employed in future phases of work as appropriate; All of which will be maintained under the framework of responsibilities described by the Construction Design and Management Regulations (2015).
Buildings and Infrastructure			
Ground Gas (CO^2)	Ingress into buildings and structures	Site end users	Based on the gas monitoring undertaken the site has been characterised as gas Characteristic Situation 2 under BS 8485:2015 and an appropriate system to deliver the required gas protection score will need to be designed and agreed in writing with the Local Planning Authority as part of the planning process associated with any future development.
Potable Water Supply Pipes			
Hydrocarbon (TPH and PAH)	Diffusion from soils and water in contact	Site end users	Based on some elevated hydrocarbon concentrations being identified by the soil sampling analysis, consultation with the water utility provider with regard to what hydrocarbon resistant pipe materials will be required as part of the development.

7.2.3. Soils

7.2.4. With regard to potable water pipes, based on a review of guidance presented in UKWIR guidance document 04/WM/03/21: Guidance for the Selection of Water Supply Pipes, Barrier Piping is considered likely to be required based on hydrocarbon concentrations being elevated above criteria presented therein.

7.2.5. It should be noted however that there is no legal requirement for the water utility provider to adopt this guidance and they may have an alternative list of preferred materials or products. Discussion should therefore be undertaken with the provider to agree the piping materials to be used.

7.2.6. With regard to ground workers, based on the anticipated exposure frequency and duration associated with any such exposure and on the basis that normal personal protective equipment (PPE) and good site practice can be reasonably assumed to address any potential risks, no specific remedial actions are considered to be required.

7.2.7. Mitigation measures with regard to asbestos should be compliant with best practice and CAR 2012 (Control of Asbestos Regulations).

7.2.8. The hotspots identified in Section 6 require remediation whereby contaminated material should be remediated. The base and the sides of the excavation require validation testing.

7.3. Ground Gas

7.3.1. Under the framework outlined in BS 8485:2015 the considered to represent Characteristic Situation 2 and some gas protection measures will therefore be required in any future development.

7.3.2. Based on the assumption that this development will include residential houses, which would be classified as Type A under the above guidance, this gas protection score would likely have to achieve at least 3.5 points (see Table 4 of the above guidance).

7.3.3. The potential measures and associated gas protection scores which may be employed to achieve this are presented in Tables 5-7 of BS 8485:2015.

7.4. Groundwater

7.4.1. As outlined in previous sections, groundwater contamination issues have been identified beneath the wider Waterfront area and these are being address under separate contracts and appointments.

7.4.2. The residential Plots are not considered to represent either a source zone from which this groundwater contamination has been/is being derived (i.e. neither area is considered to contain a source in this regard), and an existing remediation design being implemented in regards to this contamination does not require access to the two residential Plots.

7.4.3. Furthermore it should be noted that, given the depth at which the groundwater contamination has been identified, any potential source-pathway-target linkages involving potential risk to human health are considered highly unlikely to be present in the more significantly impact areas of the Waterfront site.

7.5. Verification Reporting

7.5.1. In order to verify the proposed remedial measures detailed herein have been implemented as agreed it will be necessary to gather a range of appropriate data as works progress. These are proposed to include, but not necessarily be limited to:

- Site diaries, detailing the phases of work and works undertaken;
- Site photographs, considered key in demonstrating specific elements of the remedial strategy have been undertaking as required to achieve their aims;
- The specification of the gas resistant membrane installed within the completed floor slab construction;
- As built drawings detailing how this membrane has been included to achieve the aim of severing any potential pathway by which ground gases could migrated into the completed structures;
- The verification reporting provided by the suitably qualified and experienced independent contractor employed, confirming the appropriate installation and successful integrity testing of this membrane;
- A specification of the potable water supply pipes installed at the site, demonstrating their ability to resist any potential migration of any contaminants at the site into these;

- Waste classification and acceptance sampling results, demonstrating any materials being removed from site are proposed to be taken to an appropriate facility/facilities;
- Waste licences for any facilities proposed to be used to accept materials from the site;
- Waste tickets, detailing both the removal of materials from the site as well as its acceptance to the documented facility/facilities; and,
- Validation sampling, demonstrating the physical and chemical suitability of any materials imported onto the site for their proposed use.

7.5.2. With regard to the validation of any materials being imported to the site it is proposed to use generic assessment criteria designed to be protective of human health of end users at a commercial development.

7.5.3. Once all of the above has been received a Verification Report will be produced and submitted to the Local Authority in order to demonstrate that the works have been undertaken as specified and that all potential SPR linkages have been effectively addressed, pursuant to the discharge of conditions requiring action prior to the occupation of the finished development.

7.6. Remediation Works

7.6.1. Based upon a review of the relevant pollutant linkages and viable remedial options, the following remediation strategy and outline remedial works programme has been formulated.

Table 7.2: Outline Remedial Works Programme

Remediation Tasks	
A.1.	Locate and **mark out existing services** on site in areas of proposed excavation.
A.2.	**Demolition of existing structures** and general site clearance of any deleterious materials remaining on site.
A.3.	**Excavation and delineation of contamination hotspots**, identified at TP512, TP530 and TP535 during the most recent investigations commissioned by CampbellReith. The base and sides of these excavations will be sampled and screened against appropriate S4UL screening values.
A.4.	Appropriate **waste classification and acceptance analysis** of any materials being removed from site to be undertaken by a suitably experienced ground works contractor in order to assure these sent to a suitable and licenced facility.
A.5.	**Waste tickets** demonstrating both the removal of any material from the site and its acceptance to an appropriate facility to be kept by the groundworks contractor and supplied to CampbellReith to be included in subsequent Validation Reporting. **Copies of licences** demonstrating the suitability of the receiving facility/facilities will also be required.
A.6.	A **Watching Brief** to adequately cater for any unforeseen contamination should be **maintained throughout all intrusive works** and a visual inspection is to be undertaken as former floor slabs and hardstanding are removed. Any unexpected potential contamination or materials of potential concern are to be assessed by an Environmental Consultant and removed for off-site treatment/disposal if required. Should any such material(s) be encountered the Local Authority Environmental Health Department are to be contacted in order for an appropriate way forward be agreed if required.
A.7.	**Installation of potable water pipes**, the specification of the materials to be used in which is to be discussed and agreed with the water utility provider prior to installation.
A.8.	CampbellReith to produce the **final Validation Report** required to demonstrate the remediation works detailed herein have been undertaken as agreed.

8.0 REMEDIATION ACTIVITIES AND CONTROLS

8.1. Licences and Approvals

8.1.1. Following the approval of a Remediation Strategy by the Regulator and key stakeholders, it will be necessary to apply for any appropriate licences and consents required as part of the proposed works (e.g. Waste Management Licence Exemption, Discharge Consent and Land Drainage Consent).

8.2. Site Diaries

8.2.1. Any Contractor shall be required to maintain site diaries, together with photographs, detailing all contamination issues arising during the development, to include any instances where unexpected potentially contaminated soils or other materials of concern are encountered and any associated actions taken.

8.3. Construction (Design and Management) Regulations 2015

8.3.1. The proposed works are considered to be notifiable under current Health and Safety legislation and as such any Contractor employed will be required to make provision for the requirements of Construction (Design and Management) Regulations 2015, and should have significant experience in performing this role.

8.4. Asbestos

8.4.1. Historic investigations undertaken at the site have identified asbestos containing materials and fibres within the Made Ground.

8.4.2. Potential risks with regard to ground workers and disposal of waste soils will require some consideration and appropriate management during the works proposed as part of the reserved matters application. This will be achieved by the following:

- Employment of suitably qualified and experienced contractors to undertake such phases of work;
- Provision of all necessary historic ground condition data to relevant parties prior to them undertaking works on site;
- Production and maintenance of appropriate Health and Safety documentation under the Construction Design and Management Regulation (2015); and,
- Classification and appropriate control of any waste soils to be removed from the site.

8.4.3. With regards to the proposed development, given the sensitivity of the proposed end use, additional consideration and works will be required to address potential risks. In brief the Made Ground material encountered at the site is known to include some asbestos and as such any source-pathway-target linkage associated with these materials should be severed or the materials removed entirely.

8.4.4. It is not considered unfeasible for some Made Ground to potentially be left in situ beneath the finished development; however this will likely dictate a requirement for a robust system to be

put in place to prevent end users being exposed to any asbestos therein. This would likely include a cover system and validated, suitable material; as well as a physical barrier to prevent future mixing or digging realising any potential exposure, such as the provision of a geogrid/geomembrane and a hard-dig layer to deter accident penetration through to underlying soils.

8.5. Control Measures

8.5.1. On the basis of the information available to date the risks to site workers are considered to be low and standard safety precautions sufficient to mitigate any potential risk (e.g. the adoption of good hygiene and the use of overalls, gloves and dust masks if necessary). However, where any residual contamination is encountered unexpectedly, appropriate masks may be required and as such supplies should be available on site. During works on the site, detailed control measures will be required to include (but not limited to):

- Monitoring of actual changes to ensure mitigation of potential adverse effects;
- Education of workers to risks associated with contamination;
- Posting of appropriate warning signs;
- Provision of suitable PPE and decontamination units; and,
- Production of a validation report.

8.6. Odour

8.6.1. From observations made throughout the ground investigation stage, it is considered highly unlikely that the soils may give rise to any odours sufficient to constitute a nuisance either on site or in the surrounding area.

8.6.2. Notwithstanding the above, any odours that do occur unexpectedly are likely to be strongest during the time of excavation and this would only occur for a short period of time.

8.6.3. Once the excavations have been filled it is envisaged that any odours generated will cease and as such no further consideration or action is required.

8.7. Noise and Vibration

8.7.1. The site is currently either unoccupied or utilised for commercial use, however it is acknowledged that residential dwellings are present in the surrounding area, namely to the south west, south and south east of the study areas.

8.7.2. Overall it is considered unlikely that the impacts of any noise and vibration during the course of the remediation works and site works are unlikely to cause nuisance; however additional consideration in this regard may be considered pertinent.

8.8. Dust

8.8.1. The control of dust generation on construction sites should be undertaken in accordance with current industry practice and measures to control dust such as damping down dusty operations will be employed.

8.9. Site Waste Management Plan

8.9.1. In accordance with the scope of the demolition & remediation works, a Site Waste Management Plan (SWMP) should be compiled prior to commencement of works, to forecast the likely volumes of material to be generated from site and likely destinations of waste management facilities. The SWMP will be developed from the pre-tender plan compiled by the Employer's Representative and is intended to be a live document. Therefore the plan will be updated during the course of the works and completed with Duty of Care information for submission to the Employer's Representative on completion of the project.

8.10. Materials Management Plan

8.10.1. Should it be proposed to re-use material excavated from beneath the site this will have to be appropriately managed under current Waste Management legislation as part of an agreed Materials Management Plan (MMP).

8.11. Hours of Working

8.11.1. The hours of working for the main excavation construction and remediation works on the site will be in accordance with the planning conditions:

- 0800 – 1800 Monday to Friday; and,
- 0800 – 1300 Saturday.

8.11.2. No work will be undertaken on Sundays and Bank Holidays.

ENVIRONMENTAL RISK ASSESSMENT SUPPORTING INFORMATION

Soil Screening Values

The Environment Agency has published non statutory technical guidance for Regulators and their advisors to assess the chronic risk posed to human health from land contamination, known as the Contaminated Land Exposure Assessment (CLEA) Framework.

The CLEA Framework documents and associated risk assessment model are subject to ongoing technical review. In July 2008 guidance documents CLR7 to 10, which previously underpinned the CLEA Framework, were withdrawn. In January 2009 the Environment Agency published CLEA V1.04 risk assessment software and associated guidance documents[1] as a replacement to the previous CLEA UK Beta Version and documents CLR 7 to 10. Further revisions were made in September 2009 to CLEA V1.05 and October 2009 to CLEA 1.06 risk assessment software.

Soil Guideline Values (SGVs) were produced by Defra/EA and Generic Assessment Criteria (GACs) were produced by CampbellReith and others. These were based on the CLEA model and supporting guidance (SR2 and SR3) and where based on a minimal/tolerable level of risk.

In December 2014 DEFRA released final versions of the C4SLs (Category 4 Screening Levels) for 6 No. contaminants (As, benzene, BaP, Cd, Cr VI and Pb) together with a Policy Companion Document and an Erratum. These represent contaminant soil concentrations which present an acceptable (Low) level of risk, within the context of Part 2A, i.e. they are representative of Category 4 sites. In the Contaminated Land Statutory Guidance (April 2012), sites under Part 2A assessments are categorised 1 - 4, with Category 1 being definitely Part 2A and Category 4 definitely not Part 2A ('where there is no risk or the level of risk posed is low').

The C4SLs were produced using the CLEA model and follow the general approach of SR3, although, changes were made to exposure parameters and to the toxicological basis of the assessments. The C4SLs are based on a low level of toxicological concern (LLTC) and are, by definition, less conservative than Health Criteria Values (HCVs) which are the basis for assessments defined in SR2 and used in the generation of SGVs and GACs. They are, therefore, indicative of a low level of risk.

Since their release, DEFRA have confirmed that C4SLs can be used in the planning regime and DCLG (Department for Communities and Local Government) amended Planning Practice Guidance (PPG) on Land Affected by Contamination (12 June 2014)[2] which stated that C4SLs provide a simple test for deciding when land is suitable for use and definitely not contaminated land'. On 03 September 2014 the Secretary for the Environment, Lord de Mauley, issued a letter (attached) to all Local Authorities which references DCLG's PPG and confirms that C4SLs could be used in planning and provide a simple test for establishing when sites are suitable for use.

LQM/CIEH issued S4ULs in December 2014 for 89 contaminants (metals, BTEX, banded TPH, speciated PAH, chlorinated solvents, phenols, chlorophenols, chlorobenzenes, pesticides and a number of miscellaneous others). The S4ULs have generally adopted the revisions to the exposure modelling that were developed in the production of the C4SLs. Critically, however, they are based on HCVs to produce concentrations which are indicative of a minimal/tolerable level of risk.

S4ULs are therefore used as the preliminary stage of soil assessments since they are indicative of minimal/tolerable level of risk. If these are exceeded then the C4SLs are used (if available) to determine if the risk could be described as low.

Where CLEA compliant S4ULs or C4SLs are not available reference is made to Generic Assessment Criteria (GAC) derived using the CLEA UK model (beta version). These are currently used for cyanide. Where referred to, the non-compliant standing of these values is considered.

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[1] Environment Agency Report Ref: SC050021/SR2 - *Human Health Toxicological Assessment of Contaminants in Soil.* January 2009. Environment Agency Report Ref: SC050021/SR3 – *Updated background to the CLEA model.* January 2009.

[2] http://planningguidance.planningportal.gov.uk/blog/guidance/land-affected-by-contamination/land-affected-by-contamination-guidance/

Selection of Appropriate [Tier 2] Soil Screening Values

The CLEA model is based upon defined exposure scenarios and six generic land uses have been established for the C4SLs and S4ULs. These set out a discrete set of circumstances where exposure may occur, including a source, the pathways, and the exposed population.

The three generic land use scenarios used in the development of SGVs are:

- **commercial / Industrial;**
- **allotments; and,**
- **residential with plant uptake,**
- **residential without plant uptake,**
- **public open space (residential)**
- **public open space (parks)**

It is noted that the CLEA screening values are generic and not always applicable. Where the CLEA conceptual model is not appropriate it will be necessary to develop site specific Detailed Quantitative Risk Assessment screening values as a further stage of assessment.

It is noted that the CLEA model does not consider risks from contaminated waters beneath the site to human health and the model also assumes that no free product is present. Should such conditions exist at the subject site the requirement for application of an alternative risk assessment model should be assessed. Alternatively, construction workers are potentially exposed to acute risk and therefore require separate consideration.

Statistical Analysis of Soil Analytical Results

Statistical analysis of soil based analytical results has been undertaken in accordance with CL:AIRE Guidance on Comparing Soil Contamination Data with a Critical Concentration (May 2008). The use of the Mean Value Test and Maximum Value Test is still considered appropriate for site assessments. Although the guidance advocates use of the one - sample t test, this is a variation of the mean value test and establishes the confidence level at which the assessor can determine whether a particular screening level has / has not been succeeded. The mean value test used herein is set at the 95th percentile confidence limit in order to be risk conservative.

The Maximum Value Test is a statistical tool that is used to identify outlier values from a numerical distribution of results for a given determinant. These outlier values can be excluded and considered separately, and the remaining values are then used to calculate upper bound 95th percentile values ($95^{\%ile}$) (Mean Value Test) for comparison with the screening values.

The results are reviewed prior to any statistical analysis in order to determine if zoning of the soils is apparent and hence whether the site requires to be divided into averaging areas. Additional tables are presented where appropriate to reflect distinct ground characteristics relevant to the conceptual model.

Water Screening Values

This assessment considers potential risks to controlled waters (groundwater and surface waters) in relation to risks from any historical contamination. The most stringent test is that defined for Contaminated Land under Part 2A of the Environmental Protection Act, 1990. However, it should be recognised that a wider evaluation of risk is considered within the planning regime and CLR 11.

The Environment Agency has a wider policy agenda for the protection of controlled waters that will impinge upon judgements in relation to land contamination issues. This includes those for the Water Framework Directive and Groundwater Directive and wider legislation for both groundwater, surface water and associated elements (such as fisheries)[3].

The results of water analysis have been compared to screening values selected to assess the potential risk to the identified controlled water receptors in the Conceptual Model. The specific standards utilised for this purpose are considered in the assessment table footnotes and typically comprise: Environmental Quality Standards for the protection of aquatic life; Surface Water Standards; EC, UK and WHO Drinking Water Standards; or Background water quality (where no applicable standard exists).

The initial assessment considers the sensitivity of the receptor in the selection of the screening value. Advice for this purpose has been obtained principally from Environment Agency Technical Advice to Third Parties on Pollution of Controlled Waters for Part 2A of the Environmental Protection Act 1990, No 07/02. EA, 2002. (INFO-RA2-3e), as informed by the EA's GP3.

Where a viable pollutant linkage is considered to be present and the screening criteria exceeded, a Qualitative Risk Assessment is presented with associated recommendations. Depending on the specific objectives, policy and practice of the Environment Agency, discussion of water screening values may be subsequently required.

Definitions of Consequence, Probability and Risk

The following classification has been taken from Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66: 2008 Volume 1 (Environment Agency, NHBC and CIEH.

The key to the classification is that the designation of risk is based upon the consideration of both:

a) **the magnitude of the potential consequence (i.e. severity).**

[takes into account both the potential severity of the hazard and the sensitivity of the receptor]

b) **the magnitude of probability (i.e. likelihood).**
[takes into account both the presence of the hazard and receptor and the integrity of the pathway]

[3] Refer to Environment Agency Publications for Groundwater Protection Policy and Practice (GP3)

Classification of Consequence

Classification	Definition	Examples
Severe	Highly elevated concentrations **likely** to result in "significant harm" to human health as defined by the EPA 1990, Part 2A, if exposure occurs. Equivalent to EA **Category 1** pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce. Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population. Catastrophic damage to crops, buildings or property.	Significant harm to humans is defined in circular 01.2006 as death, disease*, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. Major fish kill in surface water from large spillage of contaminants from site. Highly elevated concentrations of List I and II substances present in groundwater close to small potable abstraction (high sensitivity). Explosion, causing building collapse (can also equate to immediate human health risk if buildings are occupied).
Medium	Elevated concentrations which could result in "significant harm" to human health as defined by the EPA 1990, Part 2A if exposure occurs. Equivalent to **EA Category 2** pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce. Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Significant damage to crops, buildings or property.	Significant harm to humans is defined in circular 01/2006 as death, disease*, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. Damage to building rendering it unsafe to occupy e.g. foundation damage resulting in instability. Ingress of contaminants through plastic potable water pipes.
Mild	Exposure to human health **unlikely** to lead to "significant harm". Equivalent to **EA Category 3** pollution incident including minimal or short lived effect on water quality; marginal effect on amenity value, agriculture or commerce. Minor or short lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long-term maintenance of the population.	Exposure could lead to slight short-term effects (e.g. mild skin rash). Surface spalling of concrete.

Classification	Definition	Examples
	Minor damage to crops, buildings or property.	
Minor	No measurable effect on humans. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects of damage to buildings, structures and services.	The loss of plants in a landscaping scheme. Discoloration of concrete.

Classification of Probability

Classification	Definition	Examples
High likelihood	There is pollutant linkage and an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution.	*a) Elevated concentrations of toxic contaminants are present in soils in the top 0.5m in a residential garden.* *b) Ground/groundwater contamination could be present from chemical works, containing a number of USTs, having been in operation on the same site for over 50 years.*
Likely	There is pollutant 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.	*a) Elevated concentrations of toxic contaminants are present in soils at depths of 0.5-1.0m in a residential garden, or the top 0.5m in public open space.* *b) Ground/groundwater contamination could be present from an industrial site containing a UST present between 1970 and 1990. The tank is known to be single skin. There is no evidence of leakage although there are no records of integrity tests.*
Low likelihood	There is pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place, and is less likely in the shorter term.	*a) Elevated concentrations of toxic contaminants are present in soils at depths >1m in a residential garden, or 0.5-1.0m in public open space.* *b) Ground/groundwater contamination could be present on a light industrial unit constructed in the 1990s containing a UST in operation over the last 10 years – the tank is double skinned but there is no integrity testing or evidence of leakage.*
Unlikely	There is pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long-term.	*a) Elevated concentrations of toxic contaminants are present below hardstanding.* *b) Light industrial units <10 yrs old containing a double-skinned UST with*

Classification	Definition	Examples
		annual integrity testing results available.

Note: A pollution linkage must first be established before probability is classified. If there is no pollution linkage then there is no potential risk. If there is no pollution linkage then there is no need to apply tests for probability and consequence.

For example if there is surface contamination and a principal aquifer is present at depth, but this principal aquifer is overlain by an aquiclude of significant thickness then there is no pollution linkage and the risks to the principal aquifer are not assessed. The report should identify both the source and the receptor but state that because there is no linkage there are no potential risks.

Description of the classified risks

Very high risk
There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without remediation action OR there is evidence that severe harm to a designated receptor is already occurring. Realisation of that risk is likely to present a substantial liability to be site owner/or occupier. Investigation is required as a matter of urgency and remediation works likely to follow in the short-term.

High risk
Harm is likely to arise to a designated receptor from an identified hazard at the site without remediation action. Realisation of the risk is likely to present a substantial liability to the site owner/or occupier. Investigation is required as a matter of urgency to clarify the risk. Remediation works may be necessary in the short-term and are likely over the longer term.

Moderate risk
It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely, that the harm would be relatively mild. Further investigative work is normally required to clarify the risk and to determine the potential liability to site owner/occupier. Some remediation works may be required in the longer term.

Low risk
It is possible that harm could arise to a designated receptor from identified hazard, but it is likely at worst, that this harm if realised would normally be mild. It is unlikely that the site owner/or occupier would face substantial liabilities from such a risk. Further investigative work (which is likely to be limited) to clarify the risk may be required. Any subsequent remediation works are likely to be relatively limited.

Very low risk
It is a low possibility that harm could arise to a designated receptor, but it is likely at worst, that the harm if realised would normally be mild or minor.

No potential risk
There is no potential risk if no pollution linkage has been established.

LIMITATIONS

Environmental & Geotechnical Interpretative Reports

1. This report provides available factual data for the site obtained only from the sources described in the text and related to the site on the basis of the location information provided by the client.
2. Where any data or information supplied by the client or other external source, including that from previous studies, has been used, it has been assumed that the information is correct. No responsibility can be accepted by CampbellReith for inaccuracies within this data or information. In relation to historic maps the accuracy of maps cannot be guaranteed and it should be recognized that different conditions on site may have existed between and subsequent to the various map surveys.
3. This report is limited to those aspects of historical land use and enquiries related to environmental matters reported on and no liability is accepted for any other aspects. The opinions expressed cannot be absolute due to the limit of time and resources implicit within the agreed brief and the possibility of unrecorded previous uses of the site and adjacent land.
4. The material encountered and samples obtained during on-site investigations represent only a small proportion of the materials present on the site. There may be other conditions prevailing at the site which have not been revealed and which have therefore not been taken into account in this report. These risks can be minimised and reduced by additional investigations. If significant variations become evident, additional specialist advice should be sought to assess the implications of these few findings.
5. The generalised soil conditions described in the text are intended to convey trends in subsurface conditions. The boundaries between strata are approximate and have been developed on interpretations of the exploration locations and samples collected.
6. Water level and gas readings have been taken at times and under conditions stated on the exploration logs. It must be noted that fluctuations in the level of groundwater or gas may occur due to a variety of factors which may differ from those prevailing at the time the measurements were taken.
7. Please note that CampbellReith cannot accept any liability for observations or opinions expressed regarding the absence or presence of asbestos or on any product or waste that may contain asbestos. We recommend that an asbestos specialist, with appropriate professional indemnity insurance, is employed directly by the client in every case where asbestos may be present on the site or within the buildings or installations. Any comments made in this report with respect to asbestos, or asbestos containing materials, are only included to assist the client with the initial appraisal of the project and should not be relied upon in any way.
8. The findings and opinions expressed are relevant to those dates of the reported site work and should not be relied upon to represent conditions at substantially later dates.
9. This report is produced solely for the benefit of the client, and no liability is accepted for any reliance placed upon it by any other party unless specifically agreed in writing.

Appendix A: Figures

Figure 1: Site Location

Figure 2: Annotated Site Plan

Figure 3: Exploratory Location Plan

Daedalus

Client: Homes & Communites Agency

Figure 1:
Waterfront Infrastructure - Site Location

Scale: 1:15000@A3
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Job Number: 12575
Drawn by - Checked by: RP - DM
Drg No - Status/Revision: GIS003 - A
File location: N:\12500 - 12749\12575 R - Daedalus 4\Workspaces (pdf in Outputs)
Date (Revision History): 26/05/2016 (A, First Issue, 26/05/16, RP)

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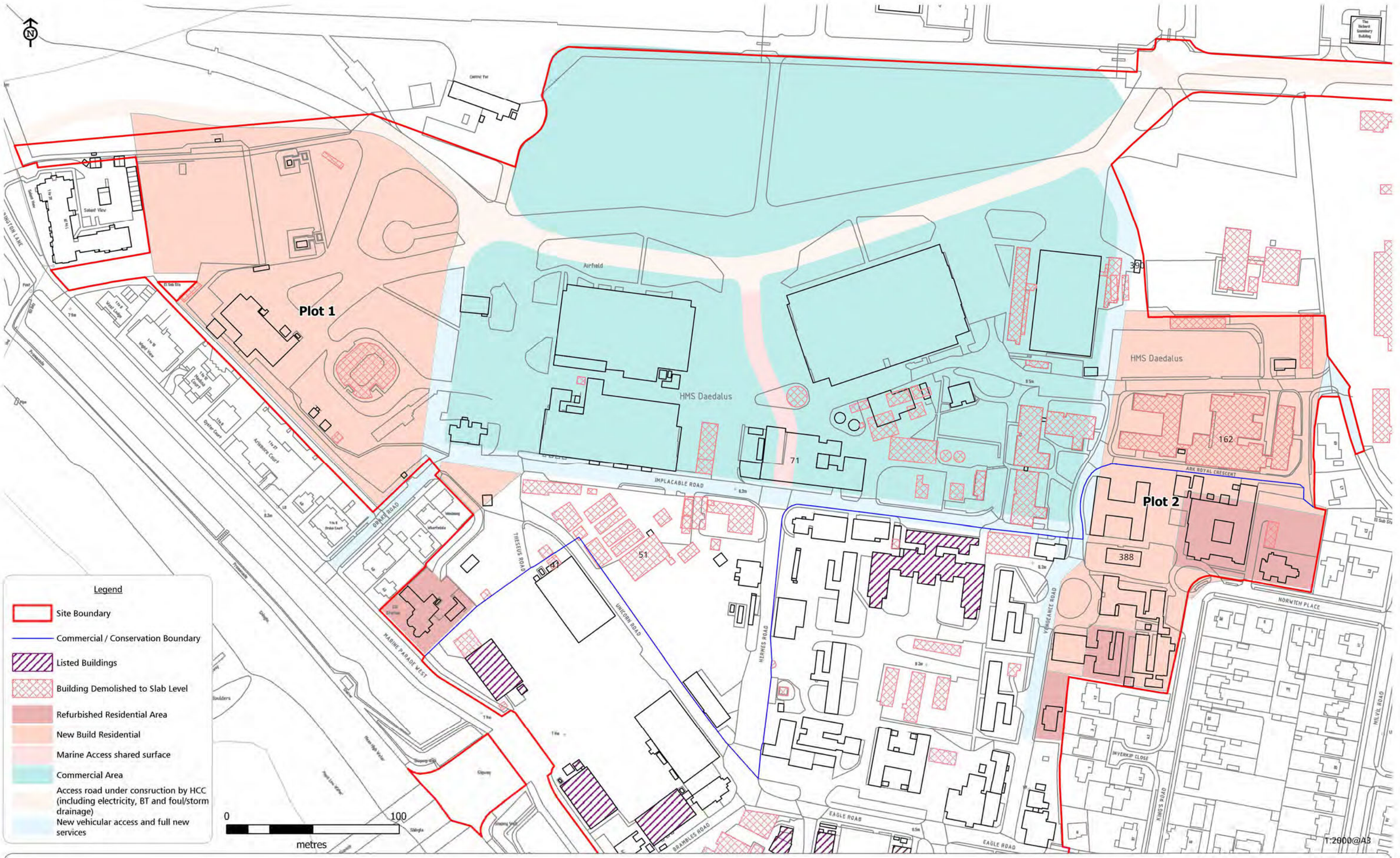

Daedalus

Client: Homes & Communites Agency

Figure 2:
Waterfront Infrastructure - Site Layout

Scale: 1:2000@A3

Job Number: 12575
Drawn by - Checked by: RP - DM
Drg No - Status/Revision: GIS002 - B
File location: N:\12500 - 12749\12575 R - Daedalus 4\Workspaces (pdf in Outputs)
Date (Revision History): 08/06/2016 (A, First Issue, 26/05/16, RP; B, Minor Amendments, 08/06/16, RP))

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Plot 1

Plot 2

Legend

- Site Boundary
- Commercial / Conservation Boundary
- Listed Buildings
- Building Demolished to Slab Level

Proposed Exploratory Holes

- Borehole
- California Bearing Ratio
- Trial Pit

Exploratory Hole Locations

- Cable Percussion Borehole
- California Bearing Ratio
- Trial Pit
- Trial Pit (with Soakaway Test)
- Window Sample

- Refurbished Residential Area
- New Build Residential
- Commercial Area
- Access road under consruction by HCC (including electricity, BT and foul/storm drainage)
- New vehicular access and full new services

0 100 metres

1:2000@A3

Daedalus

Client: Homes & Communites Agency

Figure 3:
Waterfront Infrastructure - Exploratory Hole Location Plan

Scale: 1:2000@A3

Job Number: 12575
Drawn by - Checked by: RP/LB - DM
Drg No - Status/Revision: GIS001 - 8
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Date (Revision History): 14/06/2016 (A, First Issue, 25/05/16, RP; 14/06/16, LB))

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Appendix B: Ground Investigation Information

CC Ground Investigations Ltd

INTERIM

FACTUAL REPORT

SITE: Daedalus Waterfront Infrastructure

CLIENT: Campbell Reith

ORDER No: **12575**

DATE: 24 August 2016

REPORT No: C5234

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APPENDICES

Appendix A – Site Plan

Appendix B – Exploratory Hole Data

Appendix C – Laboratory Test Results

Appendix D – Gas and Groundwater Monitoring

Appendix E – SPT Calibration Data

1. INTRODUCTION

This investigation was carried out by CC Ground Investigations Ltd (CCGI) on the instruction and on behalf of Campbell Reith.

The purpose of the ground investigation was to provide information to assist in the development of the site into residential plots.

The scope of the ground investigation was defined in the Engineer's specification, reference: DMtt12575-260516-Waterfront GI.pdf.

This report describes the work carried out by CC Ground Investigations Ltd and presents the findings.

All information, comments and opinions given in this report are based on the ground conditions encountered during the site work, and on the results of laboratory and field tests performed during the investigation. There may however be conditions at or adjacent to the site which have not been taken into account, such as unpredictable soil strata and water conditions between or below exploratory holes. A careful watch should be maintained during any future groundworks and the comments of this report reviewed as necessary.

This report has been prepared for Campbell Reith. This report shall not be relied upon or transferred to other parties without the written consent of CC Ground Investigations Ltd. Should any information contained within this report be used by any unauthorised third party it is done so at their own risk and shall not be the responsibility of CC Ground Investigations Ltd.

2. SITE DESCRIPTION AND GEOLOGY

2.1 Site Description

The site of investigation comprises two plots of land to the East and West of the existing commercial zone; together forming part of the 'Waterfront', an area of mixed commercial properties, hangars and disused buildings between Daedalus airfield to the North and the sea to the South on the Gosport peninsula, near Portsmouth. The site is centred on the approximate National Grid Reference 456002E, 102050N.

2.2 Geology

Geological Records (British Geological Survey (BGS), England and Wales sheet 331 1:50,000 scale) indicate the site is underlain by superficial River Terrace Deposits. Underlying solid geology comprising The Selsey Sand Formation and Earnley Sand Formation is recorded.

3. GROUND INVESTIGATION

3.1 Fieldwork

Fifty-one exploratory holes were carried out between 25th July and 2nd August 2016. All exploratory hole locations are shown on the site plan (Appendix A). The exploratory hole locations were set out by CCGI as directed by the Client on site.

The fieldwork was carried out in general accordance with BS5930; 2015

Four boreholes, referenced BH501 to BH504 (Exploratory Hole Data – Appendix B) were formed using a towable Dando 2000 cable percussion drilling rig. Following CAT scanning hand tools were used to excavate an inspection pit to a maximum depth of 1.20m to check for buried services. Bulk disturbed and environmental soil samples were taken and retained from the inspection pits. The boreholes were then advanced using cable percussion techniques to produce small and bulk disturbed samples which were logged on site.

Undisturbed samples of 100mm nominal diameter were taken in suitable cohesive material using an open drive sampler (UT100. The samples were wax sealed on site to prevent moisture loss.

Boreholes were monitored for groundwater ingress as they were advanced. Water levels were also recorded at the start and finish of each shifts work, on completion of the borehole and are presented on the relevant log.

On completion combined gas and water monitoring standpipes were installed in BH501 to BH504. Each installation consisted of a 50mm ID HDPE slotted tube set in a filter response zone of limestone free gravel. The installation was sealed above and below with a bentonite pellet seal and accessed via a valve assembly. The installations were protected at the surface by a lockable stopcock cover set in concrete. Installation details are given on the relevant borehole log.

Following CAT scanning, forty-seven trial pits, (Exploratory Hole Data – Appendix B) were excavated by a JCB 3CX mechanical excavator with a 0.60m wide backactor bucket. Initially the use of a hydraulic breaker was used at several locations to penetrate surface hardstanding. Several planned locations were not completed due to services and other restrictions on site. Details of trial pits completed are presented in table 1, below.

TP ref	Date	Depth (m)	Easting	Northing	Remarks
TP501	27/07/2016	3.00	455637.05	101489.43	
TP502	N/A	N/A	-	-	Access not possible.
TP503	27/07/2016	0.57	455657.52	101480.5	Terminated due to buried services.
TP504	27/07/2016	3.00	455685.08	101494.02	
TP505	27/07/2016	3.00	455715.77	101477.1	
TP506	26/07/2016	3.00	455640.45	101464.21	
TP507	27/07/2016	3.00	455673.71	101450.85	
TP508	27/07/2016	3.00	455696.07	101456.65	
TP509	27/07/2016	3.00	455716.46	101451.66	
TP510	26/07/2016	3.20	455582.56	101416.99	
TP511	26/07/2016	3.00	455596.99	101432.49	
TP512	26/07/2016	0.75	455621.99	101437.33	Refused at 0.75m on buried concrete.
TP512A	27/07/2016	0.30	455648.99	101428.38	Refused at 0.30m on buried concrete.
TP513	27/07/2016	3.00	455672.49	101427.76	
TP514	27/07/2016	3.00	455694.14	101422.09	
TP515	26/07/2016	3.00	455617.29	101387.62	
TP516	28/07/2016	3.00	455643.46	101389.88	
TP517	27/07/2016	3.10	455678.15	101395.73	
TP518	28/07/2016	3.00	455687.56	101411.07	
TP519	27/07/2016	3.00	455719.14	101400.27	

TP ref	Date	Depth (m)	Easting	Northing	Remarks
TP520	28/07/2016	0.90	455651.53	101380.92	Refused at 0.90m on buried concrete.
TP521	28/07/2016	0.70	455690.58	101369.91	Refused at 0.70m on buried concrete.
TP522	N/A	N/A	-	-	Not undertaken due to service restrictions.
TP523	28/07/2016	3.00	455650.64	101352.77	
TP524	28/07/2016	3.00	455669.03	101343.75	
TP525	28/07/2016	3.00	455705.97	101348.44	
TP526	28/07/2016	0.35	455687.11	101322.11	Refused at 0.35m on buried concrete.
TP527	N/A	N/A	-	-	Access not possible.
TP528	N/A	N/A	-	-	Access not possible.
TP529	01/08/2016	2.90	456094.85	101381.64	
TP530	01/08/2016	3.00	456117.23	101392.47	
TP531	N/A	N/A	-	-	Access not possible.
TP532	N/A	N/A	-	-	Access not possible.
TP533	01/08/2016	2.80	456200.49	101391.58	
TP534	N/A	N/A	-	-	Access not possible.
TP535	01/08/2016	2.90	456100.11	101342.25	
TP536	29/07/2016	3.00	456135.61	101338.6	
TP537	02/08/2016	1.00	456160.31	101362.59	Refused at 1.00m on buried concrete.
TP538	29/07/2016	3.00	456181.07	101344.82	
TP539	29/07/2016	3.00	456216.84	101371.64	
TP540	29/07/2016	3.00	456211.44	101342.45	
TP541	01/08/2016	2.90	456092.85	101271.51	
TP542	N/A	N/A	-	-	Not undertaken due to service restrictions.
TP543	01/08/2016	2.60	456143.36	101297.2	
TP544	29/07/2016	3.00	456170.34	101313.28	
TP545	29/07/2016	3.00	456211.14	101304.38	
TP546	02/08/2016	2.70	456091.01	101250.27	
TP547	01/08/2016	2.70	456116.05	101269.16	
TP548	01/08/2016	2.80	456132.18	101275.29	
TP549	27/07/2016	3.00	456183.71	101271.08	
TP550	02/08/2016	2.50	456085.63	101210.93	
TP551	02/08/2016	2.90	456068.01	101192.33	
TP552	02/08/2016	3.00	456066.6	101169.99	

Table 1. Trial pits.

Representative bulk, small disturbed and environmental samples were taken and retained at a range of depths.

Photographs of each trial pit profile, and of the spoil heap were taken and are presented following the relevant log in Appendix B.

On completion all trial pits were backfilled with arisings. The ground surface was left slightly mounded to accommodate future settlement.

Subsequent to fieldwork, all exploratory hole positions were surveyed and National Grid co-ordinates and levels are presented on the relevant log.

On completion of fieldwork all samples were brought to CCGI's office for storage.

3.2 In Situ Testing

Standard penetration tests (SPT's) were carried out in general accordance with BS EN ISO 22476-3:2005. A split barrel or a solid cone was used depending upon the materials encountered and the split barrel samples retained as small disturbed samples. The SPT N value was taken as the number of blows to penetrate the 300mm test drive following a 150mm seating drive. Where low penetration was recorded the seating drive was terminated at 25 blows and the test drive completed after a further 50 blows. SPT results are summarised as uncorrected N values on the borehole logs. SPT hammer calibration data is presented in Appendix E.

Hand shear vane tests were carried out using a direct read Pilcon Simmons Edeco hand vane tester. The results are presented on the relevant exploratory hole log. (Appendix B)

Five infiltration tests were carried out in trial pits TP536, TP543, TP554, TP550 and TP553 in general accordance with BRE 365. The results and calculated infiltration rate are included in Appendix B following the relevant log.

3.3 Logging

Soil samples from the exploratory holes were logged by an Engineering Geologist in general accordance with BS5930, Amendment 2 (2010). Bulk, small disturbed, and environmental soil samples were taken and retained at a range of depths. Water samples were also taken after the fieldwork phase of the investigation.

Environmental soil samples were stored on site in temperature controlled conditions. Soil and rock descriptions are presented in the borehole logs together with details of sampling, in situ testing and relevant comments on drilling techniques.

3.4 Laboratory Testing

The following laboratory tests will be carried out by Professional Soils Laboratory (UKAS No. 4043) in accordance with BS1377:1990, Parts 1 to 8, unless otherwise stated. The results will be presented in Appendix C in a later version of this report.

Test Type	No. of Tests	Remarks
Natural Moisture Content	20	The results are shown on the summary of soil classification tests.
Liquid and Plastic Limits	18	The results are shown on the plasticity chart and summary of soil classification tests.
Particle Size Distribution (wet sieving method)	20	The fine fractions of 9 of these tests were further analysed using the pipette method.
Optimum Moisture Content (compaction test)	4	2.5kg test
Quick Undrained Triaxial Test	3	Carried out on full diameter UT100 samples.
Organic matter content	5	Results are tabulated in Appendix C.
BRE SD1 chemical testing suite for soil and water	12	Testing carried out by Chemical Testing Laboratories in accordance with BRE Special Digest 1.

A range of chemical tests were carried out on soil and water samples by i2 Analytical (UKAS No. 4041). Testing was carried out in accordance with ISO 17025. The results are tabulated and presented in Appendix C.

3.5 Gas and Groundwater Monitoring

Two return visits of three have been made by CCGI to monitor and sample groundwater and at all installed boreholes.

The installations were monitored for methane, carbon dioxide, oxygen and hydrogen sulphide using a Gas Analyser GA5000 with internal flow meter. Installations were also monitored for gas flow, reported as gas flow in litres/hour. Subsequent readings are presented in Appendix E. Readings will be taken in general accordance with CIRIA 665.

Gas & Groundwater monitoring data is presented in Appendix D.

CC GROUND INVESTIGATIONS LIMITED

Reg 13(1)

4. REFERENCES

British Geological Society, Solid and Drift Sheet 331, Portsmouth, 1:50,000 scale

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BRE Digest 365 (2007), Soakaway Design.

BS 5930; 2015, Code of Practice for Site Investigations

BS 1377: Parts 1 to 9 (1990), Methods of Tests of Soils for Civil Engineering Purposes

BS EN ISO 14688: Part 1: (2002), Identification and description of soil.

BS EN ISO 14688: Part 2: (2004), Principles for a classification of soil.

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BS EN ISO 22476: Part 3: (2005), Standard penetration test.

CIRIA C665 (2007), Assessing risks posed by hazardous ground gases to buildings.

APPENDIX A

Appendix A – Site Plan

Plot 1

Plot 2

Legend

- Site Boundary
- Commercial / Conservation Boundary
- Listed Buildings
- Building Demolished to Slab Level

Proposed Exploratory Holes

- Borehole
- California Bearing Ratio
- Trial Pit

Exploratory Hole Locations

- Cable Percussion Borehole
- California Bearing Ratio
- Trial Pit
- Trial Pit (with Soakaway Test)
- Window Sample

- Refurbished Residential Area
- New Build Residential
- Commercial Area
- Access road under consruction by HCC (including electricity, BT and foul/storm drainage)
- New vehicular access and full new services

0 100 metres

1:2000@A3

Daedalus

Client: Homes & Communites Agency

Figure 3:
Waterfront Infrastructure - Exploratory Hole Location Plan

Scale: 1:2000@A3

Job Number: 12575
Drawn by - Checked by: RP/LB - DM
Drg No - Status/Revision: GIS001 - 8
File location: N:\12500 - 12749\12575 R - Daedalus 4\Workspaces (pdf in Outputs)
Date (Revision History): 14/06/2016 (A, First Issue, 25/05/16, RP; 14/06/16, LB))

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APPENDIX B

Appendix B – Exploratory Hole Data

KEY TO EXPLORATORY HOLE LOGS

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Logging

The logging of soils and rocks has been carried out in general accordance with BS 5930:2015.

Sample type

B	Large disturbed sample
C	Core run
CS	Rotary core sub-sample
D	Small disturbed sample
ES	Environmental sample
SPT	Standard penetration test carried out using split spoon (split spoon sample retained)
SPT C	Standard penetration test carried out using solid cone (no sample retained)
U70 or U100	Undisturbed sample followed by nominal diameter of sample. (Taken using thick-walled open-tube sampler – OS-TK/W)
UT100	Undisturbed sample followed by nominal diameter of sample. (Taken using thin-walled open-tube sampler – OS-T/W)
W	Water sample

Water levels

Initial Water Strike

Level after monitoring

3.00m/Dry
Standing Level/No groundwater encountered

Insitu Testing

S 30	Denotes SPT undertaken using split spoon followed by N Value (EN ISO 22476-3:2005+A1:2011)
C 30	Denotes SPT undertaken using solid cone followed by N Value (EN ISO 22476-3:2005+A1:2011)
*240	Denotes SPT where full test drive has not been completed and linearly extrapolated N value reported
**	Denotes no effective penetration (Linearly extrapolated N value > 1000)
H 30	Hand shear vane. Direct reading in kPa

Sample range

Undisturbed sample

Core run

U(T)100 Undisturbed Samples

Rotary core sub-sample

Installation Details

Porous Tip

Screened Standpipe

Bentonite seal

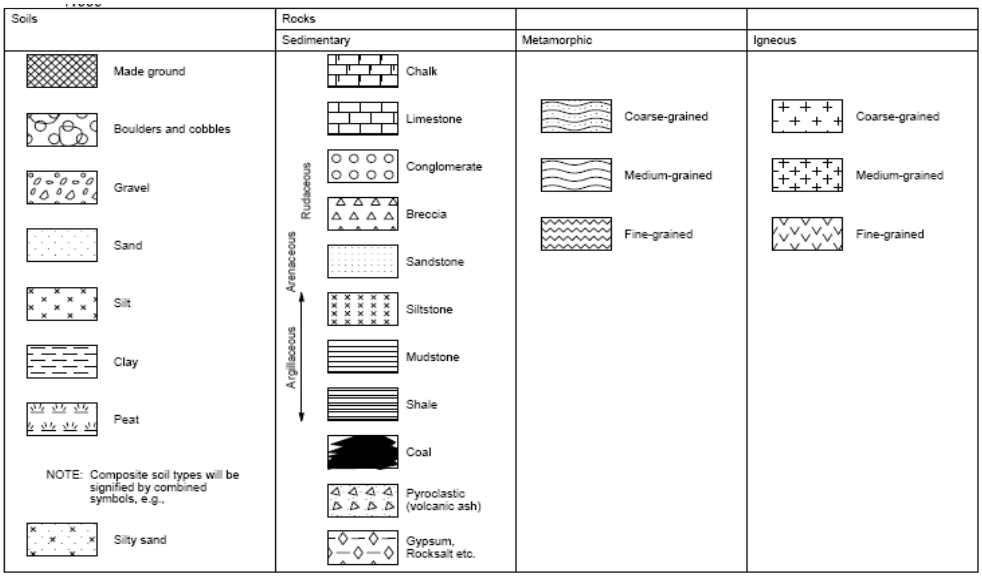
Plain standpipe

Granular response zone

Concrete

Grout

Backfill with arisings



CC GROUND INVESTIGATIONS LTD

BOREHOLE LOG

Telephone: 01452 739165 , Fax: 01452 739220 , Email: info@ccground.co.uk

Borehole No. **BH501**

Sheet 1 of 2

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455625 N 101478	Hole Type CP
Location: Lee on Solent		Level: 7.76mAOD	Scale 1 : 50.00
Client: Campbell Reith		Dates: Start: 25/07/2016 End: 26/07/2016	Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Sample	Install	Description	Depth (m)	Level (mAD)	Legend
		ES	0.10				TOPSOIL: Grass over brown mottled yellowish brown and greyish brown slightly sandy clayey SILT with frequent rootlets (<1mm).	(0.40)		
		B	0.20 - 0.50					0.40	7.36	
		B	0.50 - 0.70				Soft orangish brown slightly sandy silty CLAY with occasional rootlets (<1mm).			
		ES	0.50							
1		B	1.00 - 1.20				1.00-1.60m: Slightly gravelly. Gravel is sub-angular to sub-rounded fine to medium flint.	(1.20)		1
		ES	1.00							
		SPT	1.20 - 1.65	S 32				1.60	6.16	
		B	1.70 - 2.00				Yellowish brown and black sandy sub-angular to rounded fine to coarse GRAVEL of flint locally tending to gravelly sand.	(0.40)		
		D	1.70							
2		B	2.00 - 2.50	C 43			Medium dense locally tending to very dense yellowish brown gravelly silty SAND. Gravel is sub-angular to rounded fine to coarse flint.	2.00	5.76	2
		CPT	2.00 - 2.45							
		D	2.50							
3		B	3.00 - 3.50	C*71						3
		CPT	3.00 - 3.36							
		D	3.50					(3.50)		
4		B	4.00 - 4.50	C 30						4
		CPT	4.00 - 4.45							
		D	4.50							
5		B	5.00 - 5.50	C 30						5
		CPT	5.00 - 5.45							
		D	5.50				Medium dense yellowish brown and black sandy sub-angular to rounded fine to coarse GRAVEL of flint with low cobble content. Cobbles are sub-rounded to rounded flint.	5.50	2.26	
6		D	6.00							6
		B	6.50 - 7.00	C 22				(2.00)		
		CPT	6.50 - 6.95							
7		D	7.00							7
		B	7.50 - 8.00				Yellowish brown silty SAND with occasional pockets of soft grey sandy clay (<50mm).	7.50	0.26	
								(0.50)		
8										8

REMARKS:

EQUIPMENT: Hand digging tools. Light cable percussion rig.
METHOD: Hand dug inspection pit: 0.00-1.20m. Cable percussion drilled using 150mm diameter clay cutter and bailer 1.20-15.00m.
CASING: 150mm diameter to 15.00m.
GROUNDWATER: Groundwater not encountered prior to addition of water to assist drilling from 2.45m.
INSTALLATION: Bentonite pellet seal: 10.00-15.00m, 50mm ID HDPE slotted pipe with washed gravel response zone: 1.00-10.00m, plain pipe with bentonite pellet seal: 0.20-1.00m, flush 150mm steel cover set in concrete 0.00-0.20m. Gas valve fitted.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
25/07/2016	1.20	Nil	Dry
26/07/2016	1.20	Nil	Dry

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BOREHOLE LOG

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Borehole No. **BH501**

Sheet 2 of 2

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455625 N 101478	Hole Type CP
Location: Lee on Solent		Level: 7.76mAOD	Scale 1 : 50.00
Client: Campbell Reith		Dates: Start: 25/07/2016 End: 26/07/2016	Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Sample	Install	Description	Depth (m)	Level (mAD)	Legend
		SPT	8.00 - 8.45	S 44			Dense bluish grey slightly gravelly silty shelly SAND. Shell fragments are comminuted <10mm.	8.00	-0.24	
								(1.00)		
9		B D	9.00 - 9.50 9.00				Very dense greenish grey silty shelly SAND. Shell fragments are comminuted <10mm. Driller notes locally cemented.	9.00	-1.24	9
		SPT	9.50 - 9.66	S*273						
10		B D	10.00 - 10.50 10.00					(2.00)		10
11		SPT	11.00 - 11.25	S*120			Very dense greenish grey slightly gravelly silty SAND with rare to occasional shell fragments (<10mm). Gravel is sub-angular to rounded fine to medium flint.	11.00	-3.24	11
		B	11.50 - 12.00							
12		D	12.00							12
		SPT	12.50 - 12.86	S*71				(3.00)		
13			13.00 - 13.50							13
		D	13.50							
14		SPT	14.00 - 14.45	S 39			Firm bluish grey slightly sandy CLAY with lenses of light grey silty sand (<2mm).	14.00	-6.24	14
		B	14.50 - 15.00					(1.00)		
15		D	15.00				Borehole completed at 15.00m	15.00	-7.24	15
16										16
17										17

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
26/07/2016	15.00	15.00	6.00

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Borehole No. **BH502**

Sheet 1 of 2

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455710 N 101485	Hole Type CP
Location: Lee on Solent		Level: 7.87mAOD	Scale 1 : 50.00
Client: Campbell Reith		Dates: Start: 27/07/2016 End: 27/07/2016	Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Sample	Install	Description	Depth (m)	Level (mAD)	Legend
		ES B	0.10 0.20 - 0.50				MADE GROUND: Grass over brown slightly gravelly clayey SILT with frequent roots and rootlets (<2mm). Gravel is angular to sub-rounded fine to coarse brick and flint.	0.20	7.67	
		B ES	0.50 - 0.70 0.50				MADE GROUND: Firm brown slightly gravelly sandy CLAY with frequent rootlets (<2mm). Gravel is angular to sub-rounded fine to medium brick and flint.	(0.80)		
1		B ES B CPT	1.00 - 1.20 1.00 1.20 - 1.70 1.20 - 1.47	C*111			Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is sub-angular to rounded fine to medium flint.	1.00 1.20	6.87 6.67	1
		D	1.70				Very dense yellowish brown slightly clayey gravelly SAND. Gravel is sub-angular to rounded fine to coarse flint. 1.70-3.00m: Locally tending to sandy gravel.			
2		B CPT	2.00 - 2.50 2.00 - 2.41	C*58				(1.80)		2
		D	2.50							
3		B CPT	3.00 - 3.50 3.00 - 3.36	C*73			Very dense yellowish brown and black slightly sandy sub-angular to rounded fine to coarse GRAVEL of flint.	3.00	4.87	3
		D	3.50							
4		B CPT	4.00 - 4.50 4.00 - 4.45	C 19			4.00-4.45m: Medium dense.	(2.20)		4
		D	4.50							
5		B CPT B	5.00 - 5.20 5.00 - 5.45 5.20 - 5.50	C 8			5.00-5.20m: Loose. Firm brown slightly gravelly sandy CLAY. Gravel is sub-angular to rounded fine to coarse flint.	5.20	2.67	5
		D	5.50				Firm grey mottled black slightly sandy CLAY. Driller notes lenses of orangish brown shelly sand.	5.50	2.37	
6		B	6.00 - 6.50				6.00-6.50m: Slightly gravelly. Gravel is sub-angular to rounded fine to medium flint.	(1.00)		6
		UT100	6.50 - 6.95				Dense bluish grey and grey clayey shelly SAND. Shell fragments are comminuted <10mm.	6.50	1.37	
7		B D	7.00 - 7.50 7.00				7.00-9.00m: Locally tending to silty sand.			7
								(2.50)		
8										8

REMARKS:

EQUIPMENT: Hand digging tools. Light cable percussion rig.
METHOD: Hand dug inspection pit: 0.00-1.20m. Cable percussion drilled using 150mm diameter clay cutter and bailer 1.20-15.00m.
CASING: 150mm diameter to 10.00m.
GROUNDWATER: Groundwater not encountered prior to addition of water to assist drilling at throughout borehole.
INSTALLATION: Bentonite pellet seal: 8.00-15.00m, 50mm ID HDPE slotted pipe with washed gravel response zone: 1.00-8.00m, plain pipe with bentonite pellet seal: 0.20-1.00m, flush 150mm steel cover set in concrete 0.00-0.20m. Gas valve fitted.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

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Borehole No. **BH502**

Sheet 2 of 2

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455710 N 101485	Hole Type CP
Location: Lee on Solent		Level: 7.87mAOD	Scale 1 : 50.00
Client: Campbell Reith		Dates: Start: 27/07/2016 End: 27/07/2016	Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Sample	Install	Description	Depth (m)	Level (mAD)	Legend
		SPT	8.00 - 8.45	S 44			Dense bluish grey and grey clayey shelly SAND. Shell fragments are comminuted <10mm. *(continued from previous sheet)*			
		B	8.50 - 9.00							
9		B D	9.00 - 9.50 9.00				Firm greenish grey slightly sandy silty CLAY.	9.00	-1.13	9
		UT100	9.50 - 9.95					(1.00)		
10		B D	10.00 - 10.50 10.00				Dense greenish grey silty shelly SAND with occasional pockets of slightly sandy clay. Shell fragments are comminuted <100mm.	10.00	-2.13	10
								(1.50)		
11		SPT	11.00 - 11.45	S 44						11
		B	11.50 - 12.00				Firm bluish grey and grey slightly sandy silty CLAY with frequent shell fragments and lenses of silty sand (<4mm). Shell fragments are comminuted <50mm.	11.50	-3.63	
								(0.50)		
12		D	12.00				Firm indistinctly thinly laminated bluish grey and grey slightly sandy silty CLAY with occasional lenses of silty sand (<2mm).	12.00	-4.13	12
		UT100	12.50 - 12.95							
13		B D	13.00 - 13.50 13.00							13
								(3.00)		
14		SPT	14.00 - 14.45	S 24			14.00-15.00m: Occasional charcoal/organic material <10mm.			14
		B	14.50 - 15.00							
15		D	15.00				Borehole completed at 15.00m	15.00	-7.13	15
16										16
17										17

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
27/07/2016	15.00	10.00	8.00

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Borehole No. **BH503**

Sheet 1 of 2

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456141 N 101230	Hole Type CP
Location: Lee on Solent		Level: 8.18mAOD	Scale 1 : 50.00
Client: Campbell Reith		Dates: Start: 28/07/2016 End: 28/07/2016	Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Sample	Install	Description	Depth (m)	Level (mAD)	Legend
		B	0.20 - 0.40				MADE GROUND: Grass over soft dark brown slightly sandy silty clay with frequent rootlets (<1mm).	0.20	7.98	
		ES	0.20				MADE GROUND: MADE GROUND: Firm brown slightly gravelly sandy CLAY with occasional rootlets (<1mm). Gravel is angular to sub-rounded fine to coarse brick and flint.	0.50	7.68	
		B	0.50 - 0.70				Firm orangish brown sandy CLAY.	(0.50)		
1		ES	0.50					1.00	7.18	1
		B	1.00 - 1.20				Firm orangish brown slightly gravelly sandy CLAY. Gravel is sub-angular to rounded fine to coarse flint.	1.20	6.98	
		ES	1.00	C*107			Very dense yellowish brown gravelly SAND with low cobble content locally tending to sandy gravel. Gravel is sub-angular to rounded fine to coarse flint. Cobbles are sub-rounded flint.			
		B	1.20 - 1.70							
		CPT	1.20 - 1.48							
		D	1.20							
		D	1.70							
2		B	2.00 - 2.50	C*77						2
		CPT	2.00 - 2.35							
		D	2.50							
		B	3.00 - 3.50	C*71				(3.50)		
3		CPT	3.00 - 3.36							3
		D	3.50							
		B	4.00 - 4.50	C 39			4.00-4.45m: Dense.			
4		CPT	4.00 - 4.43							4
		D	4.50							
		D	4.70				Loose greenish grey mottled orangish brown clayey SAND.	4.70	3.48	
5		SPT	5.00 - 5.45	S 7				(0.80)		5
		B	5.50 - 6.00				Loose to medium dense to dense yellowish brown and grey silty SAND. Driller notes pockets of clay.	5.50	2.68	
6		D	6.00							6
		SPT	6.50 - 6.95	S 10						
7		B	7.00 - 7.50							7
		D	7.50							
8										8

REMARKS:

EQUIPMENT: Hand digging tools. Light cable percussion rig.
METHOD: Hand dug inspection pit: 0.00-1.20m. Cable percussion drilled using 150mm diameter clay cutter and bailer 1.20-15.00m.
CASING: 150mm diameter to 13.00m.
GROUNDWATER: Groundwater not encountered prior to addition of water to assist drilling throughout borehole.
INSTALLATION: Bentonite pellet seal: 8.00-15.00m, 50mm ID HDPE slotted pipe with washed gravel response zone: 1.00-8.00m, plain pipe with bentonite pellet seal: 0.20-1.00m, flush 150mm steel cover set in concrete 0.00-0.20m. Gas valve fitted.
REMARKS: Driller reports 0.5 hour of slow drilling on flint cobbles at: 4.00-4.50m.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

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Borehole No. **BH503**

Sheet 2 of 2

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456141 N 101230	Hole Type CP
Location: Lee on Solent		Level: 8.18mAOD	Scale 1 : 50.00
Client: Campbell Reith		Dates: Start: 28/07/2016 End: 28/07/2016	Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Sample	Install	Description	Depth (m)	Level (mAD)	Legend
		UT100	8.00 - 8.45				Loose to medium dense to dense yellowish brown and grey silty SAND. Driller notes pockets of clay. *(continued from previous sheet)*			
		B	8.50 - 9.00					(6.00)		
9		SPT	9.50 - 9.95	S 13						
10		B	10.00 - 10.50							
		D	10.50							
11		UT100	11.00 - 11.45							
		B	11.50 - 12.00				Medium dense bluish grey and light grey slightly clayey silty SAND.	11.50	-3.32	
		D	11.50							
12								(1.50)		
		SPT	12.50 - 12.95	S 24						
13		B	13.00 - 13.50				Firm bluish grey sandy CLAY.	13.00	-4.82	
		D	13.50					(1.50)		
14		UT100	14.00 - 14.45							
		B	14.50 - 15.00				Firm dark bluish grey mottled greenish grey and white sandy CLAY with frequent shell fragments. Shell fragments are comminuted <100mm.	14.50	-6.32	
		D	14.50					(0.50)		
15							Borehole completed at 15.00m	15.00	-6.82	
16										
17										

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
28/07/2016	15.00	13.00	9.00

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BOREHOLE LOG

Telephone: 01452 739165 , Fax: 01452 739220 , Email: info@ccground.co.uk

Borehole No. **BH504**

Sheet 1 of 2

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456194 N 101407	Hole Type CP
Location: Lee on Solent		Level: 8.06mAOD	Scale 1 : 50.00
Client: Campbell Reith		Dates: Start: 29/07/2016 End: 29/07/2016	Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Sample	Install	Description	Depth (m)	Level (mAD)	Legend
		B	0.20				MADE GROUND: Brown mottled reddish brown, grey and yellowish brown slightly clayey gravelly SAND with medium cobble content and occasional metal fragments (<100mm). Gravel is angular to sub-angular fine to coarse flint, brick and concrete. Cobbles are angular to sub-angular concrete, brick and occasional whole bricks.	(0.40)		
		ES						0.40	7.66	
		B	0.50					(0.60)		
		ES								
1		B	1.00				MADE GROUND: Soft brown mottled reddish brown and black slightly sandy gravelly ashy CLAY. Gravel is angular to sub-angular brick, charcoal and possible clinker/slag.	1.00	7.06	1
		D	1.20 - 1.70	C*88						
		ES	1.20 - 1.65				Very dense yellowish brown gravelly SAND. Gravel is sub-angular to rounded fine to coarse flint.			
		B								
		CPT						(1.50)		
		D	1.70							
2		B	2.00 - 2.50	C*83						2
		CPT	2.00 - 2.30							
		D	2.50				Very dense yellowish brown slightly clayey sandy sub-angular to rounded fine to coarse GRAVEL of flint. Driller notes occasional pockets of soft brown and grey sandy clay.	2.50	5.56	
3		B	3.00 - 3.50	C*79						3
		CPT	3.00 - 3.33							
		D	3.50					(2.00)		
4		B	4.00 - 4.50	C 29			4.00-4.45m: Dense.			4
		CPT	4.00 - 4.45							
		D	4.50				Medium dense yellowish brown slightly sandy sub-angular to rounded fine to coarse GRAVEL of flint locally tending to gravelly sand. Driller notes lenses of coarse white sand.	4.50	3.56	
5		B	5.00 - 5.50	C 26						5
		CPT	5.00 - 5.45							
6		D	6.00							6
								(3.80)		
		B	6.50 - 7.00	C 5			6.50-6.95m: Loose			
		CPT	6.50 - 6.95							
7		D	7.00							7
8										8

REMARKS:

EQUIPMENT: Hand digging tools. Light cable percussion rig.
METHOD: Hand dug inspection pit: 0.00-1.20m. Cable percussion drilled using 150mm diameter clay cutter and bailer 1.20-15.00m.
CASING: 150mm diameter to 11.50m.
GROUNDWATER: Groundwater not encountered prior to addition of water to assist drilling throughout borehole.
INSTALLATION: Bentonite pellet seal: 8.00-15.00m, 50mm ID HDPE slotted pipe with washed gravel response zone: 8.00-1.00m, plain pipe with bentonite pellet seal: 1.00-0.20m, flush 150mm steel cover set in concrete 0.20-0.00m. Gas valve fitted.
REMARKS: Driller reports slow drilling in sands and gravels: 2.50-6.50m due to de-watering activities in vicinity of borehole.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

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Borehole No. **BH504**

Sheet 2 of 2

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456194 N 101407	Hole Type CP
Location: Lee on Solent		Level: 8.06mAOD	Scale 1 : 50.00
Client: Campbell Reith		Dates: Start: 29/07/2016 End: 29/07/2016	Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Sample	Install	Description	Depth (m)	Level (mAD)	Legend
		B	8.00 - 8.30	C 13						
		CPT	8.00 - 8.46							
		D	8.00				Firm brown sandy silty CLAY.	8.30	-0.24	
		B	8.30 - 8.50							
		D	8.50					(0.70)		
9		B	9.00 - 9.50				Greenish grey and bluish grey clayey SAND with occasional lenses of sandy silt (<10mm).	9.00	-0.94	9
		UT100	9.50 - 9.95							
10		B	10.00 - 10.50					(2.00)		10
		D	10.00							
11		SPT	11.00 - 11.44	S*53			Very dense dark bluish grey mottled black clayey SAND. Driller notes occasional lense of soft peaty clay.	11.00	-2.94	11
		B	11.50 - 12.00							
12		D	12.00							12
		D	12.50 - 13.00							
		UT100	12.50 - 12.95							
13		D	13.00					(4.00)		13
		B	13.50 - 14.00							
14		SPT	14.00 - 14.26	S*143						14
		B	14.50 - 15.00							
15		D	15.00				Borehole completed at 15.00m	15.00	-6.94	15
16										16
17										17

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
29/07/2016	15.00	11.50	6.00

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TRIAL PIT LOG

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Pit No **TP501**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455637 N 101489 Level: 7.80mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 2.20m Depth 3.00m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over firm friable slightly gravelly slightly sandy CLAY with low cobble content and frequent roots and rootlets (<10mm). Gravel is angular to sub-rounded fine to coarse of siliceous material, red brick and chalk. Cobbles are sub-angular of red brick.	(0.60)		
		B ES	0.50		0.45m: 1no fired clay (<100mm) land drain (unbroken) orientated North-South.			
					Firm orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is sub-angular to sub-rounded fine to medium of siliceous material.	0.60	7.20	
1		B ES	1.00			(0.90)		1
					Light yellowish brown gravelly slightly clayey SAND locally with pockets of clay (<50mm). Gravel is angular to sub-angular fine to coarse of siliceous material.	1.50	6.30	
2		B	2.00					2
					2.20-3.00m: Occasional pockets of clay (<200mm).	(1.50)		
		B	2.50					
3	Dry.				Trial pit completed at 3.00m	3.00	4.80	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP503**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455658 N 101481 Level: 7.84mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 1.90m Depth 0.57m 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over firm friable brown slightly gravelly slightly sandy CLAY with frequent roots and rootlets (<3mm). Gravel is angular to sub-rounded fine to coarse of siliceous material.	(0.30)		
					MADE GROUND: Firm orangish brown slightly sandy CLAY.	0.30	7.54	
	Dry.	B ES	0.50			(0.27)		
					0.57m: 2no copper cables. 1no 16 core black armored cable (<20mm). 1no white armored cable. Orientated Northeast-Southwest.	0.57	7.27	
					Trial pit completed at 0.57m			
1								
2								
3								
4								

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: None encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Terminated at 0.57m due to buried services.

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Pit No **TP504** Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455685 N 101494 Level: 7.89mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 2.00m Depth 3.00m 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: TARMACADAM.	(0.20)		
					MADE GROUND: White speckled black silty angular to sub-angular fine to coarse GRAVEL of chalk and tarmacadam with low cobble content.	0.20 (0.20)	7.69	
					MADE GROUND: Firm brown mottled light grey slightly sandy silty CLAY.	0.40	7.49	
		B ES	0.60					
1		B D ES	1.00			(1.30)		1
					Yellowish brown sandy slightly clayey angular to sub-rounded fine to coarse GRAVEL of siliceous material.	1.70	6.19	
2		B	2.00			(1.30)		2
		B	2.80					
3	Dry.				Trial pit completed at 3.00m	3.00	4.89	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP505**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455716 N 101477 Level: 7.86mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 2.00m Depth 3.00m 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over firm friable brown slightly gravelly slightly sandy CLAY with frequent roots and rootlets (<4mm). Gravel is angular to sub-angular fine to coarse of siliceous material and red brick.	(0.35)		
						0.35	7.51	
		B ES	0.50		MADE GROUND: Firm brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse of coal fragments, red brick and siliceous material.			
1		B ES	1.00			(1.05)		1
					Orangish brown very sandy slightly clayey angular to sub-rounded fine to coarse GRAVEL of siliceous material.	1.40	6.46	
						(0.40)		
					Light orangish brown gravelly slightly clayey SAND. Gravel is angular to sub-rounded fine to coarse of siliceous material.	1.80	6.06	
2		B ES	2.00					2
						(1.20)		
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	4.86	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP506**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455640 N 101464 Level: 7.86mAOD	Date 26/07/2016
Location: Lee on Solent		Dimensions: 1.90m Depth 3.00m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over firm friable light brown slightly gravelly slightly sandy CLAY with frequent roots and rootlets (<3mm). Gravel is angular to sub-angular fine to coarse brick and siliceous material.	(0.70)		
		B ES	0.50		0.50-0.60m: Silted up (<100mm) terracotta land drain (broken) orientated North-South.			
					Firm orangish brown mottled light grey slightly gravelly slightly sandy silty CLAY. Gravel is angular to sub-angular fine to coarse siliceous material.	0.70	7.16	
1		B D ES	1.00			(0.95)		1
					Light orangish brown very sandy slightly clayey angular to sub-rounded fine to coarse GRAVEL of siliceous material.	1.65	6.21	
2		B	2.00			(1.35)		2
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	4.86	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP507**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455674 N 101451 Level: 7.89mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 2.00m Depth 3.00m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: TARMACADAM.	0.10	7.79	
					MADE GROUND: Black and brown speckled white sandy slightly clayey angular to sub-angular fine to coarse GRAVEL of chalk, red brick, tarmacadam, possible clinker, sandstone and siliceous material with medium cobble content. Cobbles are angular to sub-angular of concrete.	(0.30)		
		B D ES	0.50		MADE GROUND: Firm greyish brown speckled black slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse of red brick, chalk and siliceous material.	0.40	7.49	
						(0.30)		
					Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material.	0.70	7.19	
1		B ES	1.00			(1.10)		1
					Yellowish brown gravelly slightly clayey SAND with low cobble content. Gravel is angular to sub-angular fine to coarse of siliceous material. Cobbles are sub-angular to sub-rounded of siliceous material.	1.80	6.09	
2		B	2.00			(1.20)		2
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	4.89	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP508**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455696 N 101457 Level: 7.89mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 2.40m Depth 3.00m, 1.10m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: Grey CONCRETE.	(0.30)		
					MADE GROUND: Light orangish brown sandy sub-angular to rounded fine to coarse GRAVEL of siliceous material and concrete.	0.30	7.59	
		B ES	0.50		MADE GROUND: Reddish brown slightly sandy clayey angular to sub-rounded fine to coarse GRAVEL of siliceous material, mudstone and concrete with a slight hydrocarbon odour.	0.45 (0.25)	7.44	
					MADE GROUND: Stiff brown mottled grey slightly sandy CLAY with low cobble content. Cobbles are sub-angular of red brick.	0.70	7.19	
1		B D ES	1.00			(0.80)		1
					Light orangish brown very gravelly slightly clayey SAND. Gravel is angular to sub-rounded fine to coarse of siliceous material.	1.50	6.39	
2		B	2.00			(1.50)		2
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	4.89	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP509**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455716 N 101452 Level: 7.86mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 1.80m Depth 3.00m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Firm friable slightly gravelly slightly sandy CLAY with frequent roots and rootlets (<4mm). Gravel is angular to sub-angular fine to coarse of red brick, concrete, siliceous material, coal fragments, tile and plastic fragments.	(0.45)		
		B ES	0.50		Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse of siliceous material.	0.45	7.41	
1		B D ES	1.00			(1.15)		1
					Light grey gravelly slightly clayey SAND. Gravel is angular to sub-rounded fine to coarse of siliceous material.	1.60	6.26	
2		B	2.00			(0.90)		2
					Light grey and orangish brown very gravelly slightly clayey SAND. Gravel is angular to rounded fine to coarse of siliceous material.	2.50	5.36	
		B	2.90			(0.50)		
3	Dry.				Trial pit completed at 3.00m	3.00	4.86	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP510**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455583 N 101417 Level: 7.95mAOD	Date 26/07/2016
Location: Lee on Solent		Dimensions: 2.10m Depth 3.20m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Firm friable brown slightly gravelly slightly sandy CLAY with frequent roots and rootlets (<3mm). Gravel is angular to sub-rounded fine to coarse of tile and siliceous material.	(0.70)		
		B ES	0.50					
					Firm orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse of siliceous material.	0.70	7.25	
1		B ES	1.00			(0.80)		1
		H	1.30	H 69				
					Light orangish brown very sandy slightly clayey sub-angular to rounded fine to coarse GRAVEL of siliceous material.	1.50	6.45	
		B	1.70					
2								2
					2.20-3.20m: Orangish brown. Occasional pockets of grey mottled orangish brown clay (<200mm)	(1.70)		
		B	2.90					
3								3
	Dry.				Trial pit completed at 3.20m	3.20	4.75	
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP511**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455597 N 101432 Level: 8.15mAOD	Date 26/07/2016
Location: Lee on Solent		Dimensions: 2.40m Depth 3.00m, 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: TARMACADAM.	(0.25)		
		B ES	0.30		MADE GROUND: Off-white mottled black sandy slightly silty angular to sub-angular fine to coarse GRAVEL of chalk and tarmacadam with low cobble content. Cobbles are sub-angular chalk.	0.25 (0.35)	7.90	
					Firm dark orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse siliceous material.	0.60	7.55	
1		B ES	1.00					1
		H	1.20	H 37		(1.40)		
		H	1.60	H 60				
2		B	2.10		Light orangish brown very sandy slightly clayey angular to sub-rounded fine to coarse GRAVEL of siliceous material with occasional pockets (<200mm) of grey clay.	2.00 (1.00)	6.15	2
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	5.15	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP512**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455622 N 101437 Level: 8.12mAOD	Date 26/07/2016
Location: Lee on Solent		Dimensions: 2.20m Depth 0.75m 1.00m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: TARMACADAM with slight chemical odour.	(0.30)		
					MADE GROUND: Off-white mottled black slightly sandy silty sub-angular fine to coarse GRAVEL of chalk with low cobble content and a slight chemical odour. Cobbles are sub-angular of chalk.	0.30	7.82	
		B ES	0.50			(0.45)		
	Dry				0.65-0.75m: Soft greyish brown slightly sandy slightly gravelly clay with a slight chemical odour. 0.75m: Concrete slab encountered with 1no vertical ribbed steel reinforcement bar visible. Trial pit completed at 0.75m	0.75	7.37	
1								
2								
3								
4								

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

REMARKS: Refused at 0.75m due to buried concrete.

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Pit No **TP512A**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455649 N 101428 Level: 8.15mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 2.00m Depth 0.30m 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
	Dry.	B D ES	0.10		MADE GROUND: Grass over firm friable light brown slightly gravelly slightly sandy CLAY with frequent roots and rootlets (<2mm). Gravel is angular to sub-rounded fine to coarse of siliceous material, concrete, red brick, coal fragments and chalk.	(0.30)		
					0.30m: Light grey concrete slab with steel reinforcement.	0.30	7.85	
					Trial pit completed at 0.30m			

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: None encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Refused at 0.30m due to buried concrete.

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Pit No **TP513**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455672 N 101428 Level: 7.99mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 2.20m Depth 3.00m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: TARMACADAM.	(0.20)		
					MADE GROUND: Off white speckled black clayey angular to sub-rounded fine to coarse GRAVEL of chalk with low cobble content. Cobbles are angular to sub-rounded of chalk.	0.20 (0.20)	7.79	
		B D ES	0.50		Firm greyish brown slightly gravelly silty CLAY with occasional partially decomposed roots and rootlets (<9mm). Gravel is angular fine to medium of siliceous material.	0.40 (0.50)	7.59	
1		B D ES	1.00		Firm greyish brown mottled light grey slightly gravelly silty CLAY. Gravel is sub-angular to sub-rounded fine to coarse of siliceous material.	0.90 (0.50)	7.09	1
		D	1.60		Firm orangish brown mottled light grey slightly sandy CLAY.	1.40 (0.40)	6.59	
2		B	2.00		Light orangish brown gravelly slightly clayey SAND. Gravel is angular to sub-angular of siliceous material	1.80 (1.20)	6.19	2
					2.60-3.00m: Pockets (63-200mm) of light grey and greenish grey clay.			
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	4.99	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP514** Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455694 N 101422 Level: 7.95mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 2.20m Depth 3.00m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over light brown slightly gravelly slightly sandy CLAY with occasional roots and rootlets (<10mm) and low cobble content. Gravel is angular to sub-rounded fine to coarse of red brick, siliceous material, concrete and chalk. Cobbles are angular to sub-angular of concrete and red brick.	(0.50)		
		B ES	0.30					
					Firm orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse of siliceous material.	0.50	7.45	
1		B D ES	0.80					1
		B D	1.20			(1.30)		
					Light orangish brown slightly gravelly slightly clayey SAND with pockets of light brown mottled light grey clay (63-200mm). Gravel is angular to sub-rounded fine to coarse of siliceous material.	1.80	6.15	
2								2
						(1.20)		
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	4.95	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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TRIAL PIT LOG

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Pit No **TP515**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455617 N 101388 Level: 8.01mAOD	Date 26/07/2016
Location: Lee on Solent		Dimensions: 2.20m Depth 3.00m, 0.80m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing: No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: TARMACADAM.	(0.20)		
					MADE GROUND: Reddish brown slightly sandy angular to sub-angular fine to coarse GRAVEL of brick and concrete with high cobble content. Cobbles are sub-angular brick.	0.20	7.81	
					MADE GROUND: Soft dark brown mottled dark grey slightly gravelly slightly sandy CLAY with a slight organic odour. Gravel is angular to sub-angular fine to coarse brick, concrete, mudstone and siliceous material.	0.35	7.66	
		B ES	0.50			(0.40)		
					Firm dark orangish brown slightly sandy silty CLAY.	0.75	7.26	
1		B D ES	1.00			(0.55)		1
					Firm orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to medium of siliceous material.	1.30	6.71	
2		B	2.00			(1.60)		2
		H	2.20	H 62				
		H	2.50	H 54				
					2.70-2.90m: Stiff greenish grey slightly sandy slightly gravelly clay.			
		D	2.80					
					Light greenish grey slightly gravelly slightly clayey SAND. Gravel is sub-angular to sub-rounded fine to coarse siliceous material.	2.90	5.11	
3	Dry.	B	2.95		Trial pit completed at 3.00m	3.00	5.01	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP516**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455643 N 101390 Level: 8.00mAOD	Date 28/07/2016
Location: Lee on Solent		Dimensions: 1.50m Depth 3.00m, 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: TARMACADAM.	(0.20)		
					MADE GROUND: Off white speckled black silty angular to sub-angular fine to coarse GRAVEL of tarmacadam and chalk with low cobble content. Cobbles are sub-angular of chalk.	0.20	7.80	
					MADE GROUND: Reddish brown slightly sandy sub-angular COBBLES of red brick.	0.30	7.70	
		B ES	0.50		MADE GROUND: Firm black and dark grey slightly sandy silty CLAY with a slight chemical odour. Gravel is angular fine to medium of red brick.	0.40	7.60	
					MADE GROUND: Firm orangish brown mottled light grey slightly sandy slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse of siliceous material, red brick and coal fragments.	(0.25)		
1		B ES	1.00			0.65	7.35	1
						(2.05)		
2		B D	2.00					2
		B D	2.80		Firm light grey locally orangish brown slightly gravelly slightly sandy locally sandy CLAY. Gravel is angular to sub-angular fine to coarse of siliceous material.	2.70	5.30	
3	Dry.					(0.30)		
					Trial pit completed at 3.00m	3.00	5.00	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP517** Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455678 N 101396 Level: 8.10mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 1.80m, Depth 3.10m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over brown slightly sandy clayey angular to sub-angular fine to coarse GRAVEL of siliceous material, concrete, red brick and metal fragments with low cobble content and frequent roots and rootlets (<2mm). Cobbles are sub-angular of siliceous material and concrete.	(0.60)		
		B ES	0.50		MADE GROUND: Stiff brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse of siliceous material, metal fragments and red brick.	0.60 (0.30)	7.50	
1		B D ES	0.90		Stiff orangish brown locally mottled light grey slightly gravelly slightly sandy CLAY with rare partially decomposed roots and rootlets (<6mm). Gravel is angular to sub-rounded fine to coarse of siliceous material.	0.90 (1.10)	7.20	1
2		B	2.20		Orangish brown gravelly clayey SAND. Gravel is angular to sub-angular fine to coarse of siliceous material.	2.00 (0.60)	6.10	2
3	Dry.	B	2.90		Orangish brown slightly gravelly slightly clayey SAND. Gravel is angular to rounded fine to coarse of siliceous material. Trial pit completed at 3.10m	2.60 (0.50) 3.10	5.50 5.00	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP518**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455688 N 101411 Level: 7.93mAOD	Date 28/07/2016
Location: Lee on Solent		Dimensions: 1.80m Depth 3.00m, 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over firm friable slightly gravelly slightly sandy CLAY with occasional roots and rootlets (<3mm) and low cobble content. Gravel is angular to sub-angular fine to coarse of siliceous material, red brick, chalk, tile and metal fragments. Cobbles are sub-angular of red brick. 0.25m: 1no pocket (<10mm) of greyish yellow sand.	(0.35)		
						0.35	7.58	
		B ES	0.50		Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material.	(0.45)		
						0.80	7.13	
1		B ES	1.00		Firm orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is sub-angular to sub-rounded fine to coarse of siliceous material.	(1.00)		1
						1.80	6.13	
2		B	2.00		Light grey gravelly slightly clayey SAND. Gravel is angular to sub-angular fine to coarse of siliceous material.	(1.20)		2
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	4.93	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP519** Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455719 N 101400 Level: 7.99mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 1.90m Depth 3.00m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over firm friable brown slightly gravelly slightly sandy CLAY with frequent roots and rootlets (<25mm) and frequent metal fragments (<200mm). Gravel is angular to sub-rounded fine to coarse of siliceous material, red brick, chalk, plaster, tile, tarmacadam and coal fragments.	(0.40)		
		B ES	0.50		MADE GROUND: Firm orangish brown slightly sandy CLAY with frequent partially decomposed organic material (<20mm).	0.40 (0.60)	7.59	
1		B D ES	1.10		MADE GROUND: Firm orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material and possible clinker.	1.00 (0.70)	6.99	1
2		B	2.00		Orangish brown gravelly slightly clayey SAND with low cobble content. Gravel is angular to sub-angular fine to coarse of siliceous material. Cobbles are sub-angular to sub-rounded of siliceous material.	1.70 (1.30)	6.29	2
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	4.99	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP520**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455652 N 101381 Level: 8.06mAOD	Date 28/07/2016
Location: Lee on Solent		Dimensions: 1.50m, Depth 0.90m, 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over firm friable light brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material, chalk, red brick, possible clinker and coal.	(0.40)		
		B ES	0.50		MADE GROUND: Purplish brown slightly sandy slightly clayey angular to sub-angular fine to coarse GRAVEL of coal fragments, plastic, possible slag/clinker and metal fragments (<60mm).	0.40 (0.50)	7.66	
	Dry.				0.75-0.90m: 1no sub-horizontal concrete slab with steel reinforcement (<8mm).	0.90	7.16	
1					Trial pit completed at 0.90m			
2								
3								
4								

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: None encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Refused at 0.90m due to buried concrete.

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Pit No **TP521**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455691 N 101370 Level: 7.68mAOD	Date 28/07/2016
Location: Lee on Solent		Dimensions: 1.80m, Depth 0.70m, 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over firm dark orangish brown slightly gravelly slightly sandy CLAY with medium cobble content and occasional metal fragments (63-200mm). Gravel is angular to sub-angular fine to coarse of siliceous material, red brick, concrete and siliceous material. Cobbles are sub-angular of concrete and red brick.	(0.70)		
		B ES	0.50		0.60-0.70m: Red brick masonry over concrete slab.			
	Seepage				Trial pit completed at 0.70m	0.70	6.98	

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Seepage at 0.70m. No rise recorded.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Refused at 0.70m due to buried concrete.

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Pit No **TP523**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455651 N 101353 Level: 8.13mAOD	Date 28/07/2016
Location: Lee on Solent		Dimensions: 2.20m Depth 3.00m, 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over firm friable brown slightly gravelly slightly sandy CLAY with frequent roots and rootlets (<16mm). Gravel is angular to rounded fine to coarse of siliceous material, red brick, plaster and coal fragments.	(0.40)		
		B ES	0.50		MADE GROUND: Firm brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material. 0.40-0.85m: White sand surround for black service cable orientation Northeast-Southwest in northeast face of pit.	0.40 (0.50)	7.73	
1		B D ES	1.00		MADE GROUND: Firm mottled orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse of siliceous material and coal.	0.90 (0.90)	7.23	1
2		B	2.00		Orangish brown slightly sandy angular to rounded fine to coarse GRAVEL of siliceous material.	1.80 (0.40)	6.33	2
		B	2.50		Orangish brown very gravelly slightly clayey SAND with low cobble content. Gravel is angular to sub-rounded fine to coarse of siliceous material. Cobbles are sub-angular of siliceous material.	2.20 (0.80)	5.93	
3	Dry.				Trial pit completed at 3.00m	3.00	5.13	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

REMARKS: Service cable encountered at 0.85m (undamaged). Hole extended to avoid.

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TRIAL PIT LOG

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Pit No **TP524**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455669 N 101344 Level: 8.24mAOD	Date 28/07/2016
Location: Lee on Solent		Dimensions: 2.00m Depth 3.00m 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over firm friable brown slightly gravelly slightly sandy CLAY with low cobble content and frequent roots and rootlets (<4mm). Gravel is angular to sub-angular fine to coarse of siliceous material, red brick, possible clinker, concrete and coal fragments. Cobbles are sub-angular of red brick and chalk.	(0.35)		
						0.35	7.89	
		B ES	0.50		MADE GROUND: Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse of red brick, coal fragments and siliceous material. 0.45m: Frequent coal fragments (<63mm).	(0.55)		
						0.90	7.34	
1		B ES	1.00		Firm orangish brown slightly gravelly slightly sandy CLAY with low cobble content. Gravel is angular to sub-angular fine to coarse of siliceous material. Cobbles are sub-angular of siliceous material.	(1.40)		
					1.80-2.30m: Mottled light grey.			
2		B D	2.00					
					Light orangish grey very gravelly slightly clayey SAND. Gravel is angular to sub-rounded fine to coarse of siliceous material.	2.30	5.94	
		B	2.80			(0.70)		
3	Dry.				Trial pit completed at 3.00m	3.00	5.24	
4								

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP525**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455706 N 101348 Level: 8.19mAOD	Date 28/07/2016
Location: Lee on Solent		Dimensions: 1.90m Depth 3.00m, 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over firm friable brown slightly gravelly slightly sandy CLAY with low cobble content and rare roots and rootlets (<60mm). Gravel is angular to sub-angular fine to coarse of siliceous material, tile, red brick, coal fragments and concrete. Cobbles are sub-angular of red brick.	(0.60)		
		B ES	0.50		MADE GROUND: Firm orangish brown locally mottled light grey slightly gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse of siliceous material and coal fragments.	0.60	7.59	
1		B ES	1.00			(1.20)		1
					Light orangish brown very gravelly slightly clayey SAND. Gravel is angular to sub-rounded fine to coarse of siliceous material.	1.80	6.39	
2		B	2.00			(1.20)		2
		B	2.80					
3	Dry.				Trial pit completed at 3.00m	3.00	5.19	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP526**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455687 N 101322 Level: 8.29mAOD	Date 28/07/2016
Location: Lee on Solent		Dimensions: 1.90m, Depth 0.35m, 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over slightly sandy slightly clayey angular to sub-angular fine to coarse GRAVEL of siliceous material, concrete and red brick with low cobble content and frequent roots and rootlets (<4mm). Cobbles are sub-angular of red brick.	(0.35)		
	Dry.	B ES	0.30		0.35m: Concrete slab with red brick masonry. Trial pit completed at 0.35m	0.35	7.94	
1								
2								
3								
4								

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: None encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Refused at 0.35m due to buried concrete.

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Pit No **TP529**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456095 N 101382 Level: 8.49mAOD	Date 01/08/2016
Location: Lee on Solent		Dimensions: 2.00m Depth 2.90m 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By DO

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: Grey CONCRETE	(0.30)		
					0.20-0.30m: Recovered as angular to sub-angular fine to coarse gravel of concrete.	0.30	8.19	
		ES	0.50		MADE GROUND: Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to rounded fine to coarse of siliceous material and red brick.			
					0.60-0.90m: Locally tending to a slightly sandy silt.			
					0.80m: 1no black cable (<75mm).	(1.00)		
1		B ES	1.00 - 1.30 1.00					1
					Orangish brown slightly sandy angular to sub-rounded fine to coarse GRAVEL of siliceous material.	1.30	7.19	
2		B	2.00 - 2.50			(1.60)		2
	Dry.				Trial pit completed at 2.90m	2.90	5.59	
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP530**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456117 N 101392 Level: 8.54mAOD	Date 01/08/2016
Location: Lee on Solent		Dimensions: 2.10m Depth 3.00m, 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By DO

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: TARMACADAM.			
		ES B	0.10 0.20 - 0.50		MADE GROUND: Greyish brown, orangish brown and brownish grey slightly sandy angular to sub-angular fine to coarse GRAVEL of brick, concrete and siliceous material with low cobble content. Cobbles are sub-angular of brick.	0.10	8.44	
		ES	0.50		0.50-0.80m: Concrete with steel reinforcement (<10mm). Brickwork in Eastern end of pit.	(0.70)		
					MADE GROUND: Firm dark orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material and brick.	0.80	7.74	
1		B ES	1.00 - 1.50 1.00		1.00m: 1no clay pipe (<100mm) land drain (unbroken) orientated North-South.	(0.60)		1
					Orangish brown slightly sandy angular to sub-rounded fine to coarse GRAVEL of siliceous material.	1.40	7.14	
2		B	2.00 - 2.50			(1.60)		2
3	Dry.				Trial pit completed at 3.00m	3.00	5.54	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP533**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456200 N 101392 Level: 8.30mAOD	Date 01/08/2016
Location: Lee on Solent		Dimensions: 2.10m, Depth 2.80m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By DO

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		ES B	0.10 0.20 - 0.50		MADE GROUND: Firm greyish brown slightly gravelly slightly sandy silty CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material and concrete.	(0.80)		
		ES	0.50					
1		B ES	1.00 - 1.40 1.00		Firm orangish brown and yellowish brown slightly sandy gravelly CLAY locally tending to clayey gravel. Gravel is angular to sub-rounded fine to coarse of siliceous material.	0.80 (0.60)	7.50	1
					Yellowish brown locally mottled orangish brown slightly sandy angular to rounded fine to coarse GRAVEL of siliceous material.	1.40	6.90	
2		B	2.00 - 2.50			(1.40)		2
	Dry.				Trial pit completed at 2.80m	2.80	5.50	
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical to 2.60m. Minor collapse from 2.60-3.00m.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP535**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456100 N 101342 Level: 8.29mAOD	Date 01/08/2016
Location: Lee on Solent		Dimensions: 2.00m (0.60m) Depth 2.90m	Scale 1 : 25
Client: Campbell Reith			Logged By DO

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		ES B	0.10 0.20 - 0.50		MADE GROUND: Greyish brown locally dark greyish brown slightly sandy angular to sub-rounded fine to coarse GRAVEL of brick, concrete, tarmacadam and siliceous material with low cobble content. Cobbles are angular to sub-angular of concrete.	(0.70)		
		ES	0.50					
					Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material.	0.70	7.59	
		B	0.80 - 1.00		0.90-1.30m: Rare pockets of slightly sandy silt.			
1		ES	1.00			(0.60)		1
					Orangish brown slightly sandy angular to sub-rounded fine to coarse GRAVEL of siliceous material.	1.30	6.99	
2		B	2.00 - 2.50		2.10-2.90m: Rare pockets of silty clay.	(1.60)		2
	Dry.							
					Trial pit completed at 2.90m	2.90	5.39	
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP536**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456136 N 101339 Level: 8.47mAOD	Date 29/07/2016
Location: Lee on Solent		Dimensions: 2.00m Depth 3.00m 1.20m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: CONCRETE with steel reinforcement (<15mm).	(0.40)		
						0.40	8.07	
					MADE GROUND: Dark grey and black sandy angular to sub-angular fine to coarse GRAVEL of concrete, possible clicker/slag, tile and red brick with low cobble content. Cobbles are sub-angular of red brick.	0.55	7.92	
		B ES	0.65		MADE GROUND: Firm friable brown slightly sandy CLAY.	(0.35)		
						0.90	7.57	
1		B ES	1.00		Orangish brown slightly gravelly slightly clayey SAND. Gravel is angular to sub-rounded fine to coarse of siliceous material.	(0.70)		1
						1.60	6.87	
2		B	2.00		Orangish brown very gravelly slightly clayey SAND. Gravel is angular to sub-rounded fine to coarse of siliceous material.	(1.40)		2
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	5.47	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

REMARKS: Soakaway testing undertaken at 3.00m.

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Pit No **TP537**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456160 N 101363 Level: 8.45mAOD	Date 02/08/2016
Location: Lee on Solent		Dimensions: 2.30m Depth 1.00m 1.10m	Scale 1 : 25
Client: Campbell Reith			Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Sparse vegetation over brown slightly clayey sandy angular to sub-angular fine to coarse GRAVEL of brick and concrete with low cobble content. Cobbles are sub-angular concrete, brick and occasional whole brick.	(0.30)		
					MADE GROUND: Firm greyish brown mottled yellowish brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to sub-angular fine to coarse brick, charcoal, concrete and flint. Cobbles are sub-angular brick.	0.30	8.15	
		B ES	0.50			(0.50)		
					MADE GROUND: Firm orangish brown slightly sandy gravelly CLAY. Gravel is angular to sub-rounded fine to coarse brick and flint.	0.80	7.65	
		B ES	0.90			(0.20)		
1					1.00m: Grey concrete slab. Unable to locate edge. Hole terminated.	1.00	7.45	1
					Trial pit completed at 1.00m			
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: None encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Refused at 1.00m due to buried concrete.

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Pit No **TP538**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456181 N 101345 Level: 8.49mAOD	Date 29/07/2016
Location: Lee on Solent		Dimensions: 2.10m Depth 3.00m, 0.90m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: Red tiles over grey CONCRETE.	(0.40)		
						0.40	8.09	
		B ES	0.50		MADE GROUND: Light grey gravelly slightly clayey SAND with low cobble content. Gravel is angular to sub-angular fine to coarse of red brick and concrete. Cobbles are angular to sub-angular of red brick. 0.50m: 1no metal pipe.	0.50	7.99	
1		B ES	1.00		Firm orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is sub-angular to sub-rounded fine to coarse of siliceous material.	(1.00)		1
					Light orangish brown slightly gravelly clayey SAND. Gravel is angular to sub-rounded fine to coarse of siliceous material.	1.50	6.99	
2		B	2.00			(1.00)		2
					Light orangish brown very gravelly slightly clayey SAND. Gravel is angular to sub-rounded fine to coarse of siliceous material.	2.50	5.99	
						(0.50)		
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	5.49	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP539**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456217 N 101372 Level: 8.64mAOD	Date 29/07/2016
Location: Lee on Solent		Dimensions: 1.90m Depth 3.00m 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.20		MADE GROUND: TARMACADAM.	0.10	8.54	
		B ES	0.35		MADE GROUND: Black and brown gravelly slightly clayey SAND. Gravel is angular to sub-angular fine to coarse of tarmacadam and siliceous material.	(0.20) 0.30	8.34	
					MADE GROUND: Orangish brown speckled black sandy slightly clayey GRAVEL. Gravel is angular to rounded fine to coarse of siliceous material and tarmacadam.	0.45	8.19	
1		B ES	1.00		MADE GROUND: Firm orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is sub-angular to sub-rounded fine to coarse of siliceous material, red brick, coal fragments, possible clinker and chalk.	(0.95)		1
					Orangish brown gravelly slightly clayey SAND. Gravel is angular to rounded fine to coarse of siliceous material.	1.40	7.24	
2		B	2.00			(1.60)		2
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	5.64	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP540**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456211 N 101342 Level: 8.48mAOD	Date 29/07/2016
Location: Lee on Solent		Dimensions: 1.70m Depth 3.00m, 0.80m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: TARMACADAM.	(0.20)		
					MADE GROUND: Light grey CONCRETE.	0.20	8.28	
						(0.25)		
					MADE GROUND: Brown slightly gravelly slightly clayey SAND. Gravel is angular to sub-angular fine to coarse of red brick and concrete.	0.45	8.03	
						0.55	7.93	
		B ES	0.70		Firm orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material. 0.55-1.00m: With rare roots and rootlets (<30mm).			
1								1
		B ES	1.20			(1.45)		
2					Orangish brown gravelly slightly clayey SAND with low cobble content. Gravel is angular to rounded fine to coarse of siliceous material. Cobbles are angular to sub-rounded of siliceous material.	2.00	6.48	2
		B	2.50			(1.00)		
3	Dry.				Trial pit completed at 3.00m	3.00	5.48	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP541**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456093 N 101272 Level: 8.35mAOD	Date 01/08/2016
Location: Lee on Solent		Dimensions: 1.90m Depth 2.90m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By DO

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		ES B	0.10 0.20 - 0.50		MADE GROUND: Grass over firm orangish brown and greyish brown slightly gravelly slightly sandy CLAY with frequent roots and rootlets (<2mm). Gravel is angular to sub-rounded fine to coarse of siliceous material and brick.	(0.70)		
		ES	0.50					
					Firm orangish brown slightly gravelly slightly sandy silty CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material.	0.70	7.65	
1		B ES	1.00 - 1.50 1.00			(1.00)		1
					Orangish brown slightly sandy angular to sub-rounded fine to coarse GRAVEL of siliceous material.	1.70	6.65	
2		B	2.00 - 2.50			(1.20)		2
3	Dry.				Trial pit completed at 2.90m	2.90	5.45	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP543**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456143 N 101297 Level: 8.36mAOD	Date 01/08/2016
Location: Lee on Solent		Dimensions: 1.90m Depth 2.60m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By DO

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		ES B	0.10 0.20 - 0.50		MADE GROUND: Grass over firm friable light brown slightly gravelly slightly sandy silty CLAY with frequent roots and rootlets (<2mm). Gravel is angular to sub-rounded fine to coarse brick and siliceous material. 0.30-0.50m: Low cobble content. Cobbles are sub-angular of siliceous material.	(0.70)		
		ES	0.50					
					Firm orangish brown and greyish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material.	0.70	7.66	
1		B ES	1.00 - 1.50 1.00		1.30-1.90m: Locally tending to a slightly sandy silt.	(1.20)		
					Orangish brown slightly sandy slightly clayey angular to sub-rounded fine to coarse GRAVEL of siliceous material.	1.90	6.46	
2		B	2.00 - 2.50			(0.70)		
	Dry.				Trial pit completed at 2.60m	2.60	5.76	
3								
4								

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP544**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456170 N 101313 Level: 8.35mAOD	Date 29/07/2016
Location: Lee on Solent		Dimensions: 1.90m, Depth 3.00m, 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: TARMACADAM.	(0.20)		
					MADE GROUND: Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse of siliceous material, concrete, coal fragments and glass fragments.	0.20	8.15	
		B ES	0.50					
						(1.20)		
1		B ES	1.00					1
					Orangish brown sandy slightly clayey angular to rounded fine to coarse GRAVEL of siliceous material with low cobble content. Cobbles are sub-angular to sub-rounded of siliceous material.	1.40	6.95	
						(0.90)		
2		B	2.00					2
					Orangish brown gravelly slightly clayey SAND. Gravel is angular to sub-rounded fine to coarse of siliceous material.	2.30	6.05	
						(0.70)		
		B	2.80					
3	Dry.				Trial pit completed at 3.00m	3.00	5.35	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP545**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456211 N 101304 Level: 8.14mAOD	Date 29/07/2016
Location: Lee on Solent		Dimensions: 1.90m Depth 3.00m, 0.80m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: TARMACADAM.	(0.20)		
					MADE GROUND: Red slightly gravelly slightly sandy sub-angular COBBLES of red brick. Gravel is angular to sub-angular fine to coarse of red brick.	0.20 (0.20)	7.94	
		B ES	0.50		MADE GROUND: Firm orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material, red brick and coal fragments.	0.40	7.74	
1		B ES	1.00			(1.10)		1
					Orangish brown gravelly slightly clayey SAND with low cobble content. Gravel is angular to rounded fine to coarse of siliceous material. Cobbles are sub-angular to sub-rounded of siliceous material.	1.50	6.64	
2						(0.95)		2
		B	2.20					
					Orangish brown sandy slightly clayey angular to rounded fine to coarse GRAVEL of siliceous material with low cobble content. cobbles are sub-angular to sub-rounded of siliceous material.	2.45	5.69	
						(0.55)		
3	Dry.	B	2.90		Trial pit completed at 3.00m	3.00	5.14	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP546**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456091 N 101250 Level: 8.33mAOD	Date 02/08/2016
Location: Lee on Solent		Dimensions: 2.10m Depth 2.70m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.30		Grass over brown slightly gravelly sandy SILT with frequent roots and rootlets (<1mm). Gravel is angular to sub-rounded fine to coarse flint.	(0.50)		
					Firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is sub-angular to rounded fine to coarse flint.	0.50	7.83	
1		B ES	1.00		1.00-1.50m: Locally gravelly.	(1.00)		1
					Orangish brown and yellowish brown mottled brown and grey slightly gravelly sandy SILT. Gravel is sub-angular to rounded fine to coarse flint.	1.50	6.83	
2		B	2.00			(1.00)		2
	Dry	B	2.60		Firm orangish brown mottled grey slightly gravelly locally gravelly sandy CLAY. Gravel is sub-angular to rounded fine to coarse flint.	2.50	5.83	
						(0.50)		
3					Trial pit completed at 2.70m	3.00	5.33	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: None encountered.

STABILITY: Trial pit side collapse: 1.50-2.70m.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated shallow due to side wall collapse.

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Pit No **TP547**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456116 N 101269 Level: 8.14mAOD	Date 01/08/2016
Location: Lee on Solent		Dimensions: 2.10m Depth 2.70m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By DO

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		ES B	0.10 0.20 - 0.50		MADE GROUND: Grass over firm orangish brown and greyish brown slightly gravelly slightly sandy CLAY with frequent roots and rootlets (<2mm). Gravel is angular to sub-rounded fine to coarse of siliceous material and brick.	(0.60)		
		ES	0.50			0.60	7.54	
1		B ES	1.00 - 1.30 1.00		Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material.	(0.90)		1
					Orangish brown slightly sandy angular to sub-rounded fine to coarse GRAVEL of siliceous material.	1.50	6.64	
2		B	2.00 - 2.50		2.10-2.60m: Locally tending to a gravelly sand.	(1.20)		2
	Dry.				Trial pit completed at 2.70m	2.70	5.44	
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP548**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456132 N 101275 Level: 8.25mAOD	Date 01/08/2016
Location: Lee on Solent		Dimensions: 2.00m Depth 2.80m 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By DO

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		ES B	0.10 0.20 - 0.30		MADE GROUND: Grass over firm orangish brown and greyish brown slightly gravelly slightly sandy CLAY with frequent roots and rootlets (<2mm). Gravel is angular to sub-rounded fine to coarse of siliceous material and brick.	(0.60)		
		ES	0.50		Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material.	0.60	7.65	
1		B ES	1.00 - 1.50 1.00		0.90-1.30m: Locally slightly sandy silt.	(1.00)		1
					Orangish brown slightly sandy angular to sub-rounded fine to coarse GRAVEL of siliceous material.	1.60	6.65	
2		B	2.00 - 2.50			(1.20)		2
	Dry.				Trial pit completed at 2.80m	2.80	5.45	
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP549**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456184 N 101271 Level: 8.23mAOD	Date 27/07/2016
Location: Lee on Solent		Dimensions: 2.10m Depth 3.00m, 0.70m	Scale 1 : 25
Client: Campbell Reith			Logged By JK

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: TARMACADAM.	0.15	8.08	
					MADE GROUND: Red angular to sub-angular COBBLES of red brick.	0.30	7.93	
					MADE GROUND: Light grey sandy slightly clayey angular to sub-angular fine to coarse GRAVEL of red brick, concrete and tile with low cobble content. Cobbles are sub-angular of concrete.	0.45	7.78	
		B ES	0.60		MADE GROUND: Stiff brown slightly gravelly slightly sandy CLAY. Gravel is angular to sub-angular fine to coarse of siliceous material, tile, red brick and concrete.			
1		B ES	1.00			(1.15)		1
					Light grey very gravelly slightly clayey SAND with low cobble content. Gravel is angular to sub-rounded fine to coarse of siliceous material. Cobbles are sub-angular to sub-rounded of siliceous material.	1.60	6.63	
2		B	2.00			(1.40)		2
		B	2.60					
3	Dry.				Trial pit completed at 3.00m	3.00	5.23	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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TRIAL PIT LOG

Telephone: 01452 739165 , Fax: 01452 739220 , Email: info@ccground.co.uk

Pit No **TP550** Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456086 N 101211 Level: 8.23mAOD	Date 02/08/2016
Location: Lee on Solent		Dimensions: 1.70m Depth 2.50m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over brown slightly gravelly slightly sandy SILT with frequent roots and rootlets (<1mm). Gravel is angular to sub-rounded fine to coarse of siliceous material and glass fragments.	(0.30)		
					Firm orangish brown slightly sandy silty CLAY with occasional roots and rootlets (<1mm).	0.30	7.93	
		B ES	0.50			(0.50)		
					Firm orangish brown slightly gravelly silty CLAY.	0.80	7.43	
1		B ES	1.00			(0.70)		1
					Yellowish brown gravelly slightly clayey SAND locally tending to slightly sandy clayey gravel. Gravel is angular to sub-rounded fine to coarse of siliceous material.	1.50	6.73	
2		B	2.00			(1.00)		2
	Dry.				Trial pit completed at 2.50m	2.50	5.73	
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP551**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456068 N 101192 Level: 8.31mAOD	Date 02/08/2016
Location: Lee on Solent		Dimensions: 2.50m (0.60m) Depth 2.90m	Scale 1 : 25
Client: Campbell Reith			Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over brown slightly gravelly sandy SILT with frequent roots and rootlets (<1mm). Gravel is angular to sub-rounded fine to coarse of siliceous material and concrete.	(0.30)		
					0.25-0.30m: 1no lense of yellowish brown very gravelly sand.	0.30	8.01	
					Orangish brown slightly sandy clayey SILT.			
		B ES	0.50		0.60-0.70m: 1no silted up (<100mm) clay pipe (broken) orientated North-South.			
1		B ES	1.00			(1.50)		
					Yellowish brown and grey SAND.	1.80	6.51	
2		B	2.00					
						(1.10)		
					2.50-2.90m: With occasional lenses of clay and silt (<100mm).			
		B	2.80					
	Dry.				Trial pit completed at 2.90m	2.90	5.41	
3								
4								

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP552**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 456067 N 101170 Level: 8.42mAOD	Date 02/08/2016
Location: Lee on Solent		Dimensions: 2.30m Depth 3.00m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over brown slightly gravelly slightly sandy SILT with low cobble content and frequent roots and rootlets (<1mm). Gravel is angular to sub-rounded fine to coarse of concrete, brick and siliceous material. Cobbles are sub-angular of brick, tile and concrete.	(0.60)		
					Firm orangish brown slightly sandy silty CLAY with occasional roots and rootlets (<1mm).	0.60	7.82	
1		B ES	1.00			(1.10)		1
					Firm orangish brown slightly gravelly slightly sandy silty CLAY. Gravel is sub-angular to rounded fine to coarse of siliceous material.	1.70	6.72	
2		B	2.00			(0.80)		2
		B	2.60		Yellowish brown slightly gravelly SAND. Gravel is sub-rounded to rounded fine to coarse of siliceous material.	2.50 (0.30)	5.92	
		B	2.90		Orangish brown mottled reddish brown and grey sandy slightly clayey sub-rounded to rounded fine to coarse GRAVEL of siliceous material.	2.80 (0.20)	5.62	
3	Dry.				Trial pit completed at 3.00m	3.00	5.42	3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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TRIAL PIT LOG

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Pit No **TP553**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455700 N 101481 Level: 7.81mAOD	Date 02/08/2016
Location: Lee on Solent		Dimensions: 1.60m Depth 2.50m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.30		MADE GROUND: Grass over brown slightly gravelly sandy SILT with frequent roots and rootlets (<1mm). Gravel is sub-angular to rounded fine to coarse of siliceous material.	(0.40)		
					Firm orangish brown slightly sandy silty CLAY.	0.40	7.41	
1		B ES	1.00			(1.20)		1
		B	1.70		Yellowish brown mottled orangish brown gravelly SAND. Gravel is sub-angular to rounded fine to coarse of siliceous material.	1.60 (0.30)	6.21	
2		B	2.20		Yellowish brown mottled brownish grey gravelly slightly clayey SAND with low cobble content and occasional lenses of sandy clay (<100mm). Gravel is sub-angular to rounded fine to coarse of siliceous material. Cobbles are sub-angular to sub-rounded of siliceous material.	1.90 (0.60)	5.91	2
	Dry.				Trial pit completed at 2.50m	2.50	5.31	
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

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Pit No **TP554**

Sheet 1 of 1

Project Name: Daedalus Waterfront Infrastructure	Project No: **C5234**	Co-ords: E 455657 N 101355 Level: 8.19mAOD	Date 02/08/2016
Location: Lee on Solent		Dimensions: 1.67m Depth 2.50m, 0.60m	Scale 1 : 25
Client: Campbell Reith			Logged By SM

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Grass over brown slightly gravelly slightly sandy SILT with low cobble content and frequent roots and rootlets (<1mm). Gravel is angular to sub-angular fine to coarse of siliceous material, brick and charcoal fragments. Cobbles are sub-angular of brick.	(0.40)		
						0.40	7.79	
		B ES	0.50		MADE GROUND: Firm orangish brown slightly gravelly sandy silty CLAY with low cobble content. Gravel is angular to sub-rounded fine to coarse of siliceous material and concrete. Cobbles are sub-angular of concrete.	(0.30)		
						0.70	7.49	
1		B ES	1.00		Firm orangish brown slightly gravelly sandy CLAY. Gravel is angular to sub-rounded fine to coarse of siliceous material.	(0.90)		1
						1.60	6.59	
2		B	2.00		Yellowish brown gravelly SAND locally tending to sandy gravel with occasional lenses of sandy silty clay (<100mm). Gravel is angular to sub-rounded fine to coarse of siliceous material.	(0.90)		2
	Dry.				Trial pit completed at 2.50m	2.50	5.69	
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Not encountered.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings.

APPENDIX C

Appendix C – Laboratory Test Results

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Analytical Report Number : 16-24786

Project / Site name:	Daedalus Waterfront Infrastructure	**Samples received on:**	08/08/2016
Your job number:	C5234	**Samples instructed on:**	08/08/2016
Your order number:		**Analysis completed by:**	16/08/2016
Report Issue Number:	1	**Report issued on:**	16/08/2016
Samples Analysed:	9 soil samples		

Signed: Reg 13(1)
Reg 13(1)
For & on behalf of i2 Analytical Ltd.

Signed: Reg 13(1)
Reg 13(1)
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Analytical Report Number: 16-24786

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				613281	613282	613283	613284	613285
Sample Reference				TP529	TP530	TP533	TP533	TP535
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.10	0.50	0.10
Date Sampled				01/08/2016	01/08/2016	01/08/2016	01/08/2016	01/08/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	20	8.4	14	13	14
Total mass of sample received	kg	0.001	NONE	1.8	2.0	1.9	2.0	1.9
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile- Loose fibres
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	Detected
General Inorganics								
pH	pH Units	N/A	MCERTS	7.7	8.1	7.4	7.6	10.6
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	0.4	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	3.9	< 0.05	< 0.05	0.93
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	2.1	< 0.10	< 0.10	0.38
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	33	< 0.10	< 0.10	1.4
Fluorene	mg/kg	0.1	MCERTS	< 0.10	24	< 0.10	< 0.10	1.5
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	230	< 0.10	< 0.10	14
Anthracene	mg/kg	0.1	MCERTS	< 0.10	75	< 0.10	< 0.10	4.6
Fluoranthene	mg/kg	0.1	MCERTS	0.47	350	< 0.10	0.50	43
Pyrene	mg/kg	0.1	MCERTS	0.45	280	< 0.10	0.46	37
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	160	< 0.10	0.25	23
Chrysene	mg/kg	0.05	MCERTS	< 0.05	130	< 0.05	0.33	20
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	140	< 0.10	< 0.10	35
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	79	< 0.10	< 0.10	16
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	120	< 0.10	0.25	28
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	52	< 0.10	< 0.10	12
Dibenz(a h)anthracene	mg/kg	0.1	MCERTS	< 0.10	20	< 0.10	< 0.10	2.4
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	61	< 0.05	< 0.05	16
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	1770	< 1.60	1.79	256
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.7	13	8.2	7.8	34
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	1.1	< 0.2	< 0.2	0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	19	22	20	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	37	15	15	96
Lead (aqua regia extractable)	mg/kg	1	MCERTS	24	160	23	25	240
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.4	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	11	15	15	48
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.1
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	50	800	47	42	130
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	< 10	5800	< 10	< 10	1000
TPH2 (C6 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH C6 - C40	mg/kg	10	NONE	< 10	5800	< 10	< 10	1000

Analytical Report Number: 16-24786

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				613288	613289	613290	613291	
Sample Reference				TP541	TP543	TP547	TP548	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.10	0.10	0.10	0.10	
Date Sampled				01/08/2016	01/08/2016	01/08/2016	01/08/2016	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	14	13	10	10	
Total mass of sample received	kg	0.001	NONE	1.7	1.7	1.9	1.9	
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	
General Inorganics								
pH	pH Units	N/A	MCERTS	7.8	7.2	6.6	6.6	
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.3	-	-	-	
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Dibenz(a h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60	< 1.60	< 1.60	
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	11	12	8.2	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	37	29	23	20	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	13	37	44	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	13	73	110	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	0.4	< 0 3	0.3	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	19	17	16	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.7	1.1	< 1 0	1.3	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	59	37	60	72	
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	< 10	< 10	50	< 10	
TPH2 (C6 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
TPH C6 - C40	mg/kg	10	NONE	< 10	< 10	50	< 10	

Analytical Report Number : 16-24786

Project / Site name: Daedalus Waterfront Infrastructure

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
613281	TP529	None Supplied	0 50	Light brown clay and sand.
613282	TP530	None Supplied	0.10	Brown gravelly clay with brick.
613283	TP533	None Supplied	0.10	Light brown sandy clay.
613284	TP533	None Supplied	0 50	Light brown sandy clay.
613285	TP535	None Supplied	0.10	Brown loam and sand with gravel.
613288	TP541	None Supplied	0.10	Light brown clay and sand.
613289	TP543	None Supplied	0.10	Brown clay and sand.
613290	TP547	None Supplied	0.10	Brown sandy clay with gravel.
613291	TP548	None Supplied	0.10	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 16-24786

Project / Site name: Daedalus Waterfront Infrastructure

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding.	L076-PL	W	MCERTS
TPH C6 - C40 (soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method	L076-PL	W	NONE
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 16-25185

Project / Site name:	Daedalus	**Samples received on:**	08/08/2016
Your job number:	C5234	**Samples instructed on:**	15/08/2016
Your order number:		**Analysis completed by:**	17/08/2016
Report Issue Number:	1	**Report issued on:**	17/08/2016
Samples Analysed:	4 water samples		

Signed: Reg 13(1)

Reg 13(1)

For & on behalf of i2 Analytical Ltd.

Signed: Reg 13(1)

Reg 13(1)

For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Analytical Report Number: 16-25185

Project / Site name: Daedalus

Lab Sample Number				615336	615337	615338	615339	
Sample Reference				BH501	BH502	BH503	BH504	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				4.54	4.64	4.12	5.00	
Date Sampled				05/08/2016	05/08/2016	05/08/2016	05/08/2016	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.6	7.6	7.4	7.2	
Sulphate as SO_4	µg/l	45	ISO 17025	40300	88900	51700	60600	
Total Sulphur	µg/l	15	NONE	13000	30000	17000	20000	
Chloride	mg/l	0.15	ISO 17025	32	43	30	36	
Ammonium as NH_4	µg/l	15	ISO 17025	190	53	380	20	
Nitrate as N	mg/l	0.01	ISO 17025	1.52	0.37	0.26	0.14	
Nitrate as NO_3	mg/l	0.05	ISO 17025	6.73	1.62	1.15	0.63	
Heavy Metals / Metalloids								
Magnesium (dissolved)	mg/l	0.005	ISO 17025	7.1	11	9.2	11	

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 16-25185

Project / Site name: Daedalus

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH4 in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082 B	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 16-24687

Project / Site name:	Daedalus Waterfront Infrastructure	**Samples received on:**	05/08/2016
Your job number:	C5234	**Samples instructed on:**	05/08/2016
Your order number:		**Analysis completed by:**	18/08/2016
Report Issue Number:	1	**Report issued on:**	18/08/2016
Samples Analysed:	32 soil samples		

Signed: Reg 13(1)

Reg 13(1)

For & on behalf of i2 Analytical Ltd.

Signed: Reg 13(1)

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For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612713	612714	612715	612716	612717
Sample Reference				TP501	TP503	TP504	TP505	TP505
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.60	0.10	0.50
Date Sampled				27/07/2016	27/07/2016	27/07/2016	27/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	11	11	17	11	16
Total mass of sample received	kg	0.001	NONE	1.4	1.3	1.6	1.5	1.5
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	-
General Inorganics								
pH	pH Units	N/A	MCERTS	5.6	5.6	7.2	5.7	7.0
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Organic Carbon (TOC)	%	0.1	MCERTS	2.0	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	0.26	0.37	< 0.10	0.68	< 0.10
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.16	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	0.66	1.3	< 0.10	1.9	< 0.10
Pyrene	mg/kg	0.1	MCERTS	0.57	1.1	< 0.10	1.6	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.30	0.56	< 0.10	0.91	< 0.10
Chrysene	mg/kg	0.05	MCERTS	0.31	0.83	< 0.05	0.92	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.34	0.91	< 0.10	0.88	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.22	0.46	< 0.10	0.77	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.30	0.77	< 0.10	0.92	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	0.48	< 0.10	0.57	< 0.10
Dibenz(a h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.52	< 0.05	0.61	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	2.96	7.32	< 1.60	9.94	< 1.60
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	7.7	13	7.5	9.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	20	35	21	32
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	21	16	18	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	49	55	17	66	20
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5	0.7	< 0 3	0.5	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	12	20	13	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	43	48	53	52	57

Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612713	612714	612715	612716	612717
Sample Reference				TP501	TP503	TP504	TP505	TP505
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.60	0.10	0.50
Date Sampled				27/07/2016	27/07/2016	27/07/2016	27/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	-	-	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
o-xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	< 10	17	< 10	41	< 10
TPH2 (C6 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH C6 - C40	mg/kg	10	NONE	< 10	17	< 10	41	< 10
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	< 10
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	-	-	-	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	< 10
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	< 8.4
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	< 10
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	-	-	-	< 10

Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612713	612714	612715	612716	612717
Sample Reference				TP501	TP503	TP504	TP505	TP505
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.60	0.10	0.50
Date Sampled				27/07/2016	27/07/2016	27/07/2016	27/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	ISO 17025	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	ISO 17025	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	NONE	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	NONE	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	NONE	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	MCERTS	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	NONE	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	NONE	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	NONE	-	-	-	-	-
1 3 5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1 3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1 2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	NONE	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	NONE	-	-	-	-	-

Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612713	612714	612715	612716	612717
Sample Reference				TP501	TP503	TP504	TP505	TP505
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.60	0.10	0.50
Date Sampled				27/07/2016	27/07/2016	27/07/2016	27/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612718	612719	612720	612721	612722
Sample Reference				TP506	TP507	TP508	TP509	TP509
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0 50	0.50	0.10	0.50
Date Sampled				26/07/2016	27/07/2016	27/07/2016	27/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	8.9	15	4.8	15	14
Total mass of sample received	kg	0.001	NONE	1.5	1.9	1.8	1.2	1.1
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH	pH Units	N/A	MCERTS	6.3	7.7	9.0	6.6	7.5
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	0.7	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	0.24	2.5	< 0.10	1.2	0.22
Anthracene	mg/kg	0.1	MCERTS	< 0.10	0.67	< 0.10	0.28	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	0.59	1.9	< 0.10	3.8	0.43
Pyrene	mg/kg	0.1	MCERTS	0.53	1.5	< 0.10	3.2	0.34
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.20	0.36	< 0.10	1.7	< 0.10
Chrysene	mg/kg	0.05	MCERTS	0.35	0.41	< 0.05	2.2	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.29	0.27	< 0.10	2.1	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.27	0.30	< 0.10	1.2	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.28	0.29	< 0.10	2.0	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	1.1	< 0.10
Dibenz(a h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.23	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.24	< 0.05	1.3	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	2.75	8.48	< 1.60	20.3	< 1.60
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.3	5.6	23	10	13
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	1.5	0.3	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	21	8.7	20	30
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	13	12	20	16
Lead (aqua regia extractable)	mg/kg	1	MCERTS	58	37	280	73	15
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.4	< 0 3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	11	7.3	14	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.1	< 1 0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	48	43	260	51	54

Lab Sample Number				612718	612719	612720	612721	612722
Sample Reference				TP506	TP507	TP508	TP509	TP509
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0 50	0.50	0.10	0.50
Date Sampled				26/07/2016	27/07/2016	27/07/2016	27/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	-	-	< 1 0	-	-
Toluene	µg/kg	1	MCERTS	-	-	< 1 0	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1 0	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	< 1 0	-	-
o-xylene	µg/kg	1	MCERTS	-	-	< 1 0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1 0	-	-
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	43	< 10	< 10	64	< 10
TPH2 (C6 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH C6 - C40	mg/kg	10	NONE	43	< 10	< 10	64	< 10
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1 0	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2 0	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	< 8 0	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	< 8.0	-	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	< 8.4	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	< 10	-	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	-	< 10	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1 0	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2 0	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	< 10	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	< 10	-	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	< 8.4	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	< 10	-	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	-	< 10	-	-

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612718	612719	612720	612721	612722
Sample Reference				TP506	TP507	TP508	TP509	TP509
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0 50	0.50	0.10	0.50
Date Sampled				26/07/2016	27/07/2016	27/07/2016	27/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	ISO 17025	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	ISO 17025	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	NONE	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	NONE	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	NONE	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	MCERTS	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	NONE	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	NONE	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	NONE	-	-	-	-	-
1 3 5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1 3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1 2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	NONE	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	NONE	-	-	-	-	-

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612718	612719	612720	612721	612722
Sample Reference				TP506	TP507	TP508	TP509	TP509
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0 50	0.50	0.10	0.50
Date Sampled				26/07/2016	27/07/2016	27/07/2016	27/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612723	612724	612725	612726	612727
Sample Reference				TP510	TP512	TP513	TP514	TP515
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.50	0.10	0.50
Date Sampled				26/07/2016	26/07/2016	27/07/2016	27/07/2016	26/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	12	18	11	22
Total mass of sample received	kg	0.001	NONE	1.5	1.8	1.5	1.4	1.9
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile - Loose fibres	-	Chrysotile- Rope	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Detected	Not-detected	Detected	Not-detected
General Inorganics								
pH	pH Units	N/A	MCERTS	6.7	8.4	7.4	6.0	6.7
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	2.6	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	1.1	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	5.2	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	4.8	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	0.66	73	< 0.10	1.1	0.61
Anthracene	mg/kg	0.1	MCERTS	0.13	22	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	1.5	130	< 0.10	2.6	0.69
Pyrene	mg/kg	0.1	MCERTS	1.2	100	< 0.10	2.2	0.57
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.64	55	< 0.10	1.3	0.28
Chrysene	mg/kg	0.05	MCERTS	0.72	52	< 0.05	1.7	0.39
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.67	49	< 0.10	1.5	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.57	35	< 0.10	0.95	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.61	48	< 0.10	0.96	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.38	26	< 0.10	0.42	< 0.10
Dibenz(a h)anthracene	mg/kg	0.1	MCERTS	< 0.10	7.1	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.46	29	< 0.05	0.61	< 0 05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	7.54	643	< 1.60	13.3	2.54
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.4	5.2	6.1	8.8	6.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	3.2	0.2	< 0 2	0.3	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	10	18	18	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	53	48	12	92	51
Lead (aqua regia extractable)	mg/kg	1	MCERTS	140	460	37	150	83
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5	0.3	< 0 3	0.8	0.6
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	35	10	13	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1 0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	80	38	110	62

Lab Sample Number				612723	612724	612725	612726	612727
Sample Reference				TP510	TP512	TP513	TP514	TP515
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.50	0.10	0.50
Date Sampled				26/07/2016	26/07/2016	27/07/2016	27/07/2016	26/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
o-xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	46	3300	42	130	79
TPH2 (C6 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH C6 - C40	mg/kg	10	NONE	46	3300	42	130	79
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	21	-	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	59	-	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	34	-	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	130	-	-	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	60	-	-	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	240	-	-	< 10
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	300	-	-	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	8.7	-	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	160	-	-	4.5
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	930	-	-	17
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	1600	-	-	40
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	400	-	-	14
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	2700	-	-	62
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	3100	-	-	76

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612723	612724	612725	612726	612727
Sample Reference				TP510	TP512	TP513	TP514	TP515
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.50	0.10	0.50
Date Sampled				26/07/2016	26/07/2016	27/07/2016	27/07/2016	26/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Chloroethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Vinyl Chloride	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Trichlorofluoromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
1,1-Dichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
2,2-Dichloropropane	µg/kg	1	NONE	-	< 1.0	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1-Dichloropropene	µg/kg	1	NONE	-	< 1.0	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	-
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Bromodichloromethane	µg/kg	1	NONE	-	< 1.0	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Tetrachloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	-	< 1.0	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Styrene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Tribromomethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Isopropylbenzene	µg/kg	1	NONE	-	< 1.0	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
2-Chlorotoluene	µg/kg	1	NONE	-	< 1.0	-	-	-
4-Chlorotoluene	µg/kg	1	NONE	-	< 1.0	-	-	-
1 3 5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
tert-Butylbenzene	µg/kg	1	NONE	-	< 1.0	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
sec-Butylbenzene	µg/kg	1	NONE	-	< 1.0	-	-	-
1 3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Butylbenzene	µg/kg	1	NONE	-	< 1.0	-	-	-
1 2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Hexachlorobutadiene	µg/kg	1	NONE	-	< 1.0	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	NONE	-	< 1.0	-	-	-

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612723	612724	612725	612726	612727
Sample Reference				TP510	TP512	TP513	TP514	TP515
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.50	0.10	0.50
Date Sampled				26/07/2016	26/07/2016	27/07/2016	27/07/2016	26/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612728	612729	612730	612731	612732
Sample Reference				TP516	TP517	TP518	TP518	TP519
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.10	0.50	0.10
Date Sampled				28/07/2016	27/07/2016	28/07/2016	28/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	32	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	15	6.5	15	15	11
Total mass of sample received	kg	0.001	NONE	0.96	1.7	1.4	1.6	1.7
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile- Loose fibres	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Detected	-	-
General Inorganics								
pH	pH Units	N/A	MCERTS	6.9	6.4	7.7	-	7.4
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	-	< 1
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	0.5	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	-	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	-	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	-	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.98	-	0.48
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	-	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	2.0	-	0.72
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	1.8	-	0.63
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	1.3	-	0.36
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.7	-	0.56
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	1.3	-	0.36
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.68	-	0.27
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.87	-	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	-	< 0.10
Dibenz(a h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	-	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60	10.6	-	3.38
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.9	8.3	9.2	-	11
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.7	-	0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	19	21	-	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	17	31	-	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	81	37	100	-	91
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5	0.3	0.4	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	13	14	-	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	1.4
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	41	44	97	-	73

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612728	612729	612730	612731	612732
Sample Reference				TP516	TP517	TP518	TP518	TP519
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.10	0.50	0.10
Date Sampled				28/07/2016	27/07/2016	28/07/2016	28/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	15	26	130	-	< 10
TPH2 (C6 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	-	< 0.1
TPH C6 - C40	mg/kg	10	NONE	15	26	130	-	< 10
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	-	-	-	-

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612728	612729	612730	612731	612732
Sample Reference				TP516	TP517	TP518	TP518	TP519
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.10	0.50	0.10
Date Sampled				28/07/2016	27/07/2016	28/07/2016	28/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Chloroethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Vinyl Chloride	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Trichlorofluoromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
1,1-Dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
2,2-Dichloropropane	µg/kg	1	NONE	< 1.0	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1-Dichloropropene	µg/kg	1	NONE	< 1.0	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-	-
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Bromodichloromethane	µg/kg	1	NONE	< 1.0	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Tetrachloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	< 1.0	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Styrene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Tribromomethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Isopropylbenzene	µg/kg	1	NONE	< 1.0	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
2-Chlorotoluene	µg/kg	1	NONE	< 1.0	-	-	-	-
4-Chlorotoluene	µg/kg	1	NONE	< 1.0	-	-	-	-
1 3 5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
tert-Butylbenzene	µg/kg	1	NONE	< 1.0	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
sec-Butylbenzene	µg/kg	1	NONE	< 1.0	-	-	-	-
1 3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Butylbenzene	µg/kg	1	NONE	< 1.0	-	-	-	-
1 2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Hexachlorobutadiene	µg/kg	1	NONE	< 1.0	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	NONE	< 1.0	-	-	-	-

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612728	612729	612730	612731	612732
Sample Reference				TP516	TP517	TP518	TP518	TP519
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.10	0.50	0.10
Date Sampled				28/07/2016	27/07/2016	28/07/2016	28/07/2016	27/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612733	612734	612735	612736	612737
Sample Reference				TP520	TP523	TP524	TP525	TP536
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.50	0.50	0.65
Date Sampled				28/07/2016	28/07/2016	28/07/2016	28/07/2016	29/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	5.1	14	15	14	15
Total mass of sample received	kg	0.001	NONE	1.1	1.2	1.6	1.5	1.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH	pH Units	N/A	MCERTS	8.5	6.7	6.7	6.9	6.9
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.18	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	1.6	3.5	< 0.10	0.65	< 0.10
Anthracene	mg/kg	0.1	MCERTS	< 0.10	0.25	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	2.3	5.3	< 0.10	1.0	< 0.10
Pyrene	mg/kg	0.1	MCERTS	2.2	4.6	< 0.10	1.1	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	1.2	1.9	< 0.10	0.55	< 0.10
Chrysene	mg/kg	0.05	MCERTS	1.7	2.6	< 0.05	1.1	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	1.2	2.2	< 0.10	0.57	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.71	1.4	< 0.10	0.42	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.65	1.5	< 0.10	0.50	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	0.66	< 0.10	< 0.10	< 0.10
Dibenz(a h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	1.1	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	11.6	25.1	< 1.60	5.84	< 1.60
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	8.6	12	13	7.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.4	< 0 2	0.6	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	22	18	19	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	56	52	25	51	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	190	89	67	97	31
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.4	< 0 3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	37	14	15	17	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.5	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	160	84	55	120	52

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612733	612734	612735	612736	612737
Sample Reference				TP520	TP523	TP524	TP525	TP536
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.50	0.50	0.65
Date Sampled				28/07/2016	28/07/2016	28/07/2016	28/07/2016	29/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	30	140	< 10	36	< 10
TPH2 (C6 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH C6 - C40	mg/kg	10	NONE	30	140	< 10	36	< 10
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	-	-	-	-

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612733	612734	612735	612736	612737
Sample Reference				TP520	TP523	TP524	TP525	TP536
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.50	0.50	0.65
Date Sampled				28/07/2016	28/07/2016	28/07/2016	28/07/2016	29/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	ISO 17025	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	ISO 17025	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	NONE	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	NONE	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	NONE	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	MCERTS	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	NONE	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	NONE	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	NONE	-	-	-	-	-
1 3 5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1 3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1 2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	NONE	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	NONE	-	-	-	-	-

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612733	612734	612735	612736	612737
Sample Reference				TP520	TP523	TP524	TP525	TP536
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.50	0.50	0.65
Date Sampled				28/07/2016	28/07/2016	28/07/2016	28/07/2016	29/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612738	612739	612740	612741	612742
Sample Reference				TP538	TP539	TP539	TP540	TP544
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0 20	0.35	0.70	0.50
Date Sampled				29/07/2016	29/07/2016	29/07/2016	29/07/2016	29/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	-	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	16	-	8.3	12	17
Total mass of sample received	kg	0.001	NONE	1.5	-	1.6	1.6	1.7
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	Not-detected
General Inorganics								
pH	pH Units	N/A	MCERTS	5.9	-	5.1	7.8	7.0
Total Cyanide	mg/kg	1	MCERTS	< 1	-	< 1	< 1	< 1
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	0.3	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1 0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	-	1.6	< 0.10	< 0.10
Anthracene	mg/kg	0.1	MCERTS	< 0.10	-	0.23	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	-	1.5	< 0.10	< 0.10
Pyrene	mg/kg	0.1	MCERTS	< 0.10	-	1.3	< 0.10	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	-	0.64	< 0.10	< 0.10
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	1.1	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	-	0.50	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	-	0.43	< 0.10	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	-	0.33	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10	< 0.10	< 0.10
Dibenz(a h)anthracene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	-	7.53	< 1.60	< 1.60
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.9	-	12	14	12
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0 2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	-	16	33	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16	-	59	19	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	24	-	160	14	61
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	-	0.4	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	-	16	24	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.0	-	< 1 0	< 1.0	1.3
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	49	-	60	51	110

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612738	612739	612740	612741	612742
Sample Reference				TP538	TP539	TP539	TP540	TP544
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0 20	0.35	0.70	0.50
Date Sampled				29/07/2016	29/07/2016	29/07/2016	29/07/2016	29/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	< 10	-	36	< 10	< 10
TPH2 (C6 - C10)	mg/kg	0.1	NONE	< 0.1	-	< 0.1	< 0.1	< 0.1
TPH C6 - C40	mg/kg	10	NONE	< 10	-	36	< 10	< 10
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	-	-	-	-

Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612738	612739	612740	612741	612742
Sample Reference				TP538	TP539	TP539	TP540	TP544
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0 20	0.35	0.70	0.50
Date Sampled				29/07/2016	29/07/2016	29/07/2016	29/07/2016	29/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	ISO 17025	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	ISO 17025	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	NONE	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	NONE	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	NONE	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	MCERTS	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	NONE	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	NONE	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	NONE	-	-	-	-	-
1 3 5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1 3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	NONE	-	-	-	-	-
1 2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	NONE	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	NONE	-	-	-	-	-

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Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612738	612739	612740	612741	612742
Sample Reference				TP538	TP539	TP539	TP540	TP544
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0 20	0.35	0.70	0.50
Date Sampled				29/07/2016	29/07/2016	29/07/2016	29/07/2016	29/07/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612743	612744			
Sample Reference				TP545	TP549			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50	0 50			
Date Sampled				29/07/2016	27/07/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	13	12			
Total mass of sample received	kg	0.001	NONE	1.7	1.6			
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected			
General Inorganics								
pH	pH Units	N/A	MCERTS	7.5	7.4			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Dibenz(a h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.2	7.8			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	20			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	20			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	13	37			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	15			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	43	46			

Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612743	612744			
Sample Reference				TP545	TP549			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50	0 50			
Date Sampled				29/07/2016	27/07/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	-	-			
Toluene	µg/kg	1	MCERTS	-	-			
Ethylbenzene	µg/kg	1	MCERTS	-	-			
p & m-xylene	µg/kg	1	MCERTS	-	-			
o-xylene	µg/kg	1	MCERTS	-	-			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-			
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	< 10	< 10			
TPH2 (C6 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1			
TPH C6 - C40	mg/kg	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	-	-			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	-	-			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-			
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	-			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	-	-			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	-	-			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	-			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	-			

Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612743	612744			
Sample Reference				TP545	TP549			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50	0 50			
Date Sampled				29/07/2016	27/07/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-			
Chloroethane	µg/kg	1	ISO 17025	-	-			
Bromomethane	µg/kg	1	ISO 17025	-	-			
Vinyl Chloride	µg/kg	1	ISO 17025	-	-			
Trichlorofluoromethane	µg/kg	1	ISO 17025	-	-			
1,1-Dichloroethene	µg/kg	1	MCERTS	-	-			
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-			
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-			
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-			
2,2-Dichloropropane	µg/kg	1	NONE	-	-			
Trichloromethane	µg/kg	1	MCERTS	-	-			
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-			
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-			
1,1-Dichloropropene	µg/kg	1	NONE	-	-			
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-			
Benzene	µg/kg	1	MCERTS	-	-			
Tetrachloromethane	µg/kg	1	MCERTS	-	-			
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-			
Trichloroethene	µg/kg	1	MCERTS	-	-			
Dibromomethane	µg/kg	1	MCERTS	-	-			
Bromodichloromethane	µg/kg	1	NONE	-	-			
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-			
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-			
Toluene	µg/kg	1	MCERTS	-	-			
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-			
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-			
Dibromochloromethane	µg/kg	1	ISO 17025	-	-			
Tetrachloroethene	µg/kg	1	MCERTS	-	-			
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-			
Chlorobenzene	µg/kg	1	MCERTS	-	-			
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	-	-			
Ethylbenzene	µg/kg	1	MCERTS	-	-			
p & m-Xylene	µg/kg	1	MCERTS	-	-			
Styrene	µg/kg	1	MCERTS	-	-			
Tribromomethane	µg/kg	1	MCERTS	-	-			
o-Xylene	µg/kg	1	MCERTS	-	-			
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-			
Isopropylbenzene	µg/kg	1	NONE	-	-			
Bromobenzene	µg/kg	1	MCERTS	-	-			
n-Propylbenzene	µg/kg	1	ISO 17025	-	-			
2-Chlorotoluene	µg/kg	1	NONE	-	-			
4-Chlorotoluene	µg/kg	1	NONE	-	-			
1 3 5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-			
tert-Butylbenzene	µg/kg	1	NONE	-	-			
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-			
sec-Butylbenzene	µg/kg	1	NONE	-	-			
1 3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-			
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-			
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-			
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-			
Butylbenzene	µg/kg	1	NONE	-	-			
1 2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-			
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-			
Hexachlorobutadiene	µg/kg	1	NONE	-	-			
1,2,3-Trichlorobenzene	µg/kg	1	NONE	-	-			

Analytical Report Number: 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				612743	612744			
Sample Reference				TP545	TP549			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50	0 50			
Date Sampled				29/07/2016	27/07/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

Analytical Report Number : 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
612713	TP501	None Supplied	0.10	Light brown loam and clay with gravel and vegetation.
612714	TP503	None Supplied	0.10	Light brown loam and clay with gravel and vegetation.
612715	TP504	None Supplied	0 60	Brown loam and clay.
612716	TP505	None Supplied	0.10	Light brown loam and clay with gravel and vegetation.
612717	TP505	None Supplied	0 50	Light brown loam and clay with vegetation.
612718	TP506	None Supplied	0.10	Light brown loam and clay with vegetation.
612719	TP507	None Supplied	0 50	Brown clay and loam.
612720	TP508	None Supplied	0 50	Light brown loam and clay with gravel.
612721	TP509	None Supplied	0.10	Brown loam and clay with vegetation.
612722	TP509	None Supplied	0 50	Light brown clay and loam with gravel.
612723	TP510	None Supplied	0.10	Light brown loam and clay with gravel and vegetation.
612724	TP512	None Supplied	0.10	Black gravelly loam.
612725	TP513	None Supplied	0 50	Brown clay and loam with gravel and chalk.
612726	TP514	None Supplied	0.10	Light brown sandy loam with vegetation.
612727	TP515	None Supplied	0 50	Brown clay and loam.
612728	TP516	None Supplied	0 50	Brown clay and loam.
612729	TP517	None Supplied	0.10	Light brown loam and clay with vegetation and stones.
612730	TP518	None Supplied	0.10	Brown loam and clay with gravel and vegetation.
612731	TP518	None Supplied	0 50	Brown clay and loam with vegetation.
612732	TP519	None Supplied	0.10	Brown sandy loam with gravel and vegetation.
612733	TP520	None Supplied	0 50	Brown sandy loam with gravel.
612734	TP523	None Supplied	0.10	Light brown loam and clay with gravel and vegetation.
612735	TP524	None Supplied	0 50	Light brown clay and loam.
612736	TP525	None Supplied	0 50	Light brown loam and clay with gravel and vegetation.
612737	TP536	None Supplied	0 65	Light brown clay and loam.
612738	TP538	None Supplied	0 50	Light brown clay and loam.
612739	TP539	None Supplied	0 20	-
612740	TP539	None Supplied	0 35	Light brown loam and clay with gravel.
612741	TP540	None Supplied	0.70	Light brown clay and loam.
612742	TP544	None Supplied	0 50	Light brown clay and loam.
612743	TP545	None Supplied	0 50	Light brown clay and loam.
612744	TP549	None Supplied	0 50	Light brown clay and loam.

Analytical Report Number : 16-24687

Project / Site name: Daedalus Waterfront Infrastructure

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding.	L076-PL	W	MCERTS
TPH C6 - C40 (soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method	L076-PL	W	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	NONE
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 16-24963

Project / Site name:	Daedalus Waterfront Infrastructure	**Samples received on:**	11/08/2016
Your job number:	C5234	**Samples instructed on:**	11/08/2016
Your order number:		**Analysis completed by:**	19/08/2016
Report Issue Number:	1	**Report issued on:**	19/08/2016
Samples Analysed:	4 soil samples		

Signed: Reg 13(1)

Reg 13(1)
For & on behalf of i2 Analytical Ltd.

Signed: Reg 13(1)

Reg 13(1)
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Analytical Report Number: 16-24963

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				614210	614211	614212	614213	
Sample Reference				BH501	BH502	BH503	BH504	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.10	0.10	0.20	0.20	
Date Sampled				25/07/2016	27/07/2016	28/07/2016	29/07/2016	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	-	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	-	8.2	6.6	4.7	
Total mass of sample received	kg	0.001	NONE	-	1.6	2.0	2.0	
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	
General Inorganics								
pH	pH Units	N/A	MCERTS	-	7.4	8.6	8.7	
Total Cyanide	mg/kg	1	MCERTS	-	< 1	< 1	< 1	
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	< 1 0	< 1.0	
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	
Acenaphthylene	mg/kg	0.1	MCERTS	-	< 0.10	< 0.10	< 0.10	
Acenaphthene	mg/kg	0.1	MCERTS	-	< 0.10	1.0	1.1	
Fluorene	mg/kg	0.1	MCERTS	-	< 0.10	1.5	1.6	
Phenanthrene	mg/kg	0.1	MCERTS	-	< 0.10	8.8	9.5	
Anthracene	mg/kg	0.1	MCERTS	-	< 0.10	3.1	3.6	
Fluoranthene	mg/kg	0.1	MCERTS	-	1.6	18	20	
Pyrene	mg/kg	0.1	MCERTS	-	1.4	16	17	
Benzo(a)anthracene	mg/kg	0.1	MCERTS	-	0.74	8.3	9.9	
Chrysene	mg/kg	0.05	MCERTS	-	1.0	8.5	10	
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	-	0.80	7.7	9.8	
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	-	0.76	4.8	6.5	
Benzo(a)pyrene	mg/kg	0.1	MCERTS	-	0.80	7.0	9.3	
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	-	0.48	4.1	5.1	
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	-	< 0.10	0.87	0.95	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	0.53	4.5	5.3	
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	-	8.09	95.0	109	
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	8.0	12	13	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	0.6	1.2	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	22	14	15	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	21	19	23	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	52	68	88	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	0.6	0.4	< 0.3	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	15	15	12	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	< 1 0	< 1.0	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	50	200	270	
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	-	20	240	470	
TPH2 (C6 - C10)	mg/kg	0.1	NONE	-	< 0.1	< 0.1	< 0.1	
TPH C6 - C40	mg/kg	10	NONE	-	20	240	470	

Analytical Report Number : 16-24963

Project / Site name: Daedalus Waterfront Infrastructure

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
614210	BH501	None Supplied	0.10	-
614211	BH502	None Supplied	0.10	Light brown loam and sand with gravel and vegetation.
614212	BH503	None Supplied	0 20	Brown loam and sand with gravel.
614213	BH504	None Supplied	0 20	Brown loam and sand with gravel.

Analytical Report Number : 16-24963

Project / Site name: Daedalus Waterfront Infrastructure

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding.	L076-PL	W	MCERTS
TPH C6 - C40 (soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method	L076-PL	W	NONE
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 16-24992

Project / Site name:	Daedalus Waterfront Infrastructure	**Samples received on:**	11/08/2016
Your job number:	C5234	**Samples instructed on:**	11/08/2016
Your order number:		**Analysis completed by:**	19/08/2016
Report Issue Number:	1	**Report issued on:**	19/08/2016
Samples Analysed:	6 soil samples		

Signed: Reg 13(1)

Reg 13(1)

For & on behalf of i2 Analytical Ltd.

Signed: Reg 13(1)

Reg 13(1)

For & on behalf of i2 Analytical Ltd.

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

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

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 16-24992

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				614398	614399	614495	614496	614497
Sample Reference				TP537	TP537	TP550	TP551	TP552
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0 50	0.10	0.10	0.10
Date Sampled				02/08/2016	02/08/2016	02/08/2016	02/08/2016	02/08/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	-	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	-	12	8.0	9.3	8.8
Total mass of sample received	kg	0.001	NONE	-	1.8	1.5	1.6	1.8
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile - Loose fibres; Crocidolite - Loose fibres
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	Detected
General Inorganics								
pH	pH Units	N/A	MCERTS	-	6.8	5.9	7.0	6.7
Total Cyanide	mg/kg	1	MCERTS	-	< 1	< 1	< 1	< 1
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	2.4	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	< 1 0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	-	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	-	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	-	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	-	2.0	0.21	0.29	0.31
Anthracene	mg/kg	0.1	MCERTS	-	0.42	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	-	4.5	0.51	1.1	1.1
Pyrene	mg/kg	0.1	MCERTS	-	3.7	0.46	0.94	0.95
Benzo(a)anthracene	mg/kg	0.1	MCERTS	-	2.3	0.26	0.61	0.60
Chrysene	mg/kg	0.05	MCERTS	-	1.9	0.28	0.48	0.57
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	-	2.5	0.31	0.79	0.67
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	-	1.7	0.29	0.35	0.50
Benzo(a)pyrene	mg/kg	0.1	MCERTS	-	2.0	0.33	0.63	0.58
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	-	1.0	< 0.10	0.29	< 0.10
Dibenz(a h)anthracene	mg/kg	0.1	MCERTS	-	0.20	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	1.2	< 0.05	0.38	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	-	23.4	2.65	5.86	5.24
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	9.1	7.9	8.2	11
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	0.2	< 0.2	0.4
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	19	21	25	28
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	43	46	29	43
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	89	98	95	190
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	0.6	0.7	0.7	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	14	15	17	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	1.8	< 1 0	< 1.0	1.3
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	75	81	76	120
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	-	88	54	57	21
TPH2 (C6 - C10)	mg/kg	0.1	NONE	-	< 0.1	< 0.1	< 0.1	< 0.1
TPH C6 - C40	mg/kg	10	NONE	-	88	54	57	21

Analytical Report Number: 16-24992

Project / Site name: Daedalus Waterfront Infrastructure

Lab Sample Number				614498				
Sample Reference				TP554				
Sample Number				None Supplied				
Depth (m)				0.10				
Date Sampled				02/08/2016				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	13				
Total mass of sample received	kg	0.001	NONE	1.8				
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
General Inorganics								
pH	pH Units	N/A	MCERTS	6.4				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Total Organic Carbon (TOC)	%	0.1	MCERTS	-				
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10				
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10				
Fluorene	mg/kg	0.1	MCERTS	< 0.10				
Phenanthrene	mg/kg	0.1	MCERTS	1.6				
Anthracene	mg/kg	0.1	MCERTS	0.24				
Fluoranthene	mg/kg	0.1	MCERTS	5.0				
Pyrene	mg/kg	0.1	MCERTS	4.2				
Benzo(a)anthracene	mg/kg	0.1	MCERTS	2.7				
Chrysene	mg/kg	0.05	MCERTS	2.6				
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	2.8				
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	2.9				
Benzo(a)pyrene	mg/kg	0.1	MCERTS	2.7				
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	1.5				
Dibenz(a h)anthracene	mg/kg	0.1	MCERTS	0.34				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.6				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	28.2				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	41				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	140				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.0				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.1				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120				
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	120				
TPH2 (C6 - C10)	mg/kg	0.1	NONE	< 0.1				
TPH C6 - C40	mg/kg	10	NONE	120				

Analytical Report Number : 16-24992

Project / Site name: Daedalus Waterfront Infrastructure

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
614398	TP537	None Supplied	0.10	-
614399	TP537	None Supplied	0 50	Brown loam and clay with gravel and vegetation.
614495	TP550	None Supplied	0.10	Brown loam and clay with gravel and vegetation.
614496	TP551	None Supplied	0.10	Brown loam and clay with gravel and vegetation.
614497	TP552	None Supplied	0.10	Brown loam and clay with gravel and vegetation.
614498	TP554	None Supplied	0.10	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 16-24992

Project / Site name: Daedalus Waterfront Infrastructure

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding.	L076-PL	W	MCERTS
TPH C6 - C40 (soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method	L076-PL	W	NONE
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

APPENDIX D

Appendix D – Gas and Groundwater Monitoring

Peak Gas and Groundwater Monitoring

Borehole	Date	Barometric Pressure (mb)	Methane (%)	Carbon Dioxide (%)	Oxygen (min) (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Gas Flow (min/max) (Litres/hour)	Water Level (m)	Comments
BH 501	04/08/16	1020	0.00	0.40	20.60	1.00	0.00	-0.0/0.1	4.54	Full Set Of Samples Taken / Purged
	19/08/16	1006	0.00	2.90	19.50	0.00	0.00	0.2/0.0	4.73	
BH 502	04/08/16	1020	0.00	5.60	8.70	18.00	0.00	0.0/0.0	4.64	Full Set Of Samples Taken / Purged
	19/08/16	1006	0.00	7.60	11.60	0.00	0.00	-0.0/-0.0	4.79	
BH 503	04/08/16	1020	0.00	0.30	20.30	0.00	0.00	-0.1/-0.0	4,12	Full Set Of Samples Taken / Purged
	19/08/16	1006	0.00	3.70	18.40	0.00	0.00	-0.0/0.0	4.22	
BH 504	04/08/16	1020	0.10	6.70	10.00	0.00	0.00	-0.2.0.0	5.00	Full Set Of Samples Taken / Purged
	19/08/16	1006	0.00	7.70	10.70	0.00	0.00	0.0/0.0	4.15	

CC Ground Investigations Ltd

Contract Name:	Daedalus
Contract ID:	C5234
Client:	Campbell Reith
Instrument used:	GA5000 Gas analyser. Geotechnical Instruments dip meter.

APPENDIX E

Appendix E – SPT Calibration Data

Southern Testing
Environmental & Geotechnical

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Southern Testing Laboratories
Keeble House
Stuart Way
East Grinstead
West Sussex
RH19 4QA

SPT Hammer Ref:	SEDS7
Test Date:	30/04/2016
Report Date:	30/04/2016
File Name:	SEDS7.spt
Test Operator:	NPB

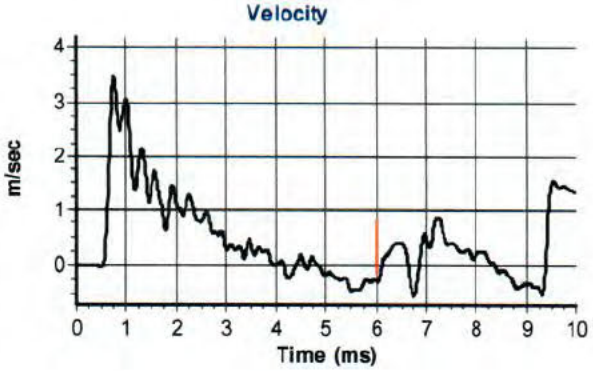
Instrumented Rod Data

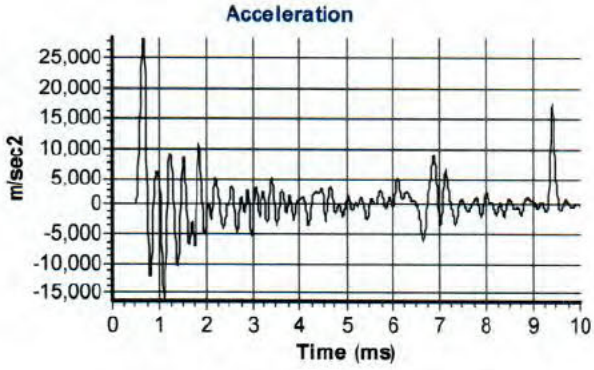
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	200
Accelerometer No.1:	6458
Accelerometer No.2:	9607

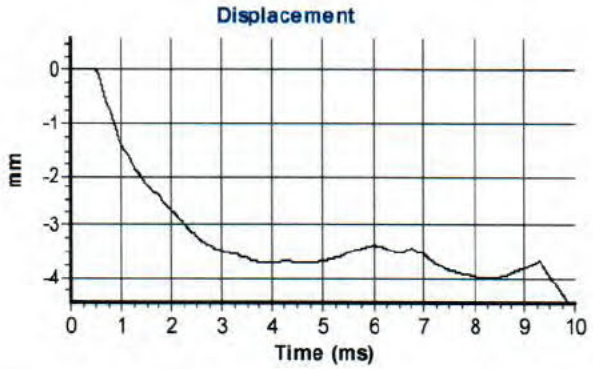
SPT Hammer Information

Hammer Mass m (kg):	64.5
Falling Height h (mm):	750
SPT String Length L (m):	14.5

Comments / Location
CHARLWOODS







Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	360

Energy Ratio E_r (%): **76**

The recommended calibration interval is 12 months

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Signed:

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