BUROHAPPOLD ENGINEERING

Folkestone Harbour

Geoenvironmental Interpretative Report

034029

7 December 2016

Revision 00

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Revision	Description	Issued by	Date	Checked
00	Issue	Francesca Gould	7/12/16	Rob Frost

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1 Introduction

1.1 General

On behalf of Folkestone Harbour (CP) Ltd, BuroHappold Engineering (BuroHappold) were commissioned to undertake a geoenvironmental assessment of Folkestone Harbour, Folkestone, Kent to assist with the redevelopment of the harbour into an iconic residential and retail development.

The extent of the area investigated is shown with a red line boundary on Figure 1-1 (see also drawing GSK-01) and is hereafter referred to as 'the Site'. A geotechnical investigation was also undertaken together with the geoenvironmental investigation, the findings of which are presented in a separate BuroHappold report [1].

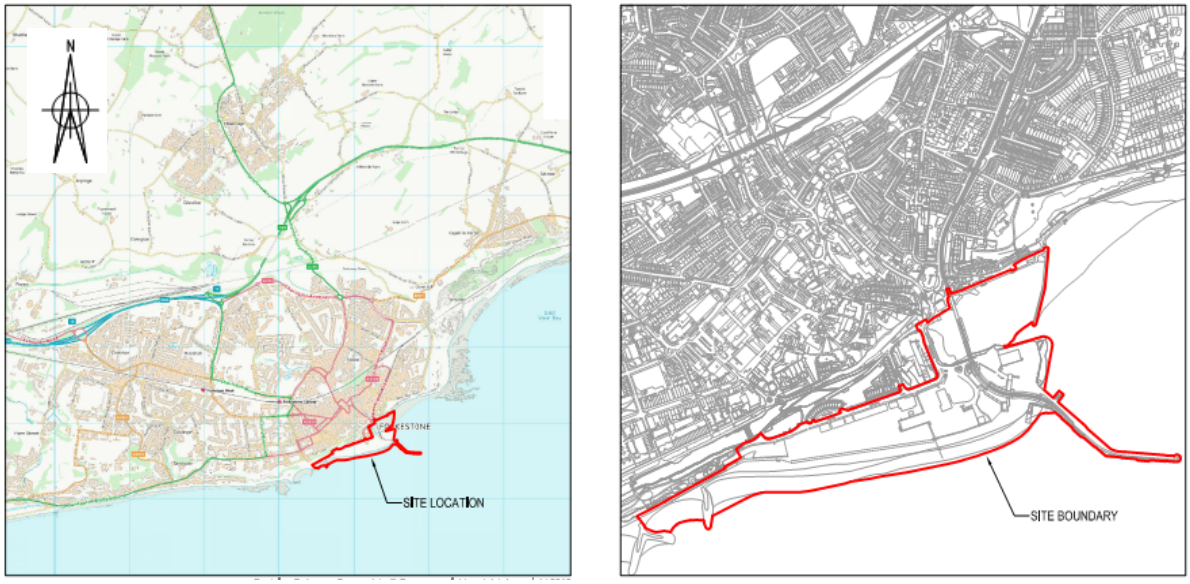


Figure 1—1 Site location and red line boundary

The aims, objectives and information sources used as part of this outline geoenvironmental assessment for the Site are summarised below.

1.2 Aims and objectives

The aim of the ground investigation was to assess the geological, geotechnical and geoenvironmental conditions for the Folkestone Harbour redevelopment site. This report details only the geoenvironmental aspects of the investigation and aims to provide a site conceptual model and an assessment of contamination related risks for current and future site usage.

To achieve the above aims, the objectives of the geoenvironmental investigation at the Site are to provide an assessment of the following conditions:

- Current ground model and groundwater regime;
- Current location, nature and extent of contamination within the Made Ground and underlying natural strata;

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- Current nature and extent of contamination within the groundwater;
- Current ground gas and vapour regime to enable an outline assessment of the potential risks associated with hazardous gases and vapours;

This report has the following objectives:

- To assess potential risks to people and the environment (natural and built) associated with ground contamination (solid, liquid or gas) during construction and for future site use; and
- To provide recommendations and outline scope, if necessary, for further works such as intrusive ground investigation and / or remedial action or design.

This report also provides information relevant for future use of the Site in accordance with the requirements of the National Planning Policy Framework (NPPF) [2] and also with respect to potential liability under Part 2a of the Environmental Protection Act 1990. The work was carried out in general accordance with the Environment Agency (EA) / Department for Environment, Food and Rural Affairs (Defra) Model Procedures for the management of Contaminated Land [3], the relevant British Standards (BS) [4] & [5] the EA Guiding Principles for Land Contamination [6], Groundwater Protection Policy [7] and other current good practice guidance.

1.3 Information sources

The principle sources of historic information were taken from the previous desk study by Arup [8] and historic photographs available from online sources. This report is based upon information obtained these third party sources, together with observations from the Site walkover survey and data from the recent intrusive ground investigation (undertaken between 4th April to 6th May 2016).

The third party data has been accepted at face value and has not been independently verified. BuroHappold can therefore give no warranty, representation or assurance as to the accuracy or completeness of such information.

1.4 Limitations

The scope and design of the site investigation has reflected the known history of site use, the results of previous studies and the limited scope requested by the client. On this basis the spacing of the exploratory holes and the sampling and analysis plan for this investigation are considered to have provided a reasonable level of certainty about the ground conditions. However, it is important to recognise that contamination can be both widespread and relatively localised, depending upon its source and nature etc.

No investigation, however comprehensive, can be expected to determine absolutely the nature and extent of all the contamination which could be present on any site. There will always be an element of uncertainty about the ground conditions including contamination. This potential for currently undetected contamination to be present must therefore be taken into account not only in the risk assessment presented here but also in consideration of future development activities, for example, health and safety planning, financial planning and risk management and in the implementation of the below ground works during construction.

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2 Site Setting

2.1 Site location

The Site is located in Folkestone, a coastal town situated along the English Channel in Kent, south east England (see Figure 1-1). The British National Grid Reference of the approximate centre of the Site is TR23129 35702. The site includes the shingle beach foreshore and the formerly developed hardstanding area immediately behind the foreshore, the inner and outer harbour and the harbour quay. The Site comprises an area of approximately 10.8 hectares (inclusive of the existing pier).

Based on their geographic location, historic usage and ground conditions encountered during the intrusive ground investigation, the Site has been divided into four main areas (A, B, C and D) , see below Figure 2—1.

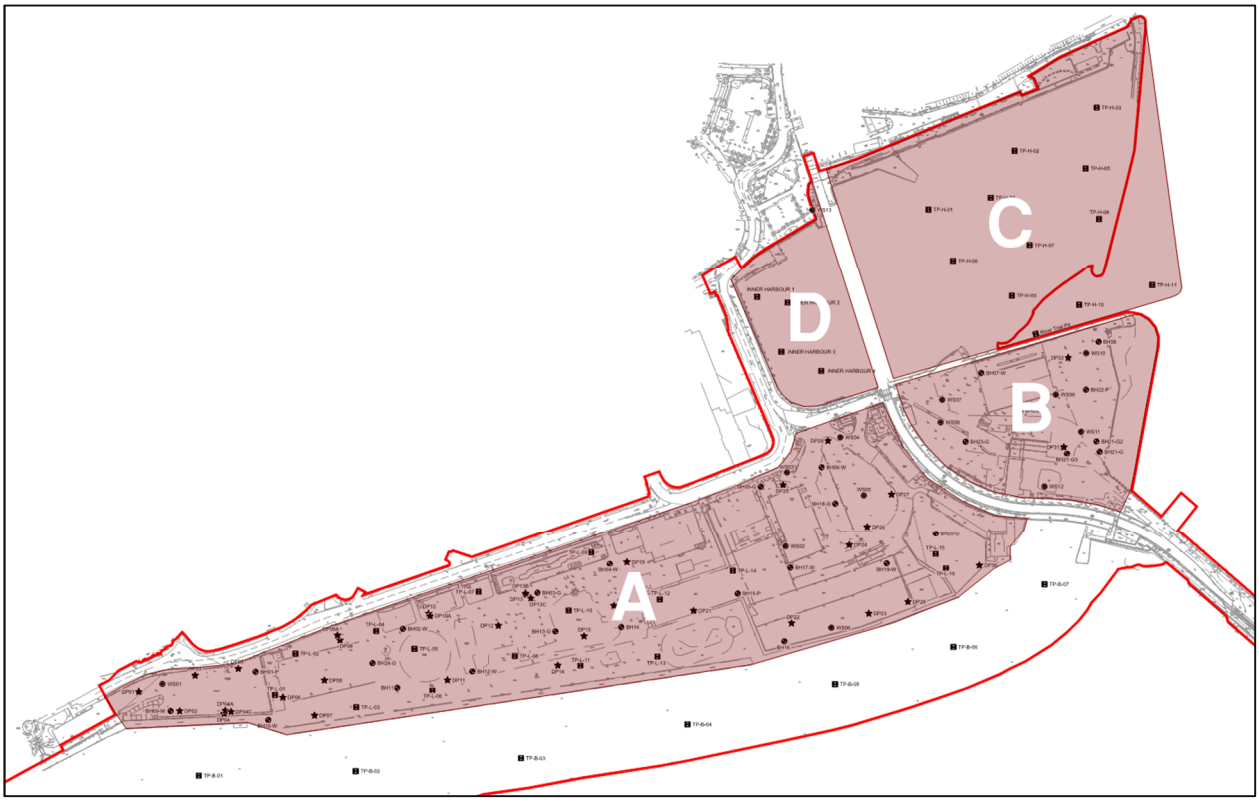


Figure 2—1 Site plan showing areas A, B, C and D

The majority of the Site (Areas A and B) is generally flat at approximately 6 m above Ordnance Datum (OD) with the beach to the south (offsite) sloping downwards to the south towards the English Channel. The inner and outer harbour (Areas C and D) areas range from approximately 0.6 m OD to 2 m OD.

The area to the south of Area A includes the beach foreshore, a footpath intersects Area A and the beach foreshore. The thin section of land to the north of Area A comprises Marine Parade (tarmac road).

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The southern and eastern areas of the Site are bounded by the beach up to the Old Folkestone Pier. The northern parts of the Site are bounded by Lower Sandgate and Marine Parade roads. The inner and outer harbour areas are bounded to the north by a concrete jetty.

The western extent of the Site (Area A) is bounded by an area of vegetation that lies between the shingle beach foreshore and Lower Sandgate Road. The eastern site boundary (Area B) is marked by the New Harbour Arm and the outer harbour wall which separates the outer harbour from Sunny Sands Beach.

Excluding the harbour, the Site is roughly rectangular in shape, spanning approximately 900 m east to west. It is narrowest at its western end (approximately 25 m), and widens to the east to a maximum of approximately 180 m. The eastern extent of the Site is intersected by a derelict railway line that joins the Old Folkestone Pier to the southeast of the Site (it is this intersection that divides Area A and B).

The Site includes active public car parks (Area A contains a carpark in each of its western and eastern extents) and a concrete surfaced lorry park in the south-east extent of Area A. Sections of the lorry park are hired to local waste companies to store skips and other equipment. Multiple spoil heaps are scattered across the eastern extents of Area A, these mainly comprise demolition debris. The central part of Area A is predominantly open, asphalt covered land (frequently occupied by passing attractions e.g. circus, fun fairs). The northern extent of Area A comprises four areas of gravel beds some of which contain palm trees. Area B comprises a large car park which is used for boat storage and is covered by concrete and tarmac, Area B also provides access to the newly renovated harbour arm and harbour buildings including the harbour masters' office and a café.

The outer harbour (Area C) is still used as a harbour by small fishing craft and at low tide a relatively competent sandy base is exposed, whereas the inner harbour (Area D) generally has a soft silty base.

2.2 Historical land use

The historical land use of the Site is outlined in Table 2—1 and has been derived from a number of third party sources as outlined in Section 1.3.

Table 2—1 Summary of the Site history

Dates	Site History
Pre 1872	The 1794 historical harbour masterplan shows an 'L' shaped rock pier in approximately the same location as the present day harbour approach road, suggesting that the historical pier may be incorporated into the current structure. Pent Stream is located just to the west of the pier; it is this stream that now flows into the inner harbour. Much of the site area is shown as part of the foreshore and is undeveloped. The 1829 drawings and cross sections [8] provide detail on the then proposed construction works. These drawings include some detail of the existing construction at the time, which comprised masonry construction with piles (likely sheeted wooden piles), at depth.

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Dates	Site History
1872-1875	The eastern portion of the Site was dominated by the port facilities associated with the harbour and pier. The Site was accessed by both road and rail. Rail access was via a swing bridge that separated the smaller inner harbour (to west) and larger outer harbour (to east). The railway sidings serviced the wharfs (Area B) of the outer harbour and also the pier. Buildings within the Site area included harbour station, custom house and a goods warehouse. Maps from 1873-1875 show a timber yard located to the immediate north of Marine Parade and to the immediate east of the present day Marine Crescent. To the north of the Site were various developments on a reclaimed area at the foot of the old cliff line. These developments included: Pavilion Hotel (with formal gardens), Harbour House, terraced houses (including Marine Parade and Marine Crescent), a timber yard and baths.
1898	Between 1875 and 1898 the harbour facilities had been enlarged. The harbour station was expanded and new tracks/sidings were created (Area B and Area east of Area A). The pier was remodelled (extended and widened). To the west of the railway sidings in Area A a formal garden with a band stand was built. To the south of these gardens small structures and a ramp (possibly boat huts and an accompanying boat ramp) are shown to be present. The west side of the Site contained small structures including boat houses, a Camera Obscura and a lifeboat house (with a slipway). Victoria Pier is shown to be present (1888).
1907	The harbour station was altered and additional railway tracks and sidings present. The main pier was widened and extended further, whilst the short pier was shortened. To the north of the Site the Royal Pavilion Hotel was enlarged. The former Harbour House building was demolished. The timber yard is no longer shown. A number of groynes were shown on the foreshore at the east end of the Site.
First World War	An air raid occurred on 1st February 1917 at various localities in and around Folkestone. It was reported that 163 bombs fell, killing more than 60 people, the majority at Tontine Street in the centre of Folkestone.
1938	Within Area A the beach area was landscaped and utilised for leisure facilities including the construction of the 'Marine Promenade' (open air Bathing Pool, Rotunda, Boating Lake, and Marine Gardens Pavilion). Some changes occurred to the harbour and station, including enlargement of the goods warehouse (Area B). The railway sidings were extended westwards in the east of Area A On the beach/foreshore the former groynes were no longer shown.
Second World War	Due to Folkestone's proximity to France, the area was subjected to considerable attack and damage, including bombs dropped by air and also long range shelling from the French coastline. Both town and harbour were hit on numerous occasions. Given the strategic importance of the harbour (potential landing site for invasion) the harbour had numerous defences including mines. The mines were placed on land, on the beach and in the water. 1941 aerial photography shows bomb damage to the inner harbour.
1967-1978	The eastern portion of the Site underwent a number of changes, including a new lorry park that extended onto part of the former beach area. The railway sidings had been removed from Area B and Area A.
2008	Different phases of coastal protection measures were created (shingle and sand beach, no original wave cut rock platform is exposed). Between 1999 and 2008 new beach defences were created (curved groynes/moles).

Though the historic maps provide no evidence of boat maintenance it is anticipated that some boat maintenance has occurred within the harbour in the past. This could include the removal of asbestos, use and spillage of hydrocarbons and application of anti-fouling paints, including tri-butyl tin (TBT).

2.3 Unexploded ordnance (UXO)

UXO assessment of the Site was undertaken by Arup in the 2008 [8] and BuroHappold commissioned BAe systems to provide an up to date assessment prior to the 2016 intrusive ground investigation. The BAe assessment indicated some areas of the site have a higher risk of encountering UXO and in these areas a UXO explosives safety engineer supervised the ground investigation works. Risks for construction activities are outlined in the report which is included in Appendix B of this report.

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2.4 Radon

The Indicative Atlas of Radon for England and Wales [9] indicates that the Site is within an area where 1 to 3% of properties are at or above the Action Level. The BRE Radon guidance document [10] indicates that no radon protection measures are required in this area.

2.5 Anticipated ground model

This section provides the anticipated ground model for the Site inferred using the third party information provided.

2.5.1 Anticipated Geology

The anticipated geology of the Site is presented in Table 2—2 below.

Table 2—2 Anticipated geology

Geology	**Geological Description**	**Bottom Depth** Min, Max (m bgl)	**Thickness** (m)
Asphalt/concrete then	-	<1m	<1m
Reclaimed Ground/Made Ground	Reworked ground (sand, silt and gravel)	~1-2	~1-2
Beach Deposits	Sand, silt, gravel.	~6-9	~5-7
Sandgate Beds	Clay, silt and sand	~11-46	~5-37
Hythe Formation	Limestone and sandstone	~11-64	~0-18

2.5.2 Hydrogeology

Groundwater is anticipated to be within the Made Ground and present within the underlying natural deposits. Based on the presence of Pent stream (a channelized former stream channel) that flows to the south/south-east and the Site's proximity to the shoreline, the groundwater flow direction is anticipated to be to the south to south-east. The hydrogeological regime is inferred to be dominated by the tidal influence of the marine environment.

2.5.3 Hydrological

The tidal range is up to approximately 6m in the area of the Site. Pent Stream flows to the south/south-east outflowing into the inner harbour.

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3 Risk Assessment Criteria Applied

3.1 Risk Assessment Criteria

In order to perform a Generic Quantitative Risk Assessment (GQRA), the soil, groundwater and gas test results will be compared (see Sections 5, 6 and 7 respectively) with available Soil Guideline Values (SGVs), Category 4 Screening Values (C4SLs), and BuroHappold and other industry Generic Assessment Criteria (GAC), the details of which are presented in Appendix A.

3.1.1 Risks to human health

Chronic: For human health risk assessment, soil results will be assessed using GACs, C4SLs and SGVs for the Contaminated Land Exposure Assessment (CLEA) residential with and without plant uptake and commercial land use scenarios. The residential with plant uptake and the commercial land use scenarios are applied to give context to the data and to provide indicative upper and lower bounds for discussion purposes only. The residential without plant uptake is considered to be the most appropriate land use scenario against which the data is to be compared to establish suitability for use.

Acute: There are currently no guidance values for assessing acute risk to human health from soil contamination. Because such risks are associated with short term exposure, consideration is required of maximum concentrations (not the average concentration which is relevant to chronic / long term risk). Comparison of maximum concentrations are made with the various GACs and other screening values which provides a conservative benchmark for such short term risks (as the values are based on long term exposure).

3.1.2 Plant health (phytotoxicity)

It is not anticipated that direct planting will take place within the material currently on Site. However, as a conservative approach and in the case of future planting, soil test results indicating phytotoxicity are assessed using the British Standards Specification for Topsoil (BS 3882) [11].

3.1.3 Risks to below ground structures

Soil samples are assessed with reference to the UK Water Industry Research (UKWIR) Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites [12] to assess risks to below ground water supply pipework.

3.1.4 Ground gas

Ground gas data obtained from the Site will be used to assess the risks to the Site with reference to CIRIA report C665 [13], National Housing Building Council (NHBC) guidance [14] and BS 8485 [15] (see Section 7). Consideration to both methane (CH_4) and carbon dioxide (CO_2) concentrations as well as flow rates will be given. The Gas Screening Value (GSV) is defined as the product of gas concentration multiplied by flow rate. The GSV will then be considered with other parameters to define a Characteristic Situation (CS) which identifies the need for and scope of necessary gas protection measures.

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3.2 Soil vapour

Soil vapour has not been assessed at the Site as the concentrations of volatile determinands in soil or groundwater (e.g. benzene and naphthalene) were not found to be present in concentrations that may pose a risk to human health at the Site.

3.3 Controlled waters

Groundwater data is assessed using UK Drinking Water Standards (DWS) [16], the Freshwater EQS and Saltwater EQS [17].

The groundwater at the Site is considered brackish and is not considered fit for drinking; therefore, the groundwater data will be compared against the UK Drinking Water Standards (DWS) [16] to give context for discussion purposes. The UK DWS will be used to compare groundwater concentrations rather than the WHO DWS as the latter are less conservative with the exception of cadmium. As discussed in Section 6, cadmium was not detected in groundwater; therefore, by using the UK DWS, the most conservative potable water standards will be used.

To assess potential impacts to aquatic life and due to the brackish nature of the water, the Environmental Quality Standards for both fresh water and salt water will be used to compare groundwater concentrations. The Annual Average value (rather than Maximum Allowable Concentration) will be used for a conservative approach.

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4 Ground Investigation Results

4.1 Completed scope of intrusive ground investigation

The scope of the geoenvironmental intrusive ground investigation was designed to meet the aims and objectives set out in Section 1.2. Geoenvironmental investigation contractor services were provided by Structural Soils on behalf of BuroHappold, with part-time supervision provided by a BuroHappold Ground Engineer.

The works undertaken by Structural Soils included both geoenvironmental and geotechnical aspects; however, only the works relevant to the geoenvironmental portion of the intrusive ground investigation is considered in this report and comprised:

- 27 No. boreholes (cable-percussive with 8 rotary follow-on) to depths of between 15m and 30m bgl;
- 16 No. window sample holes to a maximum depth of 3.4m bgl;
- 31 No. dynamic probe penetrometer tests to a maximum depth of 1.2m bgl (relevant as observations from these probe locations are used);
- 35 No. machine dug trial pits (11 No. in the outer harbour) to a maximum depth of 3m bgl;
- 4 No. hand dug (inner harbour) trial pits to a maximum depth of 2m bgl;
- Geoenvironmental logging and sampling within the Made Ground and underlying natural strata in the boreholes and trial pits;
- Installation of groundwater monitoring wells in a selection of nine boreholes (BH02-W, BH04-W, BH06-W, BH07-W, BH09-W, BH10-W, BH12-W, BH17-W, BH19-W), with groundwater level loggers installed in four groundwater monitoring wells and one barometric logger installed in a fifth groundwater monitoring well;
- One round of groundwater monitoring;
- Programme of groundwater level monitoring with data loggers; and
- Programme of geoenvironmental laboratory testing of soils and groundwater samples. The samples were analysed for a wide-range of contaminants as outlined in Table 5—1.

The investigation locations are presented on drawing GSK-02, with detail on drawings GSK-03 to GSK-06.

4.1.1 Encountered geology

The information presented in Table 4—1, and Table 4—4 summarises the ground conditions encountered within each area (A, B, C and D respectively) across the Site during the intrusive ground investigation. It should be noted that the Made Ground in Area B was generally significantly different than that in Area A having a greater thickness and more anthropogenic content. Ground investigation logs are presented in Appendix G.

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Table 4—1 Ground conditions of the western section of the Site (Area A)

Geology	**Geological Description**	**Bottom Depth** Min, Max (m bgl)	**Thickness** Min, Max [**Av.**] (m)	**Notes**
Asphalt	-	0.04, 0.23	0.04, 0.23 [**0.1**]	Asphalt not always present, coach park is predominantly reinforced concrete.
Concrete	Occasionally reinforced.	0.08, 0.4	0.1, 0.33 [**0.22**]	
Made Ground	Clayey, very sandy gravel, with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse brick, concrete, flint and chert. Cobbles are sub-angular concrete.	0.25, 2.2	0.1, 2.1 [**0.5**]	
Beach Deposits	Multi-coloured [yellow, brown, orange, white] sandy gravel. Gravel is sub-rounded to rounded flint. Sand is medium to coarse. Beach deposits become more sandy with depth.	3.8, 11	3.46, 10.3 [**7.77**]	Water Strike ranges from 0.3-7.5 m bgl, predominantly within the Beach Deposits.
Sandgate Beds	Alternating layers of dense to very dense dark greenish grey, slightly clayey sand with firm to stiff dark grey sandy silty clay. Sand is fine to medium. Occasionally slightly gravelly (shell fragments). With depth, very weak thinly laminated mudstone and occasional sandstone layers. Bedding within the mudstone is horizontal. The bedding fractures are medium to widely spaced undulating rough infilled with greenish grey fine to medium sand.	25.6, 29.2	18.2, 19.9 [**18.8**]	
Hythe Formation	Weak light grey silty fine grained distinctly weathered Limestone with occasional inclusions of unweathered light grey medium grained Sandstone. Weak dark grey partially weathered mudstone is also present. Fractures are medium to widely spaced stepped rough infilled with silty clay and fragments of sandstone Medium strong thinly laminated sandy Siltstone containing halite crystals and rare shells.	>40.4	>11.3	Located within BH03G, BH12W, BH01P.

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Table 4—2 Ground conditions of the eastern section of the Site (Area B)

Geology	**Geological Description**	**Bottom Depth;** Min, Max (m bgl)	**Thickness** Min, Max [**Av.**] (m bgl)	**Notes**
Asphalt	-	0.03, 0.35	0.03, 0.35 [**0.1**]	Asphalt not always present, car park is predominantly reinforced concrete.
Concrete	Occasionally reinforced.	0.14, 0.4	0.06, 0.35 [**0.23**]	
Made Ground	Slightly clayey, sandy gravels. Gravel is sub-rounded to angular brick, glass, flint, ceramic, concrete, chalk fragments. Sand is fine to coarse.	0.23, 4	0.03, 3.85 [**0.96**]	
Beach Deposits	Multi-coloured [yellow, brown, orange, white] sandy gravel. Gravel is sub-rounded to rounded flint. Sand is medium to coarse. Beach deposits become more sandy with depth.	9.5, 14	7.7, 11.6 [**9.77**]	Water Strike ranges from 1.1-7.1 m bgl, predominantly within the Beach Deposits.
Sandgate Beds	Alternating layers of dense dark greenish grey silty sand and firm (becoming stiff with depth) dark grey clay. Sand is fine to medium containing frequent pyrite grains. Clay occasionally silty. Some layers of extremely fissured distinctly weathered dark grey sandy siltstone and extremely weak thinly laminated greyish black silty mudstone. Bedding horizontal. Occasional pyrite nodules up to 10mm present.	27.26, 39.9	14.76, 27.4 [**20.93**]	
Hythe Formation	Medium strong, distinctly weathered, light grey limestone. **Fracture Set 1**: Dipping 10-20°, very close to closely spaced undulating rough moderately wide aperture infilled with dark grey gravelly clay. Gravel is angular fine limestone. **Fracture Set 2**: Dipping 70-90°, planar rough, tight to partly open aperture, no filling/clean surfaces.	-	>16.6	Located within BH05G, BH07, BH15, BH22P.

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Table 4—3 Ground conditions of the outer harbour (Area C)

Geology	Geological Description	Excavation Depth (m bgl)	Notes
Beach Deposits	Light grey to black slightly silty, slightly gravelly sand with some organic odours. Sands are fine to medium. In some locations this grades to a slightly sandy, slightly gravelly clay. In other locations black to brown silty, very sandy gravels are present. Gravels are angular to sub-angular, fine to coarse. Sand is fine to medium. Concrete, brick and flint fragments are occasionally present. Clayey sandy silt lenses are also present.	1.5 - 2.2	There are no definitive bands of one material.

Table 4—4 Ground conditions of the inner harbour (Area D)

Geology	Geological Description	Excavation Depth (m bgl)	Notes
Beach Deposits	Yellow slightly sandy silt, grading into very soft, grey slightly sandy slightly gravelly clayey silt, with occasional timber fragments, brick, plastic and flint. Gravels are subrounded to subangular. Occasional organic material. Some areas slightly more gravelly (IN01).	0.4 - 0.6	There are no definitive bands of one material.

4.2 Visual and olfactory evidence of contamination in soil

During the intrusive ground investigation, dark ash-like material was observed on multiple samples (DP26: below asphalt up to 0.65 m bgl, DP28: below asphalt up to 0.8 m bgl, WS05: below asphalt up to 0.5 m bgl, DP13: below concrete up to 0.48 m bgl and DP31: below concrete up to 0.7 m bgl). Multiple other samples recorded dark brownish/greyish black sands and gravels these include: Area A - BH01-P, BH11, BH13-G, BH18-G, DP04, DP12, DP22, DP24; Area B - BH07-W, BH08, BH21-G, BH21-G3; WS13 (located on the northern side of the harbour, near to the bridge). Based on the analytical results for soils presented in Section 5, there does not appear to be a strong correlation between the observation of black/grey sands and exceedences of relevant thresholds. However, some samples exceeding relevant thresholds comprised of ash, clinker, asphalt and or bitumen (see Section 7 for details).

Coal, clinker, mortar and slag were recorded within BH02-W from 0.2m bgl up to 0.35m bgl, BH08A at 1.5m, BH23-G from 0.2m bgl up to 0.7m bgl, WS07A from 0.3m bgl up to 0.55m bgl, TP(H)10 from 0.10m bgl up to 1.0m bgl, TP(L)03 from 0.10m bgl up to 0.8m bgl and DP02 from 0.23m bgl up to 1.2m bgl.

The material within the trial pits carried out across Area A described the beach deposits to contain multi-coloured gravels including black gravels. Such black gravel was absent from the beach trial pits area. Specifically, the trial pits are as follows, TP(L)1, TP(L)2, TP(L)3, TP(L)4, TP(L)7, TP(L)8, TP(L)9 and TP(L)10. Based on the analytical results for soils presented in Section 5, there does not appear to be a strong correlation between the observation of multi-coloured gravels and exceedences of relevant thresholds.

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A weak hydrocarbon odour was noted within the Made Ground in BH07-W from 0.34 m bgl to 0.9mbgl (Area B). The beach deposits at TP(H)11 in Area C between 1.2 and 1.5 m bgl recorded a possible hydrocarbon odour. TP(H)02 also within the harbour (Area C) recorded a hydrocarbon odour from 0.8 m bgl up to 1.3 m bgl.

4.3 Groundwater

During the intrusive ground investigation, nine boreholes were installed as groundwater monitoring wells. Within the harbour, observation pits were carried out during low tide and water ingress was noted at approximately 1.5-2.2 m bgl; at high tide the water within the pits was noted to rise up to ground surface.

4.3.1 Manual groundwater monitoring

Groundwater levels were monitored on five occasions between the end of May to the end of June 2016. The monitoring was undertaken using a hand-held dip-meter. A summary of the groundwater monitoring results is presented in Table 4—5.

Table 4—5 Groundwater levels as dipped during manual monitoring round

Sample	No. of occasions water level recorded	Response zone (m bgl)	Water level range as dipped during manual monitoring round (m bgl)
BH02-W	5	1 to 8	3.56 to 3.68
BH04-W	5	1 to 6	2.66 to 4.67
BH06-W	5	1 to 8	4.57 to 5.45
BH07-W	5	1 to 8	3.40 to 5.63 (dry on one occasion)
BH09-W	5	1 to 8	2.82 to 3.82
BH10-W	5	0.5 to 8.5	3.33 to 3.70
BH12-W	5	0.5 to 8.5	3.44 to 3.95
BH17-W	5	2 to 6	4.29 to 4.40
BH19-W	5	1 to 8	4.87 to 5.01

4.3.2 Dataloggers

Groundwater dataloggers were installed within four groundwater monitoring wells (BH02-W, BH07-W, BH10-W, BH17-W) and a barometric logger in BH05-G between 2 June to 9 June 2016 to monitor groundwater fluctuations. Datalogger data is presented in Appendix H.

The data logger located in Area B, adjacent to the harbour wall (BH07-W) appears to be strongly tidally influenced with fluctuations in level within tidal cycles of up to approximately 3 metres at depths of between approximately 2.5 and 5.5 m bgl. This range indicates that the top of groundwater is present within the beach gravel deposits.

One location to the southwest of Area A (BH10-W) appears to be less tidally influenced with the fluctuations in level within tidal cycles of approximately 0.1m at depths between approximately 3 and 3.5. Two locations in the central area of Area A (BH02-W and BH17-W) do not appear to be tidally influenced with groundwater depths at approximately 3.5 and 4.5 m bgl respectively. The data from these data loggers also indicates that the top of groundwater is present within the beach gravel deposits.

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4.3.3 Groundwater sampling

Nine groundwater monitoring wells were developed on the 2nd June 2016 by removing at least three well volumes of water from each well to enable sampling of fresh formation groundwater.

One round of groundwater sampling on 21st June 2016 was undertaken in eight boreholes across the Site (BH02-W, BH04-W, BH06-W, BH09-W, BH10-W, BH12-W, BH17-W, BH19-W). BH07-W was found to be dry during the sampling round.

Groundwater samples were retrieved using a bailer dedicated to each monitoring location, to minimise the risk of cross contamination of water samples. Groundwater temperature, pH and conductivity values were measured at the time of sampling.

4.3.3.1 Visual and olfactory observations of groundwater

Table 4—6 below gives a summary of the observations made during groundwater sampling.

In general, the water sampled was observed to be turbid with brown silt and, at one location, a diesel-like odour was noted on the probe of the dip-meter at location BH12-W (see Section 6 below for discussion of analytical data). Free product (LNAPL) was not recorded during the intrusive ground investigation or subsequent groundwater monitoring at the Site.

Table 4—6 Groundwater sampling observations

Sample	Visual and olfactory observations on 21st June (unless otherwise stated)
BH02-W	Opaque dark brown silty and no odour.
BH04-W	Opaque dark brown silty and no odour.
BH06-W	Cloudy silty and no odour.
BH09-W	Cloudy, brown colour and no odour.*
BH10-W	Opaque dark brown silty and no odour.
BH12-W	Opaque brown and no odour. A diesel-like odour noted on probe, but no detection.+
BH17-W	Opaque brown and no odour.
BH19-W	Cloudy silty and no odour.

Notes:

***Description taken from observations on 2nd June 2016 when a sampling round was undertaken; however, samples were not analysed due to holding times being exceeded prior to analysis.**

+Description taken from observations on 24th May 2016

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4.4 Ground gas monitoring

Ground gas monitoring of eight gas monitoring wells (BH03-G, BH05-G, BH13-G, BH18-G, BH20-G, BH21-G3, BH23-G, BH24-G) was undertaken on six occasions between 24th May and 28th June 2016. Gas monitoring was carried out and recorded in accordance with guidance and protocols presented in CIRIA Assessing Risks Posed by Hazardous Ground Gases to Buildings (C665) [13] and Guidance on Investigations for Ground Gas (BS 8576) [18]. The results were recorded as ppm (isobutylene equivalent). The monitoring data is presented and evaluated in Section 7.

During each round of gas and vapour monitoring the gas and vapour concentrations and groundwater level for each borehole were recorded. An infrared gas meter was used to measure concentrations of carbon dioxide (CO_2), methane (CH_4) and oxygen (O_2) in percentage volume while carbon monoxide (CO) and hydrogen sulphide (H_2S) were recorded in parts per million (ppm). Initial and steady state conditions were recorded. An integral flow meter was used to measure gas flow rates (initial and steady state) in litres per hour. In addition the atmospheric pressure before and during the monitoring together with the weather conditions were noted.

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5 Analytical Results for Soil

5.1 Analytical scope for soil

A total of 107 soil samples were recovered during the intrusive ground investigation and were subject to chemical analysis. A total of 38 samples were taken of the natural strata and 69 from the Made Ground.

Table 5—1 below presents the laboratory testing suites used for soil and groundwater during the intrusive ground investigation.

Table 5—1 Laboratory testing suites for soil and groundwater

Media	Suite Reference	Made Ground/Natural Ground	Contaminant Analysis Suite
Soil	Suite 1	Made Ground	Asbestos screen, pH, CLEA metals suite, total cyanide, total mercury, speciated PAHs, phenol, EPH, PRO including BTEX, Soil Organic Matter
	Suite 2	Natural Ground	pH, CLEA metals suite, total cyanide, total mercury, speciated PAHs, phenol, EPH, PRO including BTEX. [Asbestos in harbour sediment samples]
	WAC Analysis Suite I (Stable Non-Reactive)	N/A	pH, heavy metals, dissolved organic carbon, total organic carbon, chloride, fluoride, sulphate, total dissolved solids
	Tri-butyl tin	Natural Ground (harbour area)	Tri-butyl tin
Groundwater	Suite A	N/A	Hardness, CLEA metals suite, total cyanide, EPH, PRO including BTEX, speciated PAH, chloride, sodium, sulfate, magnesium, calcium, potassium, pH

The analytical test results for contaminants in soils are presented in full in Appendix B.

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5.2 Made Ground chronic risks

5.2.1 Inorganic determinands

A total of 69 samples were analysed for inorganic determinands (as per Table 5—1) within the Made ground; the results are presented below in Table 5—2.

Table 5—2 Concentrations of inorganic determinands (mg/kg)

Determinand	No of samples	GAC (No of samples exceeding GAC). SGV; C4SL			Min.	Max.	US95*	Outliers
		Residential with plant uptake	Residential without plant uptake	Commercial industrial				
Arsenic	69	37 (0)	40 (0)	640 (0)	2	32	-	-
Beryllium	69	1.7 (**3**)	1.7 (**3**)	12 (0)	<1.0	2	1.2	2
Boron	69	290 (0)	11000 (0)	240000 (0)	<1.0	4.2	-	-
Cadmium	69	26 (0)	149 (0)	410 (0)	<0.5	2	-	-
Chromium	69	910 (0)	910 (0)	8600 (0)	4	40	-	-
Copper	69	2400 (0)	7100 (0)	68000 (0)	1	406	-	-
Lead	69	200 (**8**)	310 (**6**)	2330 (**2**)	3	5430	583	5430, 2820
Nickel	69	130 (0)	180 (0)	980 (0)	3	36	-	-
Selenium	69	250 (0)	430 (0)	12000 (0)	<1	3	-	-
Vanadium	69	410 (0)	1200 (0)	9000 (0)	4	59	-	-
Zinc	69	3700 (0)	40000 (0)	730000 (0)	5	776	-	-

S4UL used where there is no C4SL
*The calculation of US95 average concentrations is not required for determinands where exceedances of the relevant guidance values have not been identified.

Maximum recorded concentrations of the inorganic determinands analysed were reported below the relevant thresholds, with the exception of beryllium (above residential thresholds) and lead (above commercial/industrial and residential thresholds). The exceedances of beryllium and lead were mainly reported in the present day temporary car park in Area B (see drawing GSK-09) which was historically occupied by the goods yard and associated railway sidings and the central eastern area of the Site (Area A) where the railway sidings were present.

The US95 (including potential outliers) for beryllium is below the residential thresholds.

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The exceedences for lead are mainly associated with the Made Ground in Area B that is re-worked material used as backfill during the harbour re-development incorporating contamination originating from historical railway sidings associated with the goods yard in Area B. The data set as a whole indicates that with the exception of one sample located in the area of the sidings in Area A all elevated lead concentrations are within Area B including the two samples identified as outliers. The US95 value for lead (583mg/kg, with outliers included) exceeds the residential thresholds but is below commercial/industrial thresholds. However, that is a whole site data set and it appears that Area B should be assessed separately. When assessed separately the US95 for lead within area B is 2,693mg/kg (including the two highest values which were again identified as statistical outliers). This exceeds the commercial industrial criteria. There is no obvious description in the investigation logs that allows the identification of the samples where elevated concentrations of lead were recorded as distinct from the rest of the Made Ground within Area B.

5.2.2 Asbestos

47 samples taken from the Made Ground were screened for asbestos. Asbestos (loose Amosite fibres) was identified in two samples (BH05-G in the northeastern portion of Area A at 1.4mbgl and, DP11 at 0.35mbgl at the interface between Made Ground and natural ground within Area A). No quantification analysis was carried out on these samples.

5.2.3 Organic determinands

BTEX and PAHs

69 samples were analysed for BTEX [benzene, toluene, ethyl benzene and xylene] and PAHs. Concentrations were compared with relevant screening values for human health risk assessment; Table 5—3 presents a summary.

Table 5—3 Concentrations of PAHs (mg/kg)

Determinand	No of samples	GAC (No of samples exceeding GAC, SGV, C4SL)			Min.	Max.	US95*	Outliers	US95+
		Residential with plant uptake	Residential without plant uptake	Commercial industrial					
Naphthalene	69	2.3 (0)	2.3 (0)	190 (0)	<0.03	0.48	-	-	
Acenaphthylene	69	170 (0)	2900 (0)	83000 (0)	<0.01	1.18	-	-	
Acenaphthene	69	210 (0)	3000 (0)	84000 (0)	<0.01	2.65	-	-	
Fluorene	69	170 (0)	2800 (0)	63000 (0)	<0.01	2.54	-	-	
Phenanthrene	69	95 (0)	1300 (0)	22000 (0)	<0.03	39.8	-	-	
Anthracene	69	2400 (0)	31000 (0)	520000 (0)	<0.02	14.7	-	-	
Fluoranthene	69	280 (0)	1500 (0)	23000 (0)	<0.08	100	-	-	
Pyrene	69	620 (0)	3700 (0)	54000 (0)	<0.07	96.7	-	-	
Benzo[a]anthracene	69	7.2 (**9**)	11 (**5**)	170 (0)	<0.05	53.7	8.30	53.7, 46.2	
Chrysene	69	15 (**2**)	30 (**2**)	350 (0)	<0.06	50.5	7.77	50.5, 39.1	
Benzo[b]fluoranthene	69	2.6 (**23**)	3.9 **(17)**	44 (**1**)	<0.05	51.4	8.32	51.4, 35.5	5.05

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Benzo[k]fluoranthene	69	77 (0)	110 (0)	1200 (0)	<0.07	17.1	-	-	
Benzo[a]pyrene	69	2.2 (**23**)	3.2 (**18**)	35 (**1**)	<0.04	45.1	7.05	45.1, 31.6	4.02
Indeno[123-cd]pyrene	69	27 (0)	45 (0)	500 (0)	<0.03	20.2	-	-	
Dibenzo[ah]anthracene	69	0.24 (**30**)	0.31 (**25**)	3.5 (**2**)	<0.04	4.26	0.89	4.26, 3.88	0.63
Benzo[ghi]perylene	69	320 (0)	360 (0)	3900 (0)	<0.05	14.4	-	-	

S4UL used where there is no C4SL

*The calculations of the US95 include outliers and were not undertaken where exceedances of the relevant S4UL / C4SL have not been identified

⁺The calculations of the US 95 do not include the identified outliers

BTEX concentrations were reported below the relevant thresholds for the samples analysed within the Made Ground.

Concentrations of PAHs were reported below the relevant thresholds with the exception of five PAHs (benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[a]pyrene and dibenzo[ah]anthracene) where approximately one third of the samples across the Site were reported above residential thresholds. A limited number of samples reported slight (less than two times) exceedences of commercial/industrial thresholds for benzo[b]fluoranthene, benzo[a]pyrene and dibenzo[ah]anthracene.

Two hot-spots (centre of Area A and centre north of Area B) were identified with concentrations of the three PAHs significantly higher than the rest of the dataset that can be attributed to the bitumen content and weak hydrocarbon odour respectively noted in the logs. The weak hydrocarbon odour could be attributed to historical railway sidings and the turntable in the vicinity. Further areas with elevated concentrations of benzo[b]fluoranthene, benzo[a]pyrene and dibenzo[ah]anthracene were identified with Made Ground comprising ash, clinker and asphalt (Area B up to 2.4 m bgl, central Area A up to 1 m bgl in the vicinity of the infilled boating pond and northeastern Area A up to 0.6 m bgl).

Concentrations of benzo[a]anthracene and chrysene were reported below the commercial/industrial thresholds but exceeded one or more of the residential thresholds in some samples; the US95s for these two PAHs are below the residential thresholds.

Concentrations of benzo[b]fluoranthene, benzo[a]pyrene and dibenzo[ah]anthracene in the Made Ground samples analysed were reported less than two times above the commercial/industrial and residential thresholds. The US95s of these three PAHs were below commercial/industrial thresholds but above the residential thresholds.

5.2.4 Petroleum Hydrocarbons

69 samples within the Made Ground were analysed for petroleum hydrocarbons. The results are presented in Table 5-4 below.

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Table 5—4 Concentrations of Petroleum Hydrocarbons (mg/kg)

Determinand	No of samples	GAC (No of samples exceeding GAC). SGV; C4SL			Min	Max	US95*	Outliers
		Residential with plant uptake	Residential without plant uptake	Commercial industrial				
Aliphatic C5-C6	69	42 (0)	42 (0)	3200 (0)	<0.01	0.02	-	-
Aliphatic C6-C8	69	100 (0)	100 (0)	7800 (0)	<0.01	<0.05	-	-
Aliphatic C8-C10	69	27 (0)	27 (0)	2000 (0)	<0.01	<0.01	-	-
Aliphatic C10-C12	69	130 (0)	130 (0)	9700 (0)	<0.1	<0.1	-	-
Aliphatic C12-C16	69	1100 (0)	1100 (0)	59000 (0)	<0.1	16.9	-	-
Aliphatic C16-C21	69	65000 (0)	65000 (0)	1600000 (0)	<0.1	24.4	-	-
Aliphatic C21-C35	69	65000 (0)	65000 (0)	1600000 (0)	<0.1	304	-	-
Aromatic C5-C7	69	70 (0)	370 (0)	26000 (0)	<0.01	<0.01	-	-
Aromatic C7-C8	69	130 (0)	860 (0)	56000 (0)	<0.01	0.02	-	-
Aromatic C8-C10	69	34 (0)	47 (0)	3500 (0)	<0.01	0.14	-	-
Aromatic C10-C12	69	74 (0)	250 (0)	16000 (0)	<0.1	0.2	-	-
Aromatic C12-C16	69	140 (0)	1800 (0)	36000 (0)	<0.1	25.1	-	-
Aromatic C16-C21	69	260 (**1**)	1900 (0)	28000 (0)	<0.1	420	41.94	420,98.6
Aromatic C21-C35	69	1100 (0)	1900 (0)	28000 (0)	<0.1	588	-	-
Total Aliphatic and Aromatic	69	490 (**2**)	490 (**2**)	38000 (0)	<0.1	1030	149.49	1030, 555, 431

S4UL used where there is no C4SL
*The calculations of the US95 average concentrations is not required where exceedances of the relevant S4UL / C4SL have not been identified

Concentrations of hydrocarbon fractions were reported below both residential and commercial / industrial thresholds with the exception of one sample (DP12 in the central portion of Area A at 0.2 m bgl). The concentrations of aromatic fractions C16-C21 and total aliphatic and aromatic hydrocarbons in this sample were reported above the residential with plant uptake and residential with and without plant uptake thresholds respectively. The US95 (including possible outliers) for the aromatic fractions C16-C21 (41.94 mg/kg) and total aliphatic and aromatic hydrocarbons (137.5 mg/kg) are below both the residential and commercial/industrial standards.

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TPH detected within the Made Ground soils at the Site is not considered to impact the aquatic environment based on the low solubility of the heavier end fractions and that TPH was not detected within groundwater at the Site.

5.2.5 pH in Made Ground

Measurements of soil pH are typically alkaline with an average pH of 9.32 and a maximum recorded of 12.01. The elevated pH is likely to be related to leachate from concrete present within the Made Ground.

5.3 Natural strata chronic risks

5.3.1 Inorganic determinands

Laboratory results from a total of 38 samples from the natural strata were compared against the human health criteria for the inorganic determinands (pH, CLEA metals suite, total cyanide, total mercury); no exceedances were recorded within the natural strata.

A total of 33 samples from the natural strata were screened for asbestos, 5 samples (15%) detected asbestos and were were screened for quantification. The results are tabulated below in Table 5-5. These samples were either from the inner or outer harbour.

Table 5—5 Summary of asbestos quantification

Sample	Depth (m bgl)	Strata	Quantification (%)	Description
IN01	0.3	Inner harbour sediment	<0.001	Loose fibres – chrysotile
IN03	0.5	Inner harbour sediment	0.001	Loose fibres – chrysotile
IN04	0.6	Inner harbour sediment	<0.001	Loose fibres – chrysotile
TP-H-04	0.4	Outer harbour sediment	0.001	Loose insulation – chrysotile
TP-H-04	1.5	Outer harbour sediment	<0.001	Loose fibres - chrysotile

White Chrysotile (asbestos) was identified in six locations as given in Table 5-5 above. Two of the five samples that were quantified recorded asbestos present at the quantification limit (0.001%) and are located within the inner and outer harbour (IN03 and TP-H-04 respectively). The concentrations of asbestos detected are all below the Hazardous Waste threshold (0.1%).

5.3.2 Organic determinands

5.3.2.1 PAH and BTEX

PAH and BTEX results from up to 38 samples from the natural strata were compared against the relevant thresholds for PAHs.

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Concentrations reported were below the relevant thresholds for residential and commercial uses. Furthermore, the samples analysed for tri-butyl tin reported concentrations below the Dutch Intervention Value protective of human health.

5.3.2.2 Total Petroleum Hydrocarbons

TPH results from 38 samples from the natural strata were compared against speciated TPH residential and commercial/industrial thresholds.

5.4 Acute Risk to Human Health

There are no guidance values for assessing acute risk related to soil contamination. Because such risks are associated with short term exposure, consideration is required of maximum concentrations (and not the "average" concentration which is relevant to chronic or long term risk). Comparison of the maximum concentrations of the determinands discussed above has been made with the various GACs including C4SLs and other screening values which will provide a conservative benchmark for such short term risks (as the GACs etc. are based upon a long term exposure).

Determinands with maximum values greater than commercial industrial criteria thresholds may pose an acute risk to construction or maintenance workers. The maximum concentration of lead recorded in Area B (5430mg/kg) certainly has the potential to pose an acute risk to workers and there is potential for similar elevated lead concentrations within the made Ground of Area B.

PAHs in one sample within Area B and one sample in the central portion of Area A recorded concentrations slightly exceeding the commercial industrial criteria thresholds. These concentrations may not pose an acute risk as they only slightly exceed the commercial industrial criteria.

5.5 Phytotoxicity Risk

Table 5—6 Concentrations of copper, nickel and zinc (mg/kg)

Determinand	**No. of Samples**	Screening threshold **(No. of samples exceeding)**	**Max.**	**Min.**	**US95**	**Outliers**
Copper	69	200 (**1**)	406	1	50.1	Yes, included within US95
Nickel	69	110 (0)	36	3	16.5	-
Zinc	69	300 (**2**)	776	5	122.31	Yes, included within US95

Within Made Ground analysis was carried out for copper, nickel and zinc on 68 samples. Samples did not exceed the relevant thresholds with the exception of one sample for copper and two samples for zinc. The US95s for copper and zinc are below the relevant thresholds for phytoxicity risk. No natural ground samples recorded concentrations above the phytotoxicity thresholds.

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5.6 Risks to below ground structures

According to the UKWIR Guidance [12], polyethylene (PE) and poly-vinyl chloride (PVC) pipes may not be appropriate for potable water supply in the redevelopment of the Site due to the elevated concentrations of TPH and PAHs in the Made Ground. If Made Ground remains in-situ and the pipes are laid within the Made Ground, barrier pipe materials are likely to be required unless otherwise agreed with the utility company. The potential risks to below ground concrete structures associated with aggressive ground conditions are outlined in Table 5—7 below.

Table 5—7 SO_4 and pH levels and classification according to BRE SD1 2005 guidelines for concrete in aggressive ground

Location ID	No. of samples	Top Depth (m bgl)	Geological Strata	$S0_4$ (mg/l)	pH	Design Sulphate Class	ACEC Class
BH03-G	14	0.4	MG	11.0	8.61	DS-1	AC-1
BH03-G	14	5.0	BD	10.0	8.46	DS-1	AC-1[d]
BH03-G	14	9.7	BD	661.0	8.28	DS-2	AC-2
BH03-G	14	11.3	BD	514.0	8.22	DS-2	AC-2
BH10-W	14	0.0	MG	12.0	11.91	DS-1	AC-1
BH10-W	14	3.0	BD	15.0	9.0	DS-1	AC-1[d]
BH10-W	14	6.5	BD	22.0	9.28	DS-1	AC-1[d]
BH10-W	14	14.0	SF	1070.0	6.47	DS-2	AC-2
BH17-W	14	3.5	BD	52.0	8.51	DS-1	AC-1[d]
BH17-W	14	8.0	BD	19.0	9.09	DS-1	AC-1[d]
BH17-W	14	14.0	SF	90.0	9.02	DS-1	AC-1[d]
BH22-P	14	2.0	BD	41.0	8.7	DS-1	AC-1[d]
BH22-P	14	9.5	BD	31.0	9.16	DS-1	AC-1[d]
BH22-P	14	13.5	SF	569.0	8.59	DS-2	AC-2
BH02-W	8	3.61	BD	69.0	7.91	DS-1	AC-1[d]
BH04-W	8	3.69	BD	152.0	7.88	DS-1	AC-1[d]
BH06-W	8	4.59	BD	83.0	8.1	DS-1	AC-1[d]
BH09-W	8	0.0	MG	108.0	7.74	DS-1	AC-1
BH10-W	8	3.33	BD	307.0	7.95	DS-1	AC-1[d]
BH12-W	8	3.8	BD	434.0	7.85	DS-2	AC-2
BH17-W	8	4.29	BD	405.0	7.97	DS-2	AC-2
BH19-W	8	4.87	BD	729.0	7.96	DS-2	AC-2

*MG – Made Ground, BD – Beach Deposits, SF – Sandgate Formation
[d] – For flowing water that is potentially aggressive to concrete owing to high purity or an aggressive carbon dioxide level greater than 15mg/l (Section C2.2.3), increase the ACEC Class to AC2z [12]

Soil pH ranged from 6.47 to 9.28 in the samples from the natural strata and 7.74 to 11.91 within the Made ground.

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6 Analytical Results for Groundwater

6.1 Chemical analysis

The following chemical analysis for groundwater samples has been undertaken:

Table 6—1: Summary of chemical analysis undertaken

Chemical Analysis
CLEA metals suite (arsenic, barium, beryllium, cadmium, total chromium, copper, lead, nickel, selenium, vanadium and zinc)
Hardness
Speciated TPH including BTEX
Speciated PAHs
Total cyanide
Chloride
Sulphate

6.2 Analytical results for groundwater

On 21st June 2016, one round of groundwater sampling was undertaken from eight groundwater monitoring wells (BH02-W, BH04-W, BH06-W, BH09-W, BH10-W, BH12-W, BH17-W, BH19-W) across the Site and were subject to chemical analysis in order to provide an outline assessment of groundwater quality.

The groundwater data has been assessed against UK DWS [16] the Freshwater EQS [17] and Saltwater EQS [19]. The analytical test results for contaminants in waters are presented in full in Appendix D.

6.2.1 Inorganic determinands

A number of samples contained concentrations of inorganic determinands above the screening thresholds as outlined in Table 6—2. Concentrations of four inorganic determinands were recorded against at least one of the groundwater screening criteria outlined in Section 3.

Table 6—2: Summary of samples exceeding screening thresholds for inorganic contaminants

Contaminant	No. of samples	UK DWS (no. of exceedances)	Freshwater EQS (no. of exceedances)	Seawater EQS (no. of exceedances)	Maximum concentration (ug/L) (sample location)
Boron	8	1000 (**1**)	N/A	N/A	1690 (BH19-W)
Chromium	8	50 (0)	4.7 (**1**)	N/A	8 (BH09-W)
Copper	8	2000 (0)	1 (**5**)	3.76 (**1**)	6 (BH09-W)
Zinc	8	N/A	10.9 (0)	6.8 (**1**)	10 (BH09-W)

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The concentration of boron exceeding the UK DWS at location BH19-W is indicative of concentrations naturally found in brackish waters. The elevated conductivity results reported at this location is consistent with brackish water characteristics.

The concentration of chromium and zinc only exceeds the Freshwater EQS at one location (BH09-W). The conductivity results indicate that this water is borderline between brackish and freshwater. The Freshwater EQS are used as a conservative screen of groundwater data to provide a point of reference and an indication of impact of potential groundwater contamination to a nearby freshwater body.

The concentration of copper exceeds the Freshwater EQS at five locations (BH06-W, BH09-W, BH10-W, BH12-W and BH19-W) and the Saltwater EQS at one location (BH09-W).

6.2.2 Organic determinands

Visual and / or olfactory evidence of hydrocarbon contamination was only noted at one location (BH12-W) during monitoring. This diesel odour did not correspond with contamination within the groundwater as the concentrations of BTEX and TPH were below detect at this location, furthermore, no observations of potential contamination were noted on the logs.

Table 6—3: Summary of samples exceeding screening thresholds for organic contaminants

Contaminant	No. of samples	UK DWS (no. of exceedances)	Freshwater EQS (no. of exceedances)	Saltwater EQS (no. of exceedances)	Maximum concentration (ug/L) (sample location)
Fluoranthene	8	N/A	0.0063 (**7**)	0.0063 (**7**)	0.48 (BH04-W)
Benzo(a)pyrene	8	0.01 (**6**)	0.00017 (**6**)	0.007 (**6**)	0.29 (BH04-W)

Of the eight groundwater samples taken, seven exceedances of screening thresholds were reported for fluoranthene and six reported for benzo(a)pyrene. The maximum concentrations of fluoranthene and benzo(a)pyrene were reported at location BH04-W.

Speciated total petroleum hydrocarbons, BTEX and MTBE concentrations were reported as less than detection in the eight groundwater monitoring wells sampled. Therefore, these species are not considered further in this assessment.

Due to PAHs inherent low solubility and the silty, opaque water was observed during sampling, the occurrence of PAHs within the groundwater is considered to be attributed to their adsorption onto suspended particles of silt within the groundwater samples. It should be noted that the PAHs adsorbed onto silt particles are not considered to be mobile within the natural groundwater environment.

6.2.3 Groundwater analysis quality control

No deviating samples were reported by the laboratory; therefore, the groundwater data presented is considered representative of site conditions and is suitable for use in this assessment.

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7 Ground Gas and Vapour Assessment

Ground gas monitoring data from the Site were used to provide an assessment of the ground gas regime. The information below relates to the ground gas monitoring undertaken.

7.1 Ground gas field monitoring results

Ground gas monitoring within eight of the monitoring locations (BH03-G, BH05-G BH13-G, BH18-G, BH20-G, BH21-G3, BH23-G and BH24-G) was undertaken on six separate occasions between the dates 24th May and 28th June 2016. The results of the ground gas monitoring are presented in Table 7—1 and in Appendix E.

Table 7—1: Ground gas monitoring data

Borehole and response zone (m bgl)	Water depths (m bgl)	Maximum Flow rate (l/hr)	Peak Methane (%)	Peak Carbon Dioxide* (%)	Minimum Oxygen (%)	Peak Carbon Monoxide (ppm)	Peak Hydrogen Sulphide (ppm)
BH03-G (1-4)	3.6-4.2	0.5	0.0	0.1	20.1	2	0
BH05-G (1-4)	NM	NM	0.0	0.1	20.8	0	0
BH13-G (1-4)	3.8	0.1	0.0	0.1	20.1	5	1
BH18-G (1-4)	NM	0.4	0.0	0.3	20.1	3	1
BH20-G (1-4)	NM	0.1	0.0	0.1	20.3	4	1
BH21-G3 (1-4)	NM	0.3	0.0	0.1	20.4	2	0
BH23-G (1-4)	NM	0.1	0.0	0.3	19.7	2	1
BH24-G (1-4)	3.8-3.9	0.2	0.0	0.2	20.2	3	0
Worst Case Example+	-	0.5	0.0	0.3	19.7	5	1

+ **Using highest concentration and highest flow rate**
NM - Not measured

Carbon dioxide was detected in the eight locations monitored at concentrations ranging between 0.1% and 0.3% v/v. Methane was not recorded in the eight locations during the monitoring period. Slight oxygen depletion was recorded in the eight locations monitored; concentrations ranged between 19.7% and 20.8% v/v.

Low flow rates were recorded in the eight locations monitored; a maximum flow rate of 0.5 litres per hour was recorded in BH03-G.

Atmospheric pressure was high during the monitoring rounds and ranged between 1001mb and 1026mb. During the monitoring work decreasing pressure was noted on two occasions, stable pressure on three occasions and increasing pressure on one occasion.

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7.2 Assessment of the ground gas regime

The monitoring data has been assessed in accordance with CIRIA report C665 [13] and BS 8485 [15]. The ground gas regime on Site is considered to meet Characteristic Situation 1. The following conclusions resulting from the interpretation of the ground gas data have been used to assist in the classification of the ground gas regime as CS1:

- The gas screening value for CH4 being calculated based on steady state flow rates and initial gas concentrations. The GSV for CH4 was calculated as: 0.0000 l/hr;
- The gas screening value for CO2 being calculated based on steady flow rates and steady gas concentrations. The GSV for CO2 was calculated as: 0.0015 l/hr;
- The GSVs based on the maximum concentrations of CO2, CH4 and flow rates (in accordance with the above) and are calculated as 0.0000 l/hr (CH4) and 0.0015 l/hr (CO2);
- the monitoring data is generally consistent with the possible sources (Made Ground) and also relatively consistent in itself (across the Site),
- The maximum recorded concentrations of CO2 (0.3%) and CH4 (0.0%) are typical for Characteristic Situation 1 (CS1) (requirement for less than 5% and 1% respectively);
- The response zones contain a suitable length of unsaturated element which allows the ingress of ground gas; and
- monitoring has been carried out in relatively high pressure conditions (1001mb to 1026mb) under various atmospheric conditions (rising, falling and constant).

The data is considered appropriately representative of the Site ground gas regime to allow classification of the ground gas regime as CS1.

7.3 Required ground gas protection measures

The ground gas regime for the Site has been classified as CS1 due to low flow rates for methane and carbon dioxide and concentrations of methane and carbon dioxide below 1 and 5% respectively.

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8 Waste Management

8.1 Proposed Development

It is anticipated that the development will include earthworks over much of the Site area. It is not anticipated that significant volumes of material will require removal from the site. However, should that change it is useful to identify likely material waste classifications.

8.2 Legislation and guidance

In order to determine the likely waste classification, soil test results have been assessed using:

- EA (Environment Agency), (2015) 'Technical Guidance WM3', 'Guidance on the classification and assessment of waste' 1st Edition 2015 [20];
- How to find out if waste oil and wastes that contain oil are hazardous (2007) - A guide to the Hazardous Waste Regulations [21]; and
- Values indicating Hazardous Waste according to the Environment Agency (2004) 'Framework for the Classification of Contaminated Soils as Hazardous Waste [22] .

8.3 Preliminary Waste Classification

During the intrusive ground investigation, a total of 112 soil samples were recovered and were subject to chemical analysis. A total of 69 samples were taken of the Made Ground and a total of 38 samples were taken from the natural strata across the Site.

Preliminary waste classification has been carried out and the details are provided in Appendix F.

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Table 8—1 Samples classified as potential Hazardous Waste

Sample	Depth (m bgl)	Strata	Contaminant	Reason	Comment
DP04a	0.25	MG	PAHs	HP14	PAH concentration 0.0029%.
BH04-W	0.5	MG	PAHs	HP14	PAH concentration 0.0105%
BH03-G	0.5	MG	PAHs	HP14	PAH concentration 0.00271%
DP14	0.35	MG	PAHs	HP14	PAH concentration 0.00383%
DP17	0.2	MG	TPH (C6-C40), PAHs	HP3 (i), HP7, HP11, HP14	TPH concentration 0.103%. PAH concentration 0.0513%
DP25	0.3	MG	PAHs, pH	HP8, HP14	PAH concentration 0.00291% 11.64pH
BH05-G	0.6	MG	PAHs	HP14	PAH concentration 0.00471%
DP31	0.3	MG	PAHs, pH	HP8, HP14	PAH concentration 0.00939% 12.01 pH
DP26	0.4	MG	PAHs	HP14	PAH concentration 0.0145%
DP27	0.3	MG	PAHs	HP14	PAH concentration 0.0128%
DP28	0.45	MG	PAHs	HP14	PAH concentration 0.00442%
WS09	0.15	MG	Lead	HP10, HP14	Lead compound concentration 0.543%
BH21-G2	0.5	MG	PAHs	HP14	PAH concentration 0.00265%
BH21-G2[1]	2	MG	PAHs, Lead	HP14	PAH concentration 0.0115% Lead compound concentration 0.282%
BH07-W	0.7	MG	PAHs	HP14	PAH concentration 0.0424%
WS05	0.3	MG	PAHs	HP14	PAH concentration 0.00529%
TP(L)10	0.75	MG	PAHs	HP14	PAH concentration 0.012%
TP(L)11	0.5	MG	PAHs	HP14	PAH concentration 0.00301%
BH20G[1]	1.2	MG	PAHs	HP14	PAH concentration 0.00595%
BH08	0.5	MG	PAHs	HP14	PAH concentration 0.013%
TP(L)03	0.5	MG	PAHs	HP14	PAH concentration 0.00414%
DP19	0.5	MG	PAHs	HP14	PAH concentration 0.00648%
WS10	0.65	NS	pH	HP8	11.75pH
BH19-W	0.5	NS	pH	HP8	11.65pH

8.3.1 Made Ground

The assessment indicates that the majority of the potential arisings from the Made Ground (44 samples, 65%) are likely to be classified as Non-Hazardous Waste. The remaining Made Ground has the potential to be samples were classified as Hazardous Waste, these results have been tabulated in Table 8-1.

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The samples likely to be classified as Hazardous Waste contain predominantly eco-toxic materials (ref: HP14) which can be attributed to elevated PAH and lead concentrations recorded. One sample contains materials containing flammable liquid and vapour, which may cause cancer and genetic defects (refs: HP3(i), HP7 and HP11 respectively) attributed to both the elevated TPH and PAH concentrations. One other sample contains lead at concentrations which may have adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring (ref: HP10).

8.3.2 Natural Strata

Two samples within the natural strata were classified as potential Hazardous Waste as they contained irritant/corrosive materials (Ref: HP8) due to elevated pH. These samples located in the northeast of Area B (WS10, immediately below Made Ground that is likely reworked incorporating contamination from historical rail yard operations) and the northeast of Area A (BH19-W, ~20cm below the base of the Made Ground in the vicinity of railway sidings).

Notwithstanding this preliminary assessment, it will be the earthwork contractor's responsibility, in association with the operator and / or owner of the landfill, to classify the materials for appropriate disposal if required in line with current guidance. Additional landfill waste acceptance criteria (WAC) leachate testing and classification prior to disposal to landfill may need to be undertaken to confirm the waste classification.

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9 Geoenvironmental Risk Assessment

9.1 General approach

In the UK, the assessment of risk from contamination follows the source-pathway-target approach. If one of these three elements is absent it is considered that there is no risk of harm. If, however, there is considered to be a linkage between any given source and any given target / receptor then a risk-based approach is used to assess the significance or impact of any such linkage.

Source	The contaminants that have the potential to negatively affect human health and/or the health of the environment (i.e. the hazard).
Pathway	The potential route by which a receptor may come into contact with the source.
Receptor	The specific group of human beings or aspect of the environment (e.g. controlled waters) that could be affected by the source.

Risks are defined as the probability of an event occurring combined with the severity of the consequence of that event occurring. Particularly, to assess the risk to site end users posed by any given source, the sensitivity of each receptor is considered. For example, the concentration of contamination acceptable at a site to be developed as a residential property, with a garden used to grow vegetables and accessible to young children, is set lower than that for a commercial site where soil is exposed in minor areas of landscaping and the only long-term users of the site are adults. Similarly, a site overlying a major aquifer supplying potable water to a large population will be considered more stringently than a site overlying an impermeable geology with only minor seepages of groundwater.

9.2 Conceptual Site Model (CSM)

The potential risks posed to the River Avon, human health and the environment by ground contamination at this site have been evaluated by a generic quantitative risk assessment which incorporates the 'source-pathway-receptor' identification and assessment methodology in accordance with the Model Procedures The risk assessment process therefore involves the identification of each source based on the site setting information and ground investigation results and the identification of the relevant exposure pathway and each potential receptor. The potential risks to the receptors are then assessed by considering the potential effect of the source on the receptor as well as the likelihood of a pathway linking the two, i.e. a contaminant linkage as discussed above. The CSM is based the proposed residential and commercial use of the site following earthworks to modify ground levels.

9.3 Contamination sources

Potential contamination sources from former uses of the site have been identified following a review of site setting and desk study information and from information gained during the ground investigation. The potential sources of contamination and associated contaminants of concern are listed in Table 9-1.

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Table 9-1: Principal potential sources of contamination at the site

Potential Source	Location	Likely Age	Potential contaminants of concern
Made Ground (soil) including infilled bathing and boating pools	On site (Area A)	>100 years	Heavy metals, PAHs, asbestos, VOCs, SVOCs, TPH
Made Ground (ground gas)	On site (Area A and B)	>100 years	VOCs, SVOCs, TPH, methane, carbon monoxide and other bulk gases
Goods depot railway sidings to the east of the railway line, rolling stock maintenance and fuelling,	On Site (Area B)	>100 years	Heavy metals, PAHs, VOCs, SVOCs, and TPH
Harbour sediment placed on land as part of land raising works, potential sources from historical repair and maintenance of boats within harbour	On Site	Up to 100 years	Heavy metals, PAHs, TPH, tri-butyl-tin, asbestos

9.4 Pollutant linkages

Off-site historic land uses are not considered potential sources of contamination due to the confined nature of the site and the site's long industrial history which was linked to some of the nearby land uses. Therefore, such uses have been excluded from the risk assessment undertaken. Site specific pathway receptor linkages have been identified for the site in Table 9-2 with respect to the sources outlined above and the anticipated future use of the site as a commercial development.

Table 9-2: Receptors and pathways

Receptor		Pathway
Human Health	Future site users, staff and visitors	Direct contact and dermal uptake, soil and dust ingestion. Gas and vapour migration via permeable strata with potential for accumulation to hazardous concentrations and potential explosive or asphyxiating atmospheres.
	Construction / future maintenance workers / off site residents (during construction works)	Direct contact and dermal uptake, soil and dust ingestion, gas and vapour inhalation during construction / earthworks, potential explosive or asphyxiating atmospheres.
Controlled Waters	Sandgate Formation (Secondary A Aquifer) Hythe Formation (Principal Aquifer) Pent Stream Marine Water	Leaching and migration of potential contamination (including dredged sediment on land) via permeable strata. Surface water run-off. Mobilisation of potential contamination in sediment during dredging into marine water.
Environment	Flora and fauna, aquatic organisms	It is not anticipated that direct planting will take place; however, if planting is undertaken, direct contact/uptake by plant roots could become a viable pathway. Direct contact and dermal uptake via marine environment.

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Buildings/ Services	Proposed development and potential underground services	Gas and vapour migration via permeable strata with potential for accumulation to hazardous concentrations if construction of underground services and/or drainage. Direct contact / permeation of plastic pipe work (if constructed) by contaminants in soil. Potential risks to below ground concrete structures associated with aggressive ground conditions.

Based on the results of the intrusive ground investigation and the preliminary conceptual site model, the geoenvironmental risk assessment is presented in Table 9—3 below.

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Table 9—3 Results of Geoenvironmental Risk Assessment

Source			**Hazard to Receptor [bold text] / Pathway [normal text]**	**Risk Assessment (following CIRIA C552)**			**Description of source [bold text].** Comment on hazard realisation [normal text]
Origin	Contaminants of concern	Zone affected		Consequence	Probability	Risk	
Made Ground (soil) including infilled bathing and boating pools	Heavy metals, PAHs, asbestos, VOCs, SVOCs, TPH	On Site – Areas A	**Potentially contaminative historical uses including placement of re-worked ground, railway sidings, lorry park, infilled bathing and boating pools. Made Ground is present at varying levels across the Site. Made Ground sample concentrations above residential thresholds were recorded for lead, beryllium, TPHs and some species of PAHs. US95 values below residential without plant uptake for all compounds but Benzo[a]Pyrene and Benzo[b]fluoranthene. Concentrations above commercial thresholds were recorded for PAHs in one sample. The majority of the samples recorded concentrations of phytotoxic metals below the screening threshold with the exception of zinc and copper. Asbestos was identified in two samples at 1.4 m bgl and 0.35m bgl. Ground gas classified as CS1. Groundwater did not record any significant levels of contamination.**				
			Human health impacts to future Site users, staff and visitors Direct contact and dermal uptake, soil and dust ingestion and inhalation.	Medium	Unlikely	Low	Proposed redevelopment incorporates significant hardstanding with limited landscaping and garden areas. In limited areas of soft landscaping and gardens it is anticipated that suitable soil materials will be imported to form a growing medium and a cap with a suitable thickness of cover (600mm) to be implemented. which will be separated from Made Ground by a geo –textile.
			Human health impacts to construction / future maintenance workers / offsite residents Direct contact and dermal uptake, soil and dust ingestion and inhalation during construction / earthworks.	Medium	Low likelihood	Moderate / Low	Slightly elevated PAHs within one sample in the central portion of Area A, potential to pose a risk to construction or maintenance workers; however, exposure time will be relatively limited and impact appears to be localised. Area not planned to be excavated. Standard good practice and Health and Safety precautions including dust control and PPE should be implemented to mitigate risks.
			Degradation of groundwater in Secondary A and Principal Aquifers, Pent Stream and marine environment quality Leaching and migration of contamination via permeable strata. Surface water run-off.	Medium	Unlikely	Low	No significant areas of potentially mobile contamination recorded. Potential for infiltration through permeable strata; however, risk from leaching is low due to historical source [i.e. contaminants likely to have already leached out] and low recorded concentration in groundwater.
			Flora and fauna Direct contact and uptake by plant roots	Mild	Unlikely	Very Low	Made Ground has recorded some exceedances of phytotoxic elements; however, no evidence of plant growth retardation. In future limited areas of soft landscaping it is anticipated that suitable soil materials will be imported which will be separated from Made Ground by a geo –textile.
			Buildings and services Leaching through services	Medium	Likely	Moderate	PVC pipes may not be appropriate for potable water supply due to the elevated concentrations of TPH and PAHs recorded in Made Ground. If Made Ground remains in-situ and the pipes are laid within the Made Ground, barrier pipe materials are likely to be required unless otherwise agreed with the utility company.
Made Ground (ground gas)	Methane, carbon monoxide and other bulk gases	On Site	**Human health impacts to future Site users, staff and visitors** Upwards migration via permeable strata and inhalation of ground gas and vapour with potential for accumulation in hazardous concentrations.	Severe	Unlikely	Moderate / Low	The ground gas regime is CS1 due to low flow rates and concentrations of methane and carbon dioxide recorded below 1 and 5% respectively.
			Human health impacts to construction / future maintenance workers Upwards migration through permeable strata and inhalation of ground gas and vapour with potential for accumulation in hazardous concentrations in excavations or accumulated in confined spaces.	Severe	Unlikely	Moderate / Low	The ground gas regime is CS1 due to low flow rates and concentrations of methane and carbon dioxide recorded below 1 and 5% respectively.
			Buildings and services Upwards migration through permeable strata with potential for accumulation in hazardous concentrations in confined spaces.	Severe	Unlikely	Moderate / Low	The ground gas regime is CS1 due to low flow rates and concentrations of methane and carbon dioxide recorded below 1 and 5% respectively.

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Goods depot railway sidings to the east of the railway line, rolling stock maintenance and fuelling,	Heavy metals, PAHs, VOCs, SVOCs, and TPH	On Site – Area B	**Potentially contaminative historical uses including goods depot railway sidings and boat storage. Made Ground is present up to 3.8m thick. Made Ground sample concentrations above residential thresholds were recorded for lead, beryllium, TPHs and some species of PAHs. US95 values below residential without plant uptake for all compounds but Benzo[a]Pyrene and Benzo[b]fluoranthene. Concentrations above commercial thresholds were recorded for PAHs in one sample and for lead in one sample. Highest lead exceedance recorded was 5430mg/kg which may pose an acute risk. General lead concentrations elevated compared to Area A. The majority of the samples recorded concentrations of phytotoxic metals below the screening threshold with the exception of zinc and copper. Groundwater did not record any significant levels of contamination.**				
			Human health impacts to future Site users, staff and visitors Direct contact and dermal uptake, soil and dust ingestion and inhalation.	Severe	Unlikely	Low	Proposed redevelopment incorporates significant hardstanding with limited landscaping and garden areas. In limited areas of soft landscaping and gardens it is anticipated that suitable soil materials will be imported to form a growing medium and a cap with a suitable thickness of cover (600mm) to be implemented. which will be separated from Made Ground by a geo –textile.
			Human health impacts to construction / future maintenance workers / offsite residents Direct contact and dermal uptake, soil and dust ingestion and inhalation during construction / earthworks.	Severe	Low likelihood	Moderate	Elevated lead concentration recorded within Made Ground poses a potentially acute risk. Potential for other elevated concentrations to be present. Offsite residents distant from this area of the site. Specific Health and Safety precautions will need to be adopted.
			Degradation of groundwater in Secondary A and Principal Aquifers, Pent Stream and marine environment quality Leaching and migration of contamination via permeable strata. Surface water run-off.	Medium	Unlikely	Low	No significant areas of potentially mobile contamination recorded. Potential for infiltration through permeable strata; however, risk from leaching is low due to historical source [i.e. contaminants likely to have already leached out] and low recorded concentration in groundwater.
			Flora and fauna Direct contact and uptake by plant roots	Mild	Unlikely	Very Low	Made Ground has recorded some exceedances of phytotoxic elements. No plants on this area of the site. In future limited areas of soft landscaping it is anticipated that suitable soil materials will be imported which will be separated from Made Ground by a geo –textile.
			Buildings and services Leaching through services	Medium	Likely	Moderate	PVC pipes may not be appropriate for potable water supply due to the elevated concentrations of PAHs recorded in Made Ground. If Made Ground remains in-situ and the pipes are laid within the Made Ground, barrier pipe materials are likely to be required unless otherwise agreed with the utility company.
Harbour sediment placed on land as part of land raising works, potential sources from historical repair and maintenance of boats within harbour	Heavy metals, PAHs, TPH, tri-butyl-tin, asbestos	On Site	**Potentially contaminative uses are the historical harbour operations including maintenance and repair of boats. Low concentrations and frequency of detection of asbestos (at quantification limit of 0.001% or below) located in inner and outer harbour. Other determinands were reported below residential/human health thresholds. Tri-butyl tin reported concentrations below the Dutch Intervention Value. Organic content of sediment low therefore unlikely to produce ground gas.**				
			Human health impacts to future Site users, staff and visitors Placement of dredged sediment with subsequent direct contact and dermal uptake, soil and dust ingestion and inhalation, and gas and vapour inhalation.	Medium	Unlikely	Low	Dredged material to be used as fill to make up ground levels on Area A. Will be placed below areas of hardstanding and/or below managed landscaped areas with geo-textile separating topsoil and sediment. In areas of future soft landscaping, suitable soil materials should be imported and a suitable thickness of cover (600mm) should be implemented.
			Human health impacts to construction / future maintenance workers / offsite residents Direct contact and dermal uptake, soil and dust ingestion and inhalation, and gas and vapour inhalation during construction / earthworks.	Medium	Low	Moderate / Low	Potential for mobilisation of asbestos during drying and any processing of sediment which contains very low concentrations of asbestos. Management procedures to be implemented to prevent asbestos mobilisation during works.
			Degradation of groundwater in Secondary A and Principal Aquifers, Pent Stream and marine environment quality post development Leaching and migration of dredged material via permeable strata. Surface water run-off.	Mild	Unlikely	Very low	Low concentrations of determinands; therefore, leaching is unlikely to affect the aquatic environment, sediment regularly fully saturated in its current location so further leaching unlikely.
			Degradation of marine environment quality during dredging Mobilisation of potential contamination in sediment during dredging into marine water	Medium	Unlikely	Low	Low concentrations of determinands; therefore, mobilisation during dredging of the determinands considered is unlikely to affect the aquatic environment. Appropriate dredging methodology likely to reduce the impact.

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10 Conclusions

10.1 Risk Assessment

The following risk have been identified above Low, this assessment assumes that in future use the site will be covered mostly in hardstanding or that in landscape areas or gardens a suitable cap of a minimum thickness of 600mm with a geo-textile marker layer at its base will be installed as is planned.

- A Moderate / Low risk to construction workers, future maintenance workers and offsite residents due to disturbance of Made Ground in Area A. The adoption of good construction practice, use of PPE and dust control measures will satisfactorily mitigate this risk;

- A Moderate risk to construction workers, future maintenance workers and offsite residents due to disturbance of Made Ground in Area B. This risk is due to elevated concentrations of lead being recorded in the Made Ground of Area B. Specific control measures beyond standard procedures will be required to mitigate this risk should Made Ground be disturbed. This could include preventing the generation of dust, workers wearing Tyvek suites with gloves and boot wash down areas at all exits in areas of excavations and the minimisation of the need for excavation work within the Made Ground;

- A Moderate / Low risk to construction workers, future maintenance workers and offsite residents due to the need to stockpile and process then lay the sediment excavated from the outer harbour as part of the land raise works due to the presence of very low concentrations of asbestos present in some of the material. This risk can be mitigated by the adoption of appropriate management procedures to prevent the generation of dust during the works and the use of PPE;

- A Moderate / Low risk from ground gasses over the site area. The ground gas assessment indicates that the site falls into CS1 which requires no specific gas protection measures to be installed within buildings. Mitigation measures during construction works are also likely not to be required; and

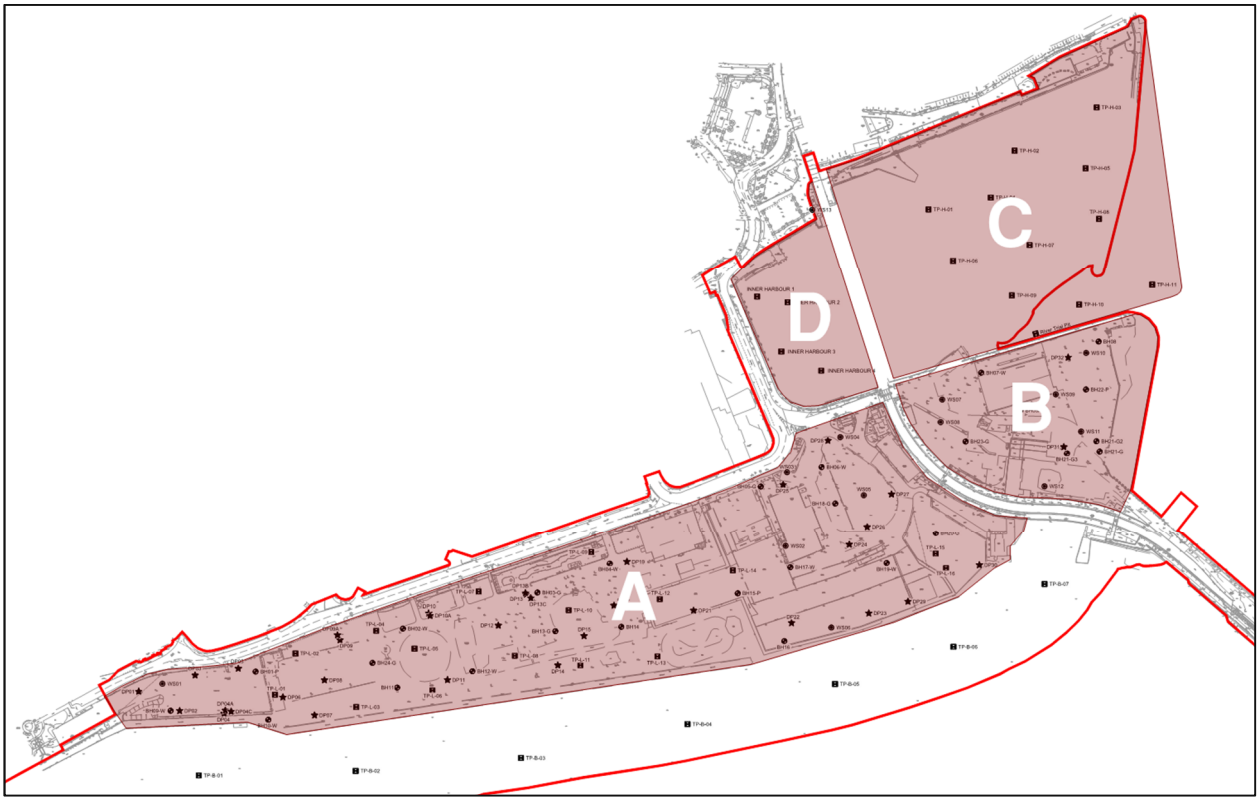
- A Moderate risk to building services has been identified due to the presence of certain contaminants within the Made Ground of both Area A and Area B. Depending on the material they are to be installed into future water supply pipes may require the use of specific materials to mitigate the identified risk.

The UXO assessment provided in Appendix B of this report identifies some areas of Moderate risk within Area A which will require specific mitigation measures to be adopted during ground works, recommendations in relation to harbour dredging are also made.

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11 Recommendations

- Landscape and garden areas in the future development to have a suitable cap of a minimum thickness of 600mm with a geo-textile marker layer at its base installed;
- Use of standard good practice and Health and Safety precautions including dust control and use of PPE within Area A;
- Adoption of specific control measures beyond standard procedures for earthworks in Area B to prevent dust generation and contact between workers and Made Ground, measures to be considered include minimising works within Made Ground of Area B;
- Adoption of appropriate management procedure to prevent the generation of dust during the dredging, drying and laying of the harbour sediment within parts of Area A;
- Use of appropriate specification for future below ground water supply pipework based on proposed design and presence of Made Ground;
- The earthworks contractor will need to study the UXO risk assessment for the site (Appendix B) and implement the recommendations in relation to their works.



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12 Bibliography

[1] S. S. Ltd, "Folkestone Factual Report on Ground Investigation," Structural Soils Ltd, 2016.

[2] Department of Communities and Local Government, "National Planninig Policy Framework (NPPF)," 2012.

[3] Environment Agency, "Model procedures for the management of land contamination - contaminated land report 11 (CLR11)," Environment Agency, 2004.

[4] British Standards Institute , "Investigation of Potentially Contaminated Sites - Code of Practice (BS10175)," British Standards Institute, 2011.

[5] British Standards Institute , "The Code of Practice for Site Investigations (BS5930)," British Standards Institute, 1999.

[6] Environment Agency (EA), "Guiding Principles for Land Contamination," Environment Agency, 2010.

[7] Environment Agency (EA), "Groundwater Protection Policy Practice (GP3)," Environment Agency, 2013.

[8] O. A. &. Partners, "Folkestone Harbour Geotechnical Desk Study," Ove Arup & Partners, 2008.

[9] Health Protection Agency (HPA) and British Geological Survey (BGS), "Indicative Atlas of Radon in England and Wales," Health Protection Agency (HPA) and British Geological Survey (BGS), 2007.

[10] Building Research Establishment (BRE), "Radon : Guidance on Protective Measures for New Buildings," Building Research Establishment (BRE), 2007.

[11] British Standard Institute, "BS3882: 2015 British Standard Specification for Topsoil," British Standard Institute, London, 2015.

[12] UK Water Industry Research, "Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites. Report Rev. 10/WM/03/21.," 2010.

[13] CIRIA, "C665: Assessing Risks Posed by Hazardous Ground Gases to Buildings," CIRIA, London, 2007.

[14] N. H. B. C. (NHBC), "Report Edition Number 4. Guidance on Evaluation of Development Proposals where Methane and Carbon Dioxide are Present," 2007.

[15] British Standards Institute, "BS8485:2015 Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings," British Standards Institute, 2015.

[16] UK Drinking Water Inspectorate, "UK Drinking Water Standards (UK DWS)," 2000.

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[17] The Water Framework Directive (Standards and Classification) Directions (England and Wales), "Environmental Quality Standards (EQS)," 2015.

[18] British Standards Institute, "Guidance on Investigations for Ground Gas, Permanent Gases and VOCs (BS8576)," British Standards Institute, 2013.

[19] WHO, "Guidlines for Drinking water Quality Fourth Edition," 2011.

[20] Environment Agency, "Technical Guidance WM3. Guidance on the classification and assessment of waste. 1st Edition.," Environment Agency, 2015.

[21] Environment Agency, "How to find out if waste oil and waste that contain oil are hazardous," Environment Agency, 2007.

[22] Environment Agency, "Framework for the Classification of Contaminated Soils as Hazardous Waste," 2004.

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Drawings

GSK-01 – Site location plan

GSK-02 – Exploratory hole location plan

GSK-03 – Section to GSK-02 plan

GSK-04 – Section to GSK-02 plan

GSK-05 – Section to GSK-02 plan

GSK-06 – Section to GSK-02 plan

GSK-07 – Plan showing PAH threshold exceedances

GSK-08 – Plan showing inorganic threshold exceedances

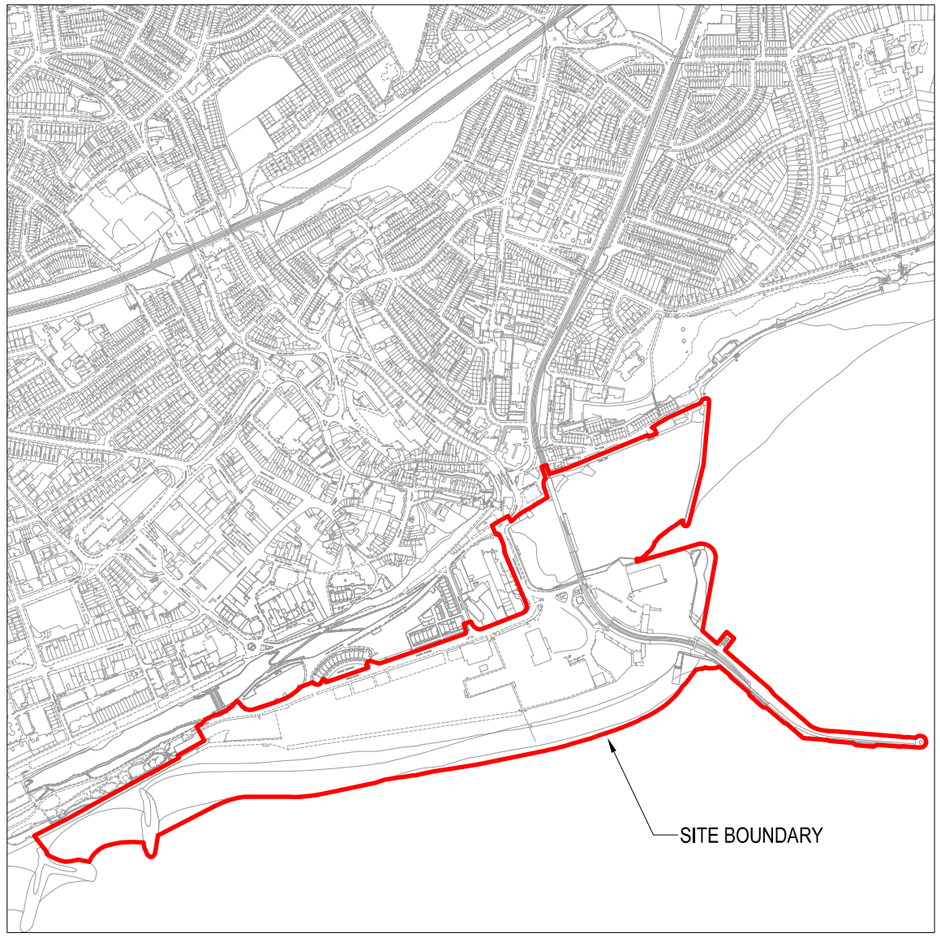
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SITE LOCATION SCALE 1:50000

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SITE LOCATION SCALE 1:10000

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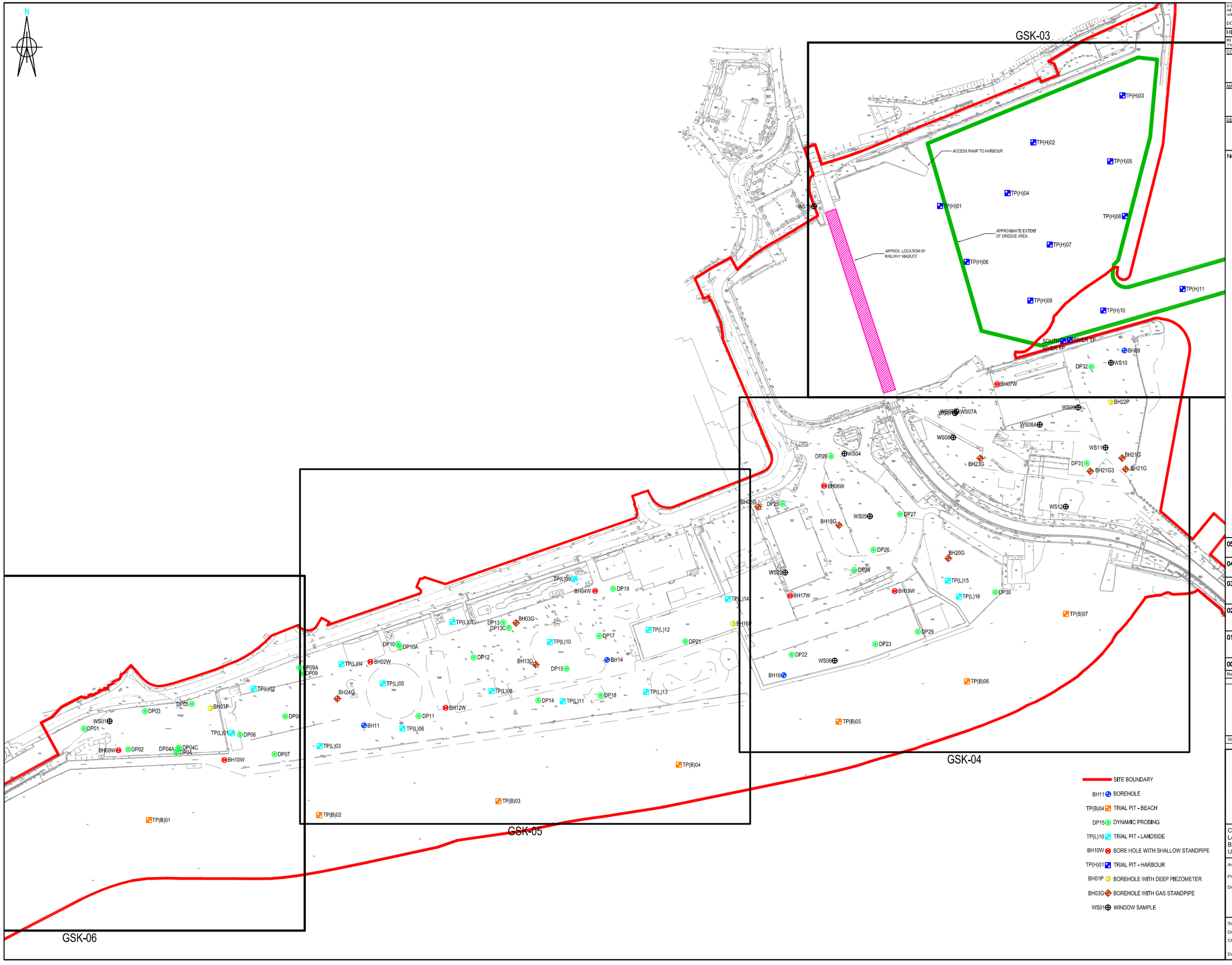
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Drg Title SITE LOCATION PLAN

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Date SEPT 2016

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03	WINDOW SAMPLES ADDED AMENDMENTS TO GI LAYOUT ISSUED FOR TENDER	14.03.16	NG	FG
02	HARBOUR TRIAL PITS REINSERTED ISSUED FOR TENDER	11.12.15	JW	RF
01	HARBOUR TRIAL PITS REMOVED SHEET LAYOUT UPDATED ISSUED FOR TENDER	30.06.15	NG	RF
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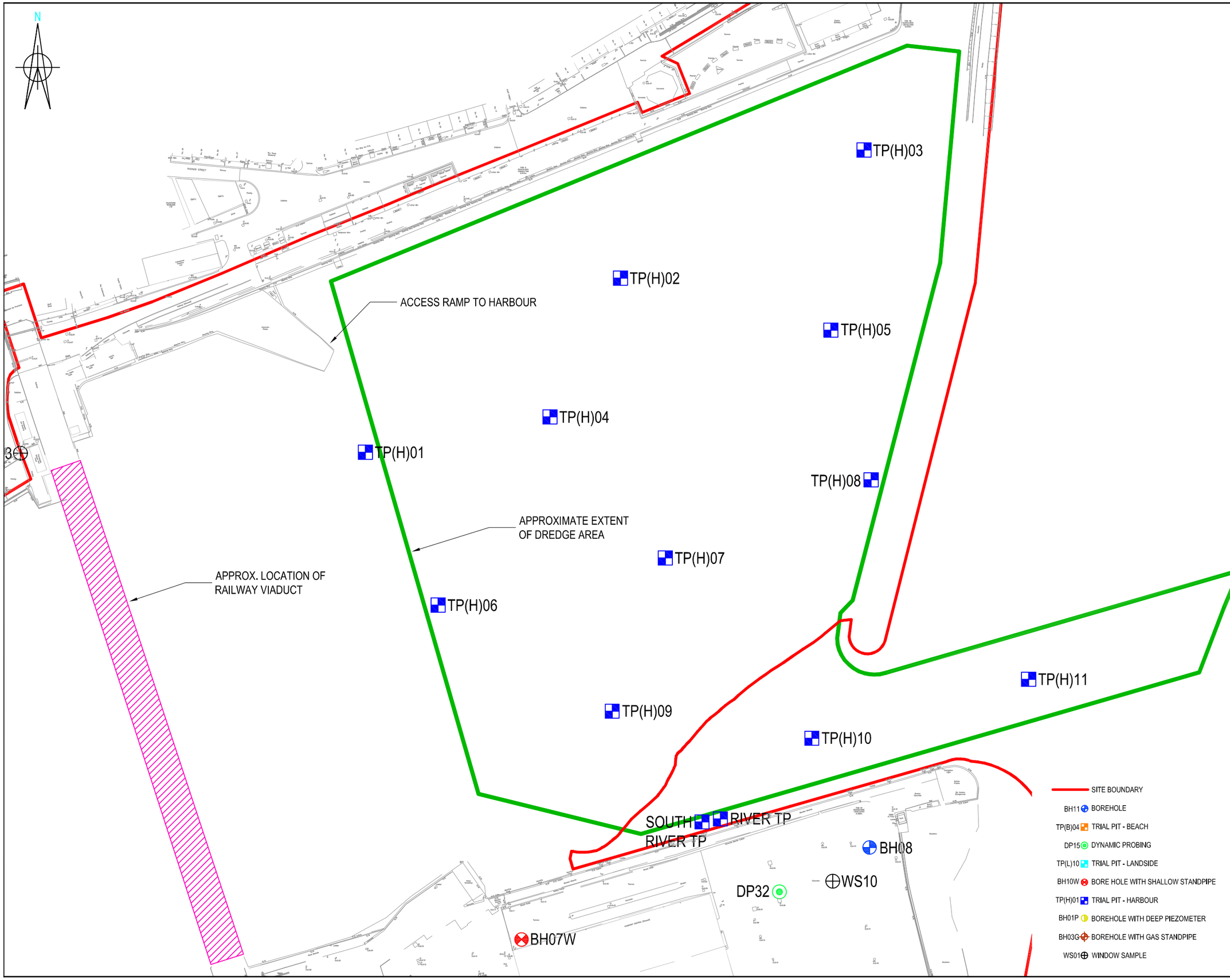
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Drg Title GI LAYOUT
SITEWIDE OVERVIEW

Scales@A1 1:1250
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Checked by NP
Date 15/04/15

Job No. 034029
Drawing No. GSK-02
Rev 05

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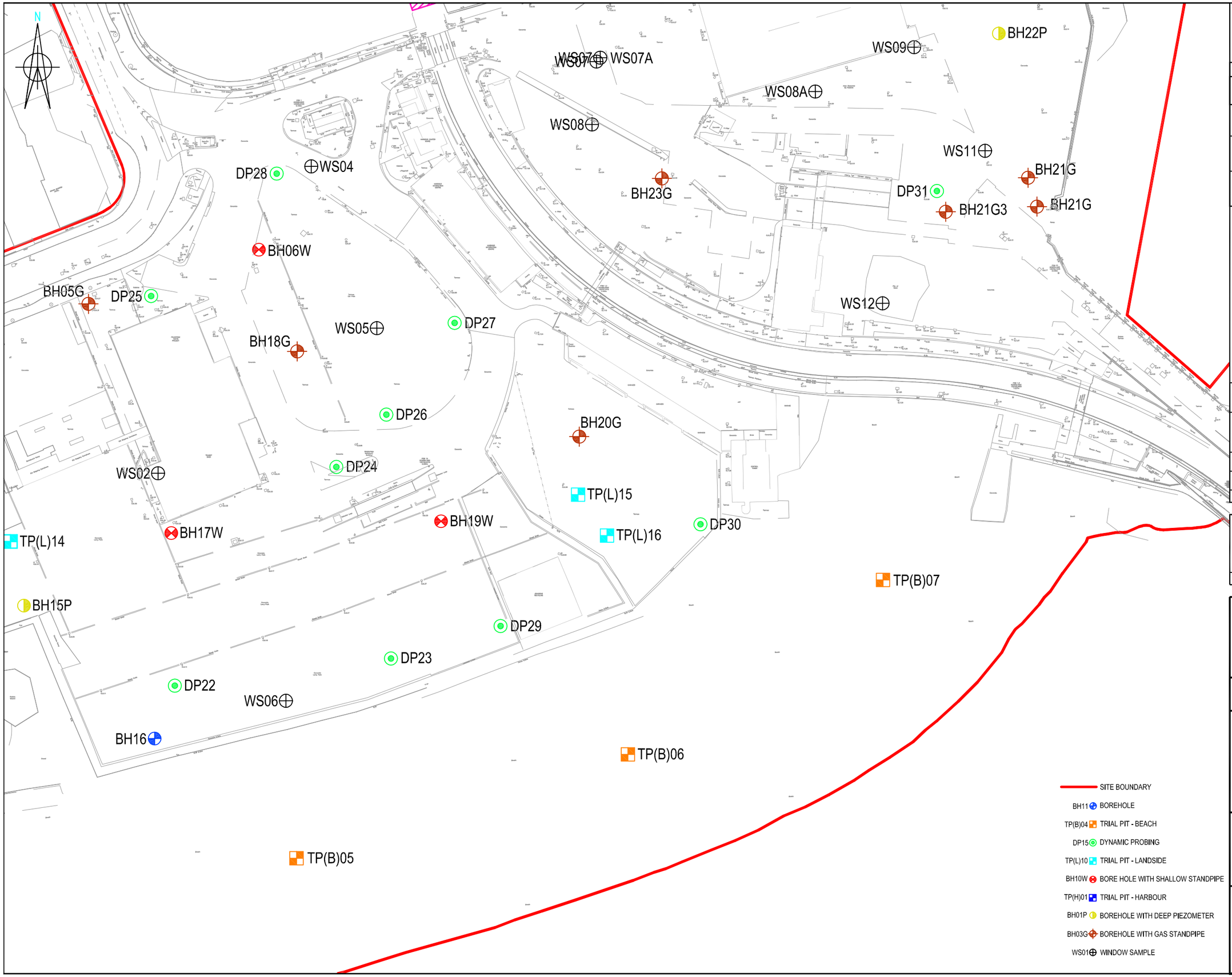
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Date DECEMBER 2015

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Date JUNE 2015

Job No. 034029
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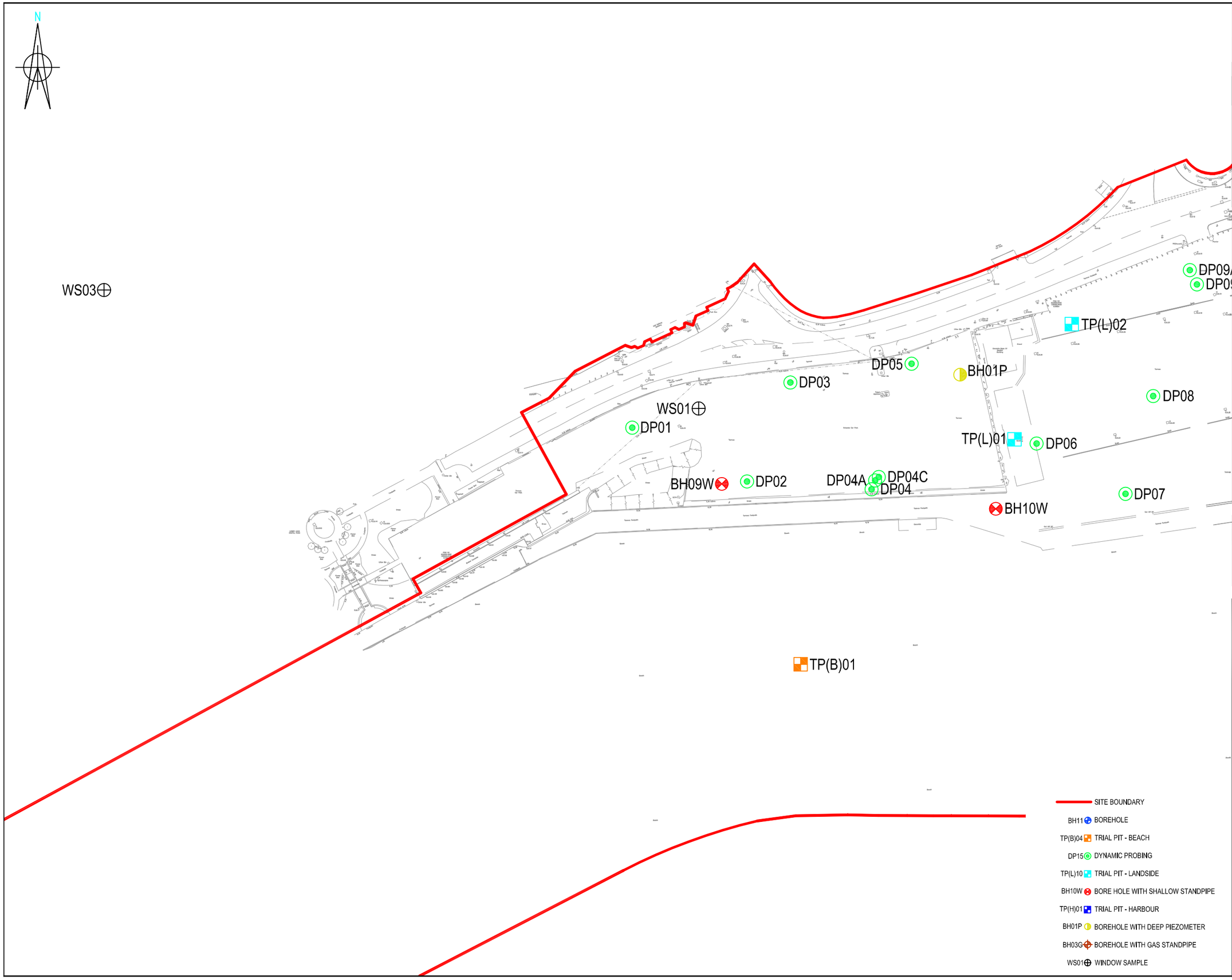
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Drawn by JW
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Job No. 034029
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02	WINDOW SAMPLES ADDED AMENDMENTS TO GI LAYOUT ISSUED FOR TENDER 07.03.16	NG/FG
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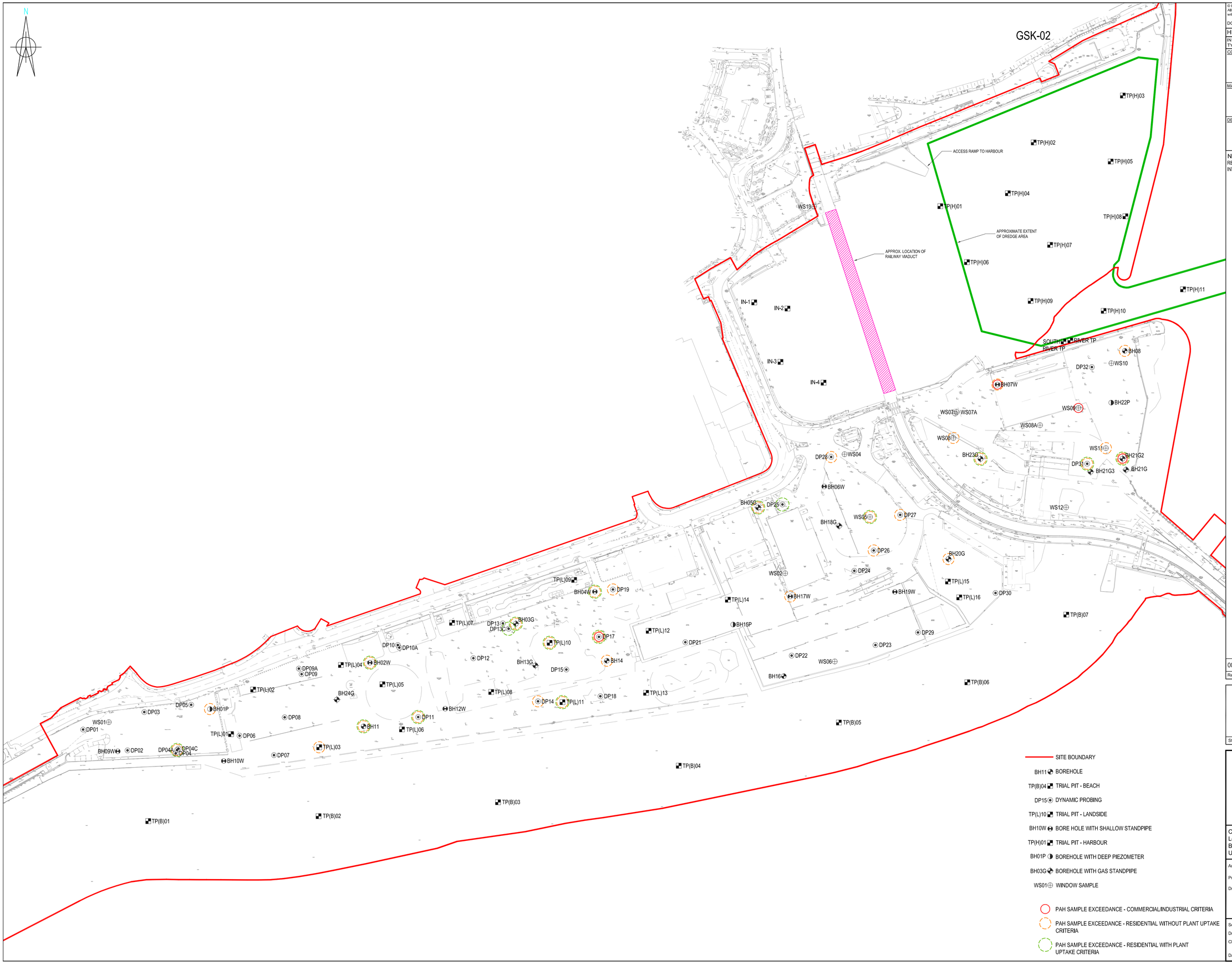
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Date JUNE 2015

Job No. 034029
Drg No. GSK-06
Rev 03

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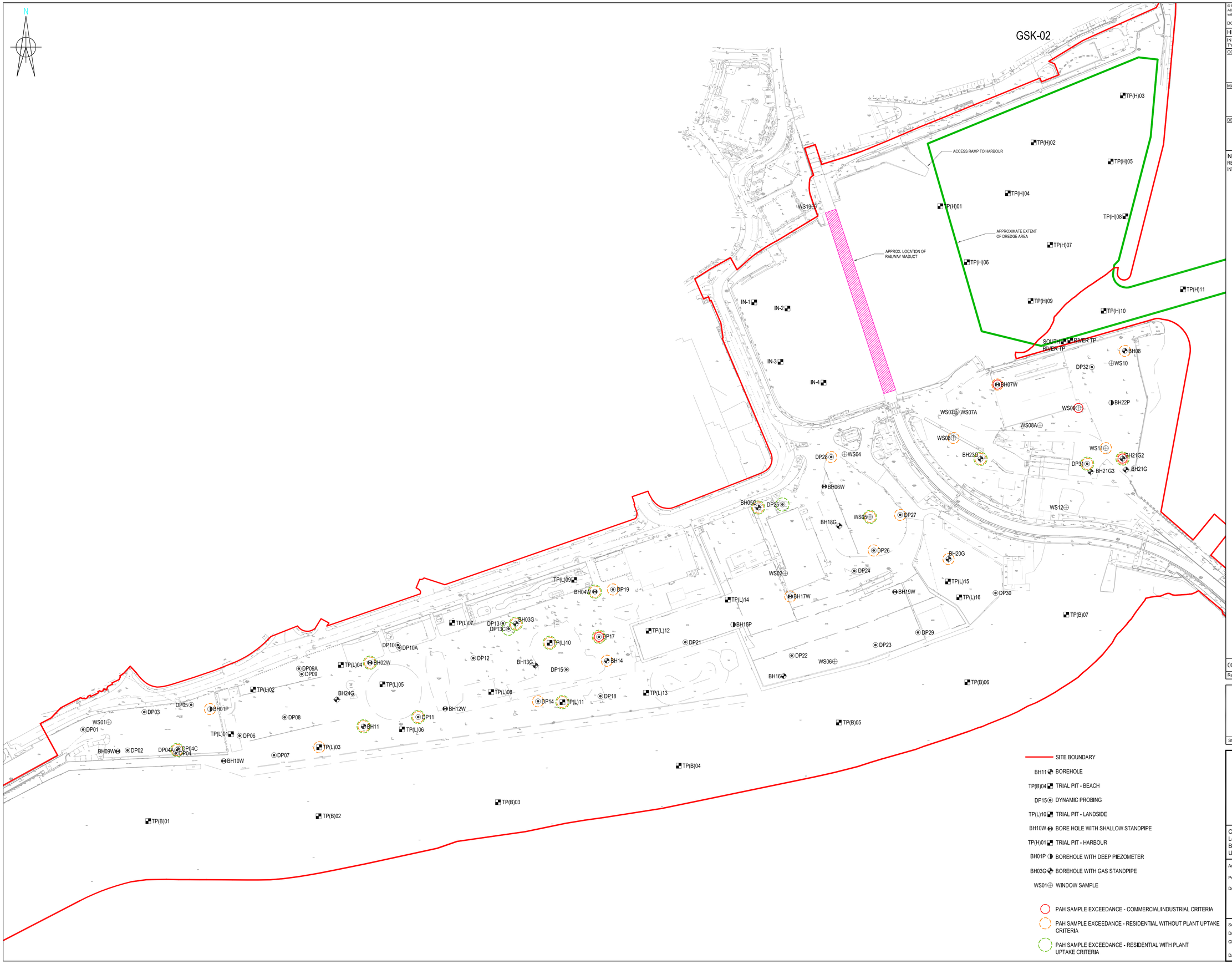
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Drg Title ORGANIC CONTAMINANT SAMPLES EXCEEDING SCREENING CRITERIA

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Date SEPT 2016	

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Appendix A - Contamination Risk Assessment Criteria

Introduction

A risk-based approach is used for the assessment of contamination, requiring identification of a contaminant source, a receptor and a realistic pathway via which the contaminant may reach the receptor. The key receptors considered in this assessment are site end-users, construction workers and controlled waters. In order to perform a generic quantitative risk assessment, the soil test results have been compared with available Soil Guideline Values (SGVs), Category 4 Screening Levels (C4SLs), BuroHappold and other industry Generic Assessment Criteria (GAC).

General Contaminants

Analytical data derived from the investigation has been put into context by comparison with published guidance or derived thresholds values. Current UK guidance published thresholds comprise SGVs and C4SLs, which are available for a limited number of determinands (Ref. 1 to Ref. 9) and land uses. For contaminants without published SGVs or C4SLs or where soil conditions are different to those assumed for the published guideline values (6% soil organic matter content and sandy loam soil), GACs have been derived. The derivation of GACs has been carried out based on published statutory guidance documents (Ref. 10, Ref. 11 and Ref. 12) and with consideration of the most sensitive receptors in the respective CLEA standard land- uses scenarios (the 0 to 6 year old child for the residential with and without plant uptake scenarios and the adult for the commercial/ industrial land-use scenario) using the software model "CLEA 1.06" and "CLEA 1.071" and associated handbook (Ref. 13, Ref. 14 and Ref. 15). Contaminant specific model input values have been selected as prescribed by the Environment Agency SGV reports (Ref. 1 to Ref. 7). In the absence of SGV reports, contaminant specific input values have been selected as suggested by SC050021/SR7 (Ref. 16) and / or the LQM reports (Ref. 17 and Ref. 18) and/or the EIC/AGS report (Ref. 19).

Lead

Assessment criteria for Lead have been adopted as derived and detailed in the C4SL documents (Ref. 8).

Mercury

Assessment criteria for mercury is based on the published threshold SGV (Ref. 7) and the S4UL (Ref. 18), these have been produced for elemental, inorganic and methyl mercury. Inorganic mercury is the most common form of mercury in the environment. It is recommended by the Environment Agency that elemental and methyl mercury are used as thresholds where the Desk Study has identified a potential source otherwise inorganic mercury should be used. Concentrations of elemental mercury will also be considered where concentrations are notably higher than 'natural' background concentrations (e.g. 20mg/kg).

Nickel

Following the report by the European Food Safety Authority (EFSA) in February 2015 (Ref. 20) the Environment Agency withdrew the Soil Guideline Value (SGV) for nickel and its supporting reports. The Environment Agency have no plans to update the documents or produce any new SGV reports. Following the publication of the EFSA report, LQM advised that the TDI for oral pathways proposed by EFSA was more appropriate than the value previously used. Accordingly LQM issued a revised S4UL value for nickel which has been adopted here.

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Chromium

Assessment criteria for chromium is based on the published threshold LQM value (Ref. 18) and have been produced for chromium III (trivalent) and chromium VI (hexavalent). Chromium III is the most common form of chromium in the environment, chromium VI is produced by the oxidation of chromium III through industrial processes. Therefore, chromium VI should only be assessed where the Desk Study has identified a potential source otherwise chromium III should be used.

Tri-butyl tin

Introduction

Tri-butyl tin (TBT) compounds are generally characterised by a tin atom surrounded by three butyl groups (C_4H_9), and an associated anion e.g. Cl (tributyltin chloride) or oxygen (tributyltin oxide or TBTO). Their biocidal properties toward a range of aquatic organisms including bacteria, fungi, algae, molluscs and crustaceans, lend their use to the application as anti-fouling paints on boats where the TBT compounds are slowly released from the paint to the water (Ref. 21). TBT compounds are classified as Priority Hazardous Substances under the Daughter Directive (2008/105/EC) of the EC Water Framework Directive (2000/60/EC).

It is estimated that between 10-90% of TBTO introduced into water is absorbed onto particles or dissolved organic matter. As particles in the water column settle, TBT is removed from the water and introduced into the sediment (Ref. 21).

The most important degradation pathway of TBT in seawaters is biodegradation, with photolysis also contributing to overall degradation. The half-life of TBT in seawater is generally estimated to range from 1 day to a few weeks. In sediments, TBT is generally persistent and strongly retained and half-lives have been estimated to be several years (Ref. 21).

To assess the potential risks from the placement of dredged sediment onto land, BuroHappold searched the currently available assessment values for TBT in soil. The assessment values for TBT in soil that are currently available are presented in below.

Table 12—1 Currently available assessment values for TBT in soil

Jurisdiction	Assessment Value Description	Assessment Value
The Netherlands (Ref. 22)	Intervention value	2.5
	Target value (quality)*	0.001
	Target value (quality; corrected for 2% OM)*	0.002
Danish MoE	Quality criterion	2.44

Notes:

Values are the sum of TBT compounds as a dry weight in mg/kg.

The Netherlands values are protective of both human and ecotoxicological effects and assume organic matter of 10% and clay content of 25%.

***A correction factor has been used to correct for a 2% organic matter at the Site.**

The Danish values are assumed to be only protective of human health.

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The Dutch Target Values indicate the level at which there is a sustainable soil quality, indicating a level that has to be achieved to fully recover the functional properties of the soil for humans and plant and animal life. The target value gives an indication of the benchmark for environmental quality in the long term on the assumption of negligible risks to the ecosystem.

The soil remediation intervention values indicate when the functional properties of the soil for humans, plant and animal life is seriously impaired or threatened. They are representative of the level of contamination above which there is a serious case of soil contamination.

BuroHappold considers that the Dutch soil intervention values provide the most appropriate benchmark for assessing the risks from sediment placement onto soil for the following reasons:

- The sediment will already have a high salt content that is unlikely to provide a suitable medium for soil flora and fauna; therefore, should trees be planted at the Site, tree holes will be required;
- A capping layer will be present above the placed sediment that will reduce leaching of TBT into soil and groundwater;
- The Danish and Dutch values are similar in magnitude, and BuroHappold considers that the derivation of the Dutch values is more robust.

BuroHappold was unable to undertake an assessment of the potential risks to the marine environment from the dredging of sediment on the shoreline for the following reasons:

- Drinking water values available were not considered relevant to this assessment and would be overly conservative;
- The lack of long term tests into the effects on benthic organisms; therefore, only tentative sediment criteria were available; and
- The low concentrations of the marine water criteria were lower than the laboratory detection limits for TBT currently readily available for soil leachate tests.

Statistical Analysis

Where individual concentrations of contaminants have been found exceeding assessment criteria, the data of the specific contaminant was analysed statistically in line with the 'Guidance on Comparing Soil Contaminant Data with Critical Concentrations' (Ref. 23). Where the distribution of data for particular determinands showed evidence of non-normality, the 95% upper confidence limits (US95) were calculated using the Chebychev Theorem in accordance with this guidance (Ref. 23).

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Appendix References

Ref. 1	Environment Agency. 2009. Soil Guideline Values for toluene in soil - Science Report SC050021 / toluene SGV. Bristol: Environment Agency
Ref. 2	Environment Agency. 2009. Soil Guideline Values for selenium in soil - Science Report SC050021 / Selenium SGV. Bristol: Environment Agency
Ref. 3	Environment Agency. 2009. Soil Guideline Values for inorganic arsenic in soil - Science Report SC050021/ arsenic SGV. Bristol: Environment Agency
Ref. 4	Environment Agency. 2009. Soil Guideline Values for xylene in soil - Science Report SC050021 / xylene SGV. Bristol: Environment Agency
Ref. 5	Environment Agency. 2009. Soil Guideline Values for benzene in soil - Science Report SC050021 / benzene SGV. Bristol: Environment Agency
Ref. 6	Environment Agency. 2009. Soil Guideline Values for ethylbenzene in soil - Project SC050021 / ethylbenzene SGV. Bristol: Environment Agency
Ref. 7	Environment Agency. 2009. Soil Guideline Values for mercury in soil - Science Report SC050021 / Mercury SGV. Bristol: Environment Agency
Ref. 8	Department for Environment, Food and Rural Affairs. 2014. SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document. March 2014.
Ref. 9	Contaminated Land: Applications in Real Environments. 2013 SP1010 – Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. Final Project Report. 20th December 2013.
Ref. 10	Environment Agency. 2005. The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils. Science Report P5-080/TR3, February 2005
Ref. 11	Environment Agency. 2009. Updated technical background to the CLEA model. Science Report – SC050021/SR3 January 2009
Ref. 12	Environment Agency. 2009. Human health toxicological assessment of contaminants in soil. Science Report – SC050021/SR2, January 2009
Ref. 13	Environment Agency 2009. CLEA Software (Version 1.06), Retrieved from the internet: http://www.environment-agency.gov.uk/research/planning/40397.aspx.
Ref. 14	Environment Agency 2015. CLEA Software (Version 1.071), Retrieved from the internet: https://www.gov.uk/government/publications/contaminated-land-exposure-assessment-clea-tool
Ref. 15	Environment Agency. 2009. CLEA Software (Version 1.05) Handbook. Science Report – SC050021/SR4, January 2009
Ref. 16	Environment Agency. 2008. Science report SC050021/SR7 - Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values. Bristol: Environment Agency.
Ref. 17	LQM/CIEH. 2009. Generic Assessment Criteria for Human Health Risk Assessment – 2nd edition. Land Quality Press. Nottingham.
Ref. 18	LQM/CIEH. 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.
Ref. 19	Environmental Industries Commission (EIC), The Association of Geotechnical and Geoenvironmental Specialists (AGS) and Contaminated Land: Applications in Real Environments (CL:AIRE), Soil Generic Assessment Criteria for Human Health Risk Assessment, January 2010.

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Ref. 20 European Food Safety Authority (EFSA). Scientific Opinion on the risks to public health related to the presence of nickel in food and drinking water. EFSA Journal 2015;13(2):4002

Ref. 21 Tributyltin compounds (TBT), Evaluation of health hazards and proposal of health based quality criteria for soil and drinking water Environmental Project No. 1524, 2013; Retrieved from the internet: http://www2.mst.dk/Udgiv/publications/2013/12/978-87-93026-80-3.pdf

Ref. 22 Dutch Target and Intervention Values, 2000; Retrieved from the internet: http://www.esdat.net/Environmental%20Standards/Dutch/annexS_I2000Dutch%20Environmental%20Standards.pdf

Ref. 23 CL:AIRE and CIEH. 2008. Guidance on Comparing Soil Contaminant Data with Critical Concentrations.

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Appendix B – BAe Systems UXO Risk Assessment

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BAE Systems Environmental

Risk Assessment for German Air-dropped UXO

Folkestone Harbour

Buro Happold



BAE SYSTEMS

In carrying out our commission we have consulted the sources of information listed in Section 1.4. We have not carried out a comprehensive search for all available historical information (for example, local anecdotal accounts), but the information obtained is considered sufficient for a detailed assessment to be made of the potential for UXO to remain at the Site. Although it is very unlikely, a fully comprehensive search may uncover evidence that would change the outcome of our assessment. Future emergence of such evidence would not constitute failure of the commission.

Any conclusions and recommendations represent our professional opinions and have been determined in accordance with accepted industry good practice at the time of writing. BAE Systems Environmental cannot accept responsibility for future changes in legislation or good practice guidance that may affect any opinions expressed in this report.

The executive summary provides an overview of the findings and conclusions and it is recommended that all parts of the report are read and considered as other parts of the report may contain information which puts into context findings that are summarised in the executive summary.

Risk Assessment for German Air-dropped UXO

Folkestone Harbour
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Project No: X0364	Report Ref: X0364-R1-1	Issue Date: July 2015

UKAS TESTING No. 1764

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

bsi. ISO 9001 Quality Management FS 38745

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EXECUTIVE SUMMARY

Site	Folkestone Harbour (TR 231 357, area 25 ha)	
Project	Ground investigation, ground re-profiling, dredging and construction of dwellings using piled foundations.	
Background & Objectives	Site was bombed during WWI and WWII, and is due to be redeveloped. Objective was to assess risk posed by German air-dropped UXO to construction workers and determine whether there are reasonably practicable measures that can be taken to mitigate the risk.	
Site-specific evidence of undiscovered UXO	None found.	
Likelihood of UXO remaining after WWII	1 in 1.6	Bombing intensity was high compared to UK. Site was mainly an open beach, so likelihood of UXO going unnoticed was moderate.
Post war change in ground level	Apparent beach level change but no effect on assessment.	
Likely maximum UXO penetration depth	7 m	Based on gravel geology
Volume of soil disturbed during Project	101,500 m^3	Ground investigation, dredging, ground re-profiling and piled foundations
Probability of encountering UXO during Project	**1 in 29**	A relatively **high** probability compared to other construction projects in the UK. It should be noted that if UXO is encountered, likelihood of detonation is significantly lower.
Recommendations	Personnel involved in excavations at the Site (including ground investigation) should be briefed on the potential UXO risk as part of a standard site safety induction. Piling activities that coincide with areas of high risk (see Figure 8) should be subject to down-hole geophysical survey. Re-profiling involving the excavation of beach deposits should be supervised by an explosives safety engineer. Dredging works should be carried out in accordance with the Crown Estates, Guidance Note June 2006, 'Dealing with munitions in marine aggregates'.	
If unexploded ordnance is discovered, stop work immediately, prevent access to the area, and inform the police		

NB. This executive summary provides an overview of the findings and conclusions. It is recommended that all parts of the report are consulted because they contain information that puts into context findings that are only summarised in the executive summary.

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1. INTRODUCTION

1.1. Background and objectives

BAE Systems Environmental was commissioned by Buro Happold to carry out a risk assessment for German air-dropped unexploded ordnance (UXO) in advance of a project at Folkestone Harbour.

It is understood that this assessment was commissioned because the Site is to be redeveloped and the surrounding area is known to have been heavily bombed during the Second World War (WWII).

The objective of this study was to assess the potential to encounter German air-dropped UXO during the Project, to evaluate the implications of such an occurrence and to determine whether risk mitigation measures are necessary.

Our study is a “detailed risk assessment” as described in Chapter 6 of the CIRIA guidance document “UXO – A construction industry guide” (C681).

This report presents the findings of the assessment.

1.2. The ‘Site’

The term ‘Site’ refers to Folkestone Harbour centred on TR 231 357. A Site Location Plan and Site Plan are given as Figures 1 and 2.

The Site area is approximately 25 ha.

1.3. The ‘Project’

The Project is understood to be a ground investigation, ground re-profiling, dredging of the harbour and construction of dwellings using piled foundations. Further details of proposed intrusive activities are given in Section 5.3.

1.4. Scope of assessment

The study comprised the following:

- Review of documents relating the Site’s use during WWII.
- Review of information relating to German air-dropped ordnance including bomb impact data, records of Explosive Ordnance Clearance (EOC) tasks, and records relating to the intensity of bombing in the vicinity of the Site.
- Assessment of the potential for German air-dropped UXO to have remained at the Site after WWII, and its likely penetration depth.
- Assessment of the probability of encountering German air-dropped UXO during the Project, and evaluation of the implications of finding UXO.
- Determination of whether steps are necessary to mitigate the risk of harm and/or interruption being caused by UXO.

1.5. Sources of information

The main sources of information consulted were:

- BAE Systems Environmental records
- 33 Engineer Regiment Archive
- Department for Communities & Local Government
- The National Archives (Kew)
- Historic England
- Kent History & Library Centre
- German Ari Raids on Britain 1914-1918 by Joseph Morris

1.6. Reporting conditions

This report has been prepared by BAE Systems Environmental within the scope of work, terms of contract and resources agreed with the client. It has been prepared without the benefit of knowing the exact intentions of third parties and therefore should not be used by such organisations without prior consultation with BAE Systems Environmental. Any such party relies on this report and any information contained therein at its own risk.

This assessment is of a preliminary nature and determines the *potential* to encounter UXO. It relies on the accuracy of the documents consulted and BAE Systems Environmental will in no circumstances be held responsible for the accuracy of such information or data supplied.

BAE Systems Environmental has found no evidence that the Site had a specific defence-related use potentially involving the handling of explosives, ordnance or chemical warfare agent. The activities of the Home Guard and anti-aircraft defences has led to a general risk of uncovering unexploded ordnance during construction activities, particularly in the south-east of England. Therefore, it is considered that there is little benefit in assessing this risk on a project-specific basis. This assessment considers only WWII German air-dropped UXO but there remains the remote possibility of finding unrecorded buried ordnance of British origin.

The report refers to the conditions present at the Site at the time of the study and no liability can be accepted by BAE Systems Environmental for any future changes of Site conditions. It should be noted that BAE Systems Environmental has relied on the accuracy of the information contained in any documents consulted or supplied by the client and is in no circumstances responsible for the accuracy of such information or data supplied.

It should be noted that exploratory points such as trial pits and boreholes only provide information on a relatively limited volume of soil or groundwater. In general, the ground conditions encountered may be considered representative but the possibility exists for variations in ground conditions between exploratory points that have not been disclosed by the investigation and could not therefore be taken into account in this report.

2.4. Toxic effects

The explosive and incendiary compositions commonly contained in German bombs are potentially detrimental to human health at relatively low concentrations. However, harmful acute or chronic exposure to site personnel is regarded as implausible, and is not considered further in this assessment.

2.5. Types of German air-dropped weapons

Broadly speaking the weapons deployed over the UK landmass can be divided into four groups:

- **Large high explosive (HE) bombs.** These account for the majority of weapons deployed over the UK, typically of weights 50, 250, 500 and 1,000 kg. They are the most common type of German UXO found today because of the sheer numbers dropped and their ability to penetrate into the ground. They also present the greatest hazard as UXO.

- **Large incendiary bombs (IBs).** These were usually similar in appearance to HE bombs, typically 250 kg, but with a filling of hydrocarbon (petrol, oil) often ignited by phosphorus. Their thin-walled construction gave them little penetration potential and they often broke up on hitting the ground.

- **Cluster munitions, or 'bomblets'.** These were dropped in large containers that burst open at a predetermined height releasing bomblets over a wide area. The bomblets were either incendiary (often containing magnesium or thermite) or HE fragmentation devices weighing around 1 to 10 kg.

- **Ballistic missiles.** V1s, or 'doodlebugs', were 8 m long winged aircraft either launched from the continent or released from aircraft over the Channel. The less common V2 was a 14 m long ballistic missile launched from land. Neither had the potential to penetrate significantly into the ground.

On the basis that they are the most common type of German UXO, and because they present the greatest hazard, our assessment only considers the risks associated with large (50+ kg) German HE bombs.

2.6. First World War bombing

In the First World War the UK was subjected to aerial attacks by German zeppelins, aeroplanes and naval ships. London, Kent, Essex and Suffolk were the areas most severely affected, but raids were also carried out as far afield as Lancashire, the West Midlands and Newcastle.

In London the quantity of ordnance dropped during the First World War is relatively insignificant, and the associated risk at the present day is considered negligible compared to Second World War UXO. The intensity of First World War bombing in certain eastern towns was proportionately higher, and this is taken into account when assessing the risk of encountering UXO in these areas (see section 4.2).

2.7. BAE Systems risk assessment methodology

We use a *quantitative* method to estimate the probability of encountering German air-dropped UXO, taking into account bombing intensity, the extent of intrusive activity and other factors.

There are four main steps in the assessment, summarised as follows:

1. **Site-specific evidence of undiscovered UXO** (see Section 3). This type of evidence is comparatively rare, but when found, it is of prime interest and usually dictates the conclusions and recommendations of the assessment.

2. **Likelihood of UXO remaining after WWII** (see Section 4). In the absence of site-specific evidence, historical records are used to quantify the likelihood of UXO remaining at the Site after WWII.

3. **Degree of proposed intrusive activity** (see Section 5.4). The volume of intrusive activity associated with the Project is calculated, in particular where it coincides with the 'Zone of Potential Buried UXO', which is soil beneath the Site where UXO could exist.

4. **Probability of encountering UXO** (see Section 5.5). By combining the probability of UXO remaining after WWII with the degree of intrusive activity, the probability of encountering UXO during the Project can be estimated.

The remainder of this report details the findings of the risk assessment, ending with our recommendations (Section 6) for any work considered necessary to mitigate the risk.

3. SITE-SPECIFIC EVIDENCE OF UNDISCOVERED UXO

3.1. Introduction

Site-specific evidence of German WWII UXO comes from two sources:

- Documented or anecdotal reports of an abandoned or undiscovered UXB.
- Patterns of impacts on aerial photographs or bomb impact maps.

Any evidence specific to the Site is discussed in the following paragraphs.

3.2. Abandoned bombs

UXBs were abandoned for a number of reasons. Bombs falling on landfill sites, watercourses and sewage beds were difficult to locate, and those buried in 'running sand' were not easy to excavate. In addition, UXBs that required the disturbance of graves were generally not recovered. However, many of the reports were further investigated after the war and discredited. Legitimate records of abandoned bombs are scarce.

The Ministry of Defence has indicated that the search of archive information has been suspended indefinitely due to operational commitments. A date for re-commencement has not been provided; as such we have not requested an archive search.

The Department for Communities and Local Government (formerly Office of the Deputy Prime Minister) has also been consulted, but they hold no specific information relating to the Site.

There is no known anecdotal or other evidence of abandoned UXO on the Site.

3.3. Evidence of UXO from bomb impact patterns

Aerial bombing often formed lines of impacts that are discernible on bomb impact maps and, to a lesser extent, aerial photographs. Gaps in the line are often the locations of UXBs. If there is no subsequent record of a bomb disposal task at that location then the incident may not have been noticed at the time.

No such evidence has been found relating to the Site.

Copies of relevant bomb impact maps and aerial photographs are given in Figure 4 and Figure 5.

3.4. WWII defences

During the Second World War the town of Folkestone was seen as a possible invasion point for German forces and, like many coastal towns, defences were set-up in case of such an event.

Within the Site boundary anti-tank blocks, pimples (road obstructions), heavy wire obstacles and defence walls were deployed to hinder an enemy invasion. Two pill boxes were placed to the north and south of the inner harbour as defence positions where troops would have been deployed to defend from attacks. Land mines were also deployed in two areas of the Site. The beachhead was mined from the Victorian pier

continuing approximately 500 m to the east, and an area of land known as the Marine Gardens was also mined.

Anti-aircraft gun emplacements were set-up in the town but none were located within the Site boundary.

After the war, a programme of removal of coastal defences took place, including land mines.

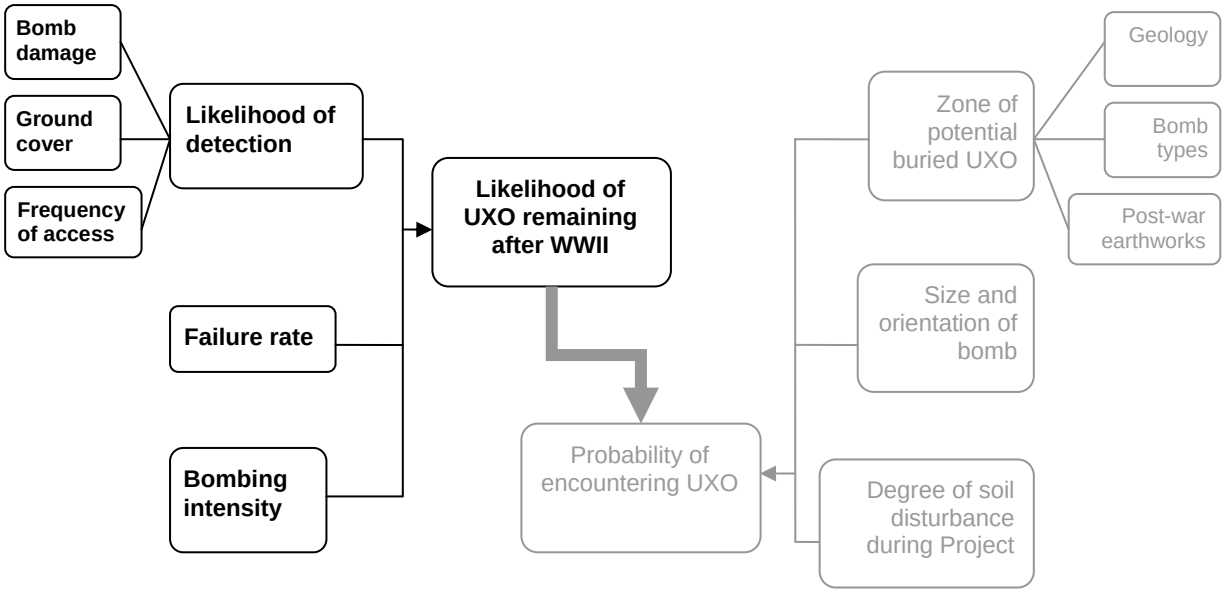
A plan of the defences during WWII is provided in Figure 7.

4. LIKELIHOOD OF UXO REMAINING AFTER WWII

4.1. Introduction

Once site-specific evidence of undiscovered UXO has been discounted (see Section 3), the likelihood of UXO remaining after WWII must be estimated from historical data relating to the Site and surrounding area.

The likelihood of UXO remaining after WWII is largely dependent on local bombing intensity, failure rate, and the likelihood of UXO being detected during or immediately after the war.



These factors can be quantified and multiplied together to give an approximate likelihood of UXO remaining at the Site after WWII, shown in the table below.

Parameter	Value
Bombing intensity (Section 4.2)	32.4 HE/100ha
Failure rate (Section 4.3)	15%
Likelihood of UXO *not* being detected during WWII (Section 4.4)	50%
Site area	25 ha
Likelihood of UXO remaining at the Site after WWII	**61%, or 1 in 1.6**

Table 1 – Likelihood of UXO remaining after WWII

4.2. Bombing intensity

The principal source of statistics on WWII bombing is the Bomb Census, a series of tables compiled during and after the war listing the number of bombs that fell in each area of the country including their type, size, and whether they exploded.

The limitations of the Bomb Census must be noted, including its questionable accuracy during the early years of the war, and the likely misidentification of bomb types and weights. It is also possible that the figures were purposefully made inaccurate.

However, for large HE bombs (see Section 2.5), the data is considered to be sufficiently accurate to give an indication of bombing intensity in the vicinity of the Site.

During WWII the Site was in the Municipal Borough of Folkestone. The Bomb Census indicates that the bombing intensity for was 24.3 high explosive devices per 100 hectares (HE/100ha).

During WWII, due to its proximity to occupied France, Folkestone Harbour was subject to intermittent shelling. According to records obtained from the National Archives, approximately 130 No. 15" armour piercing shells fell within the district of Folkestone. As this represents a significant increase in the number of high explosive devices that struck the area it has been considered prudent to re-calculate the bombing intensity to incorporate shelling. As such, the amended bombing intensity for the Municipal Borough of Folkestone is 32.4 (HE/100ha)

This is a relatively high bombing intensity in comparison to the UK as a whole.

There is no evidence to suggest that the Site was bombed any more or less intensely than the borough of Folkestone as a whole.

During WWI the town of Folkestone was subject to attacks by German Gotha aircraft in June and September of 1917. A number of casualties were reported during these attacks but the quantity and location of bombs dropped are unknown. The intensity of bombing is unlikely to be significant when compared to WWII bombing and, as such, it is not deemed necessary to include WWI bombing in this assessment.

4.3. Failure rate

The average rate of *observed* UXO for WWII is reported to have been approximately 10%. However, this only accounts for devices that were noticed and dealt with during the war, not those found since the war, or left buried today.

German statistics indicate that the total number of bombs dropped on the UK was around 11% higher than observed on the ground, suggesting that this number remains undiscovered. However, German sources are likely to have overstated the intensity of bombing for propaganda reasons, so this figure can be seen only to represent an upper bound to the actual rate of UXO.

Observed UXO rates in London vary between around 6 and 15%, the highest rates being seen in densely developed boroughs such as City, Westminster & Lambeth, and Hendon & Finchley. It can be inferred that the *observed* failure rate in these boroughs is close to the *actual* failure rate because it is here that UXO is more likely to have been noticed.

A value of 15% is used in this assessment as a typical maximum failure rate.

4.4. Likelihood of detection during WWII

After bombing intensity, the next most important factor affecting the probability of UXO remaining is the likelihood of it having been dealt with during or shortly after the war.

This is influenced on the whole by three aspects of a site's history: the degree of **bomb damage** to structures, the nature of the **ground cover**; and, the **frequency of access**.

These factors must also be considered for the area immediately surrounding the Site to take into account potential 'offset' – the lateral distance between a UXO entry hole and its final resting location. During WWII the Site was a harbour, railway station and beached area with associated amenities.

Factor	Site characteristics
Bomb damage. (UXO entry holes were often obscured by damage to structures caused during the same air raid.)	The bomb impact map (Figure 4) shows three HE bombs fell within the Site boundary. Information also indicates that a fourth bomb fell within the Site boundary in the middle harbour. Aerial photographs (Figure 5) do not show any damage within the Site boundary.
Ground cover. (UXO entry holes were less noticeable on soft, un-made ground such as ploughed fields, woodland and estuarine mudflats as opposed to hardstanding.)	The Site was covered by railway lines and buildings to the south-east, the harbour to the north-east, amenities along the central northern boundary and by the beachhead along the southern boundary and western extent of the Site. During times of high tide water would have covered parts of the beachhead and the harbour.
Frequency of access. (UXO entry holes on remote sites with little human access were more likely to be obscured by erosion or vegetation growth, thereby going unnoticed.)	Frequency of access to the harbour and beach is likely to have been relatively low but moderate/high around the railway station and amenities (Figure 6). Areas of the beach and harbour would have been inaccessible during times of high-tide further reducing the frequency of access.

Table 2 – Likelihood of UXO being undetected

Based on an assessment of the criteria detailed in the table above, the likelihood of UXO *not* being detected is conservatively estimated to be **50%**.

5. PROBABILITY OF ENCOUNTERING UXO

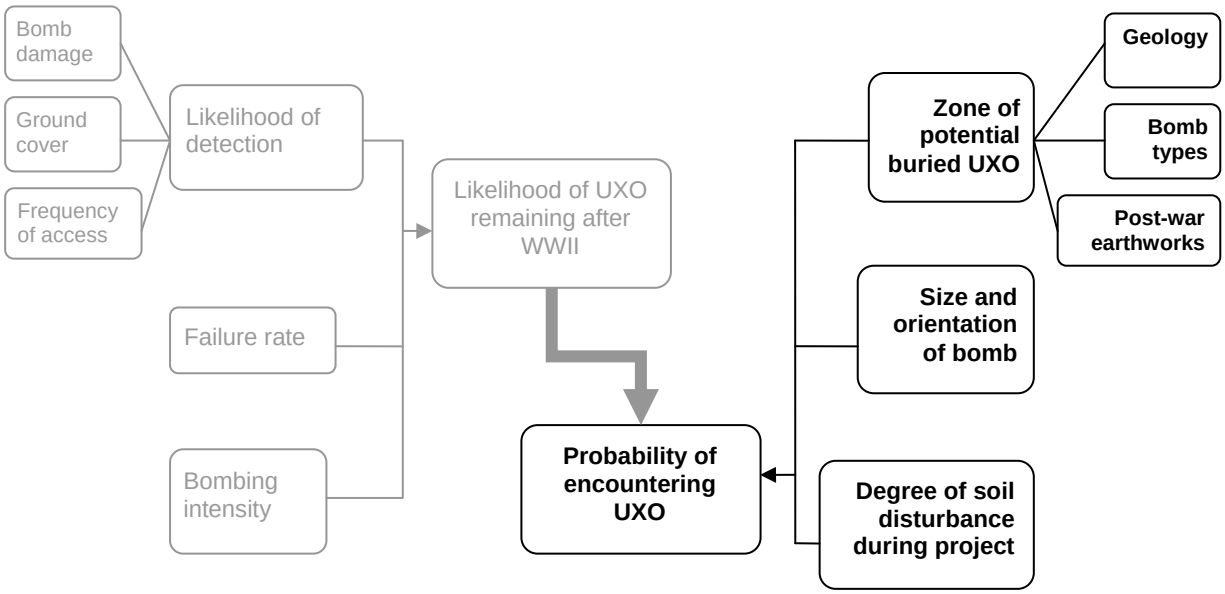
5.1. Introduction

The probability of encountering UXO during the Project is dependent on:

- the likelihood of UXO remaining after WWII (estimated to be 61%, see Section 4); and,
- the volume of soil disturbed within the Zone of Potential Buried UXO.

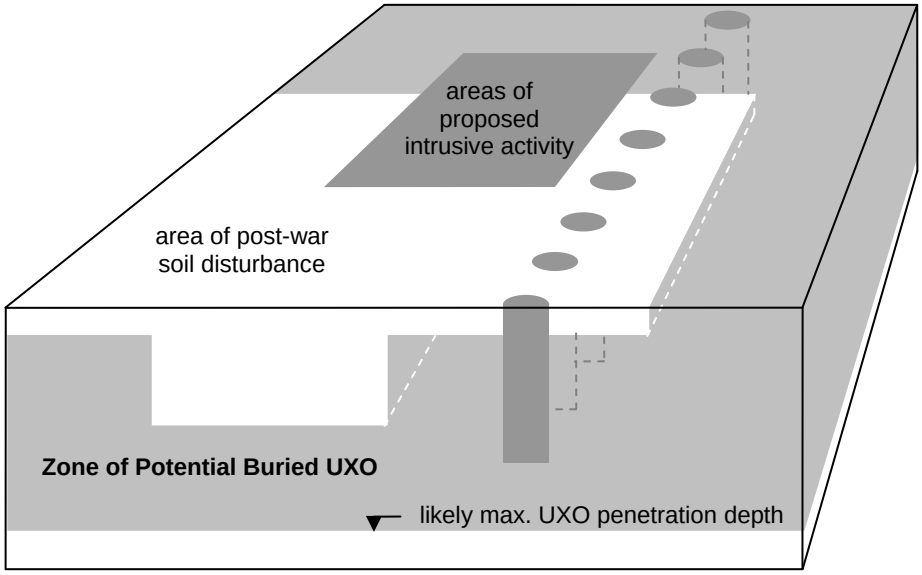
The nature and extent of proposed intrusive activity is a key factor in determining the likelihood of encountering UXO. For example, there is less chance in encountering UXO during works such as site investigation and drainage works compared to basement excavation and extensive piled foundations.

The probability of encountering UXO can be derived by calculating the degree of soil disturbance associated with the Project, taking into the account the likely burial depth, or Zone of Potential Buried UXO.



5.2. Zone of Potential Buried UXO

The Zone of Potential Buried UXO is a horizontal slice between ground level during WWII and the maximum depth of penetration for the types of ordnance dropped.



Likely penetration depths can be determined by examining data collected by bomb disposal units during the war. This is considered to be the most accurate way of estimating penetration depth because it is based on actual observations of German WWII ordnance in British soil types.

The preferred source data is a collection of over 1,300 records of wartime UXBs, detailing the size of bomb, its depth, and the soil type. The data does not include cluster bombs (small HE and incendiary devices dropped in containers) or flying bombs (V1s and V2s), although these had little penetration potential and, in the case of flying bombs, were comparatively rare.

By considering the Site's geology, the range in weights of bombs dropped in the local area, and any post war earthworks, it is possible to determine the likely extents of the Zone of Potential Buried UXO.

Geology

Reference has been made to the following sources of information:

- British Geological Survey (BGS). 1:50,000 scale geological map, Sheet 305 & 306, 'Folkestone & Dover A', solid and drift.

- Ove Arup & Partners Ltd, Folkestone Harbour, Geotechnical Desk Study (Report No. REP/126084/0001).

The geological map (see Figure 3) shows the Site to be underlain by storm gravel beach deposits overlying solid geology comprising the Folkestone Beds and Sandgate Beds.

Ove Arup & Partners report states that beach deposits are "…dense, orange brown, fine to coarse slightly sandy gravel with some cobbles." The report also indicates that the estimated thickness of the beach deposits is between 5 and 8 m across the Site.

Post-war earthworks

The volume of soil disturbed during any post-war development can be discounted from the Zone of Potential Buried UXO, reducing the calculated risk of encountering UXO at the present day.

It is considered highly likely that the ground level of beach deposits will have changed since WWII, but it is not possible to quantify this volume with any confidence and, as a conservative approach, this has not been considered in the assessment.

Penetration depth

Broadly speaking, for a given soil the penetration depth increases with the weight of the bomb dropped. A maximum possible penetration depth for a given site would be based on the largest bombs dropped on the UK, such as the Minenbombe SC-1800 (kg).

However, these bombs were infrequently deployed compared to 50 and 250 kg versions, potentially leading to an unrealistically high estimate of penetration depth.

BAE Systems Environmental's probabilistic method of assessing penetration depth takes into account the proportions of different bomb weights to derive an average and 'likely maximum' penetration depth.

The Bomb Census indicates the following proportions of HE bomb types for the Municipal Borough of Folkestone:

Common HE bomb types	Proportion
50 kg	60%
250 kg	30%
500 kg	7%
1,000 kg	2%
1,400 kg	none recorded
1,800 kg	none recorded

Table 3 – Proportions of HE bomb types

Based on the anticipated geology (generally gravel) and proportions of bomb weights, the *average* depth of penetration is calculated to be approximately 3 m below current ground level.

It is estimated that 95% of UXO will be no deeper than 7 m, and 99% will be shallower that 10 m. For the purposes of this assessment we recommend that the 95th percentile (7 m) is taken to be a *'likely maximum'* penetration depth.

Zone of Potential Buried UXO

The Zone of Potential Buried UXO is considered to be soil between ground level and 7 m depth. The volume of the Zone of Potential Buried UXO is approximately 1,750,000 m^3.

5.3. Size and orientation of bomb

The size and orientation of a device influences the probability of encountering UXO. For example, during drilling or piling there is a greater chance of finding a 1,000 kg UXB orientated horizontally than a 50 kg UXB orientated vertically.

However, this is a relatively insignificant factor when put in context with the uncertainty in other variables used in this assessment. It is also taken into account, to some extent, by using a larger radius around a pile/borehole to allow for the possibility of initiating a UXB at distance from a pile/borehole (see next section).

5.4. Degree of intrusive activity

The drawings and information supplied by Buro Happold indicate that the Project is likely to involve the following intrusive activities:

- Ground investigation
    - 13 No. trial pits (assumed 2.5 x 1 x 2 m depth)
    - 13 No. trial pits (assumed 2.5 x 1 x 3 m depth)
    - 51 No. cable percussive boreholes (assumed 500 mm diameter and >7 m depth)
- Harbour dredging to 2 m below current bed level over area of approximately 3.7 ha
- Re-profiling of beach, excavation to 2 m.bgl over an area of approximately 1.7 ha.
- Construction of houses and flats over an area of approximately 10.6 ha. Assumed foundations will involve the formation of 1,000 No. piles (assumed 600 mm diameter) to depths greater than 7 m.

It is only the volume of soil disturbed within the Zone of Potential Buried UXO (0 to 7 m depth) that is relevant to this assessment.

Within the Zone of Potential Buried UXO the total volume of soil disturbed will be approximately 55,000 m^3.

Allowance must be made for the possibility of initiating an unexploded bomb at distance from a pile or borehole. The distance from which a UXB would pose no risk to piling or boring operations is dependent on many factors and cannot be estimated with certainty. However, a distance of 1.2 m is used in this assessment, being a value quoted in MOD guidance for a similar activity.

Therefore, the corrected total volume of 'disturbed' soil is estimated to be 101,500 m^3, or 5.8% of the whole Zone of Potential Buried UXO.

5.5. Probability of encountering UXO

Based on the above, the probability of encountering WWII German air-dropped UXO during the Project is estimated to be **3.5% or 1 in 29**; being the likelihood of UXO remaining after WWII (61%) multiplied by the degree of intrusive activity within the Zone of Potential Buried UXO (5.8%).

6. CONCLUSIONS & RECOMMENDATIONS

6.1. Summary of quantitative risk assessment

The findings of the assessment are summarised below:

Aspect of assessment	Findings
Site-specific evidence of undiscovered UXO	None found
Likelihood of UXO remaining after WWII	61%, or 1 in 1.6
Degree of intrusive activity within Zone of Potential Buried UXO	5.8%
Probability of encountering UXO during the Project	3.5%, or 1 in 29
Relative probability of encountering UXO compared to assessments conducted by BAE Systems Environmental for other projects.	High

Table 4 – Summary of Assessment Findings

6.2. Risk assessment approach

There is no relevant industry good practice or guidance that dictates whether or not to take measures to minimise the risks associated with German air-dropped UXO on construction sites where there is no specific evidence of it being present.

In the absence of relevant guidance BAE Systems Environmental has developed an approach to risk mitigation that: a) is based on its experience of common practice in the industry and, more importantly, b) is intended to reduce the risk to a level that could be considered 'as low as reasonably practicable' (ALARP) with reference to the Health and Safety at Work Act 1974 (s2(1) and s3(1)).

The ALARP approach is a fundamental principle of the UK health and safety legislative framework. It aims to protect those at risk but ensures that there is proportionality between the costs and benefits of risk reduction measures.

The principles of ALARP underpin the duties of clients, designers and contractors set out in the Construction (Design & Management) Regulations 2015. For example, designers are required so far as is reasonably practicable to avoid foreseeable risks to persons carrying out construction work (s9(2)&(3)), and contractors must plan and manage construction work in a way which ensures that, so far as is reasonably practicable, it is carried out without risks to safety (s15(2)).

6.3. Recommendations

Based on our assessment, the probability of encountering UXO during the Project is relatively high. It should be noted, however, that if UXO is found, the probability of initiating the device and causing an explosion is substantially lower.

Personnel involved in excavations at the Site (including ground investigation) should be briefed on the potential UXO risk as part of a standard site safety induction. This would inform staff of how to identify UXO, the associated risks, relevant working procedures and contingency measures.

It is recommended that piling activates that coincide with areas of high risk (see Figure 8) are subject to down-hole geophysical survey in advance of piling to 'pre-clear' the positions of potential UXO.

It is also recommended that re-profiling involving the excavation of beach deposits is supervised by an explosives safety engineer.

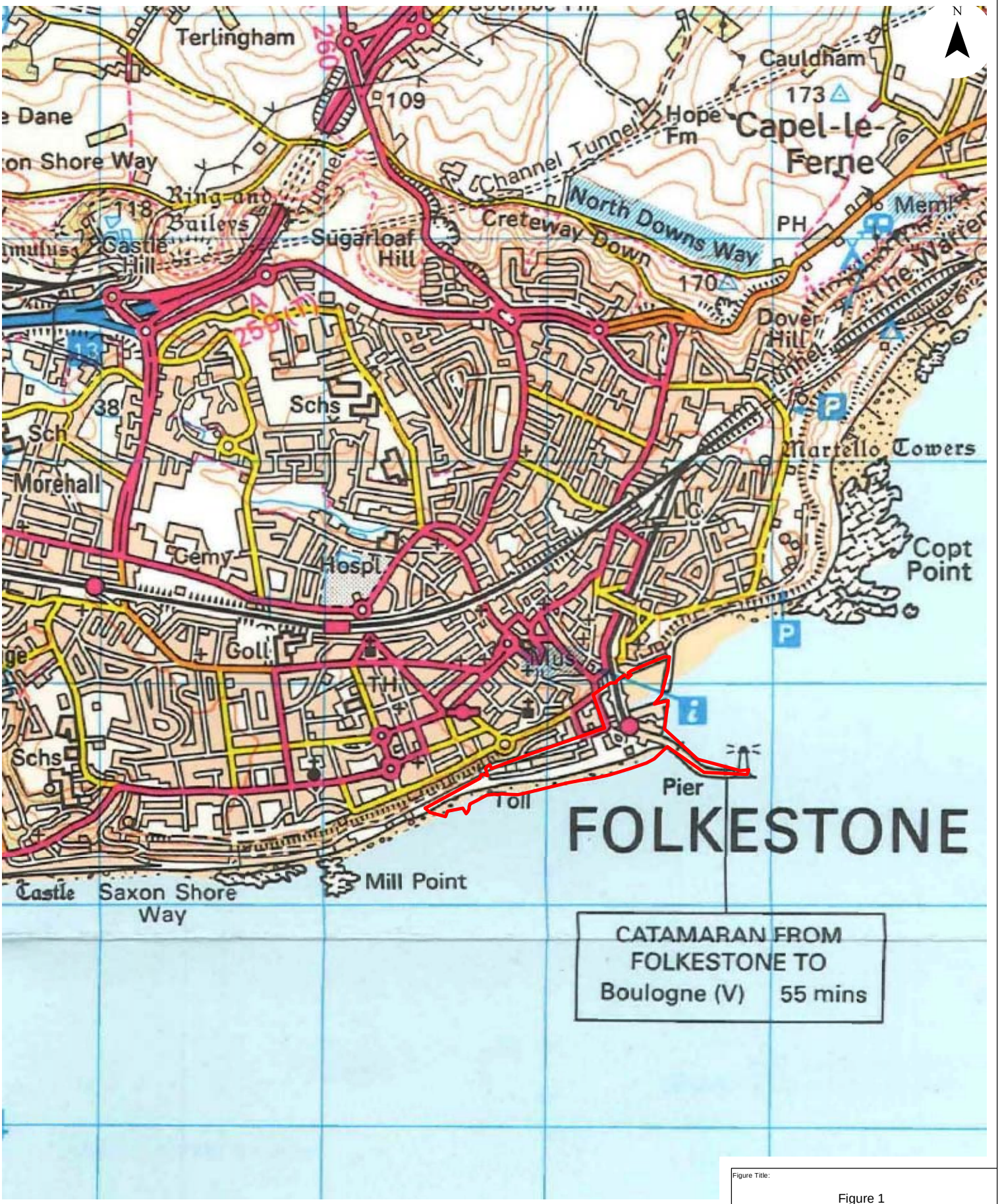
Dredging works should be carried out in accordance with the Crown Estates, Guidance Note June 2006, 'Dealing with munitions in marine aggregates'. The guidance deals with best practice for dealing with unexploded munitions recovered during dredging for marine aggregates and what UXO-related expertise is required during the dredging process.

The risk should be reassessed if the degree of intrusive activity is significantly different to that described above.

The outcome of this appraisal should be recorded in the health and safety risk assessment for the project.

If unexploded ordnance is discovered, stop work immediately, prevent access to the area, and inform the police.

Figures



Approximate site boundary

Figure Title:

Figure 1
Site Location Plan

Project:

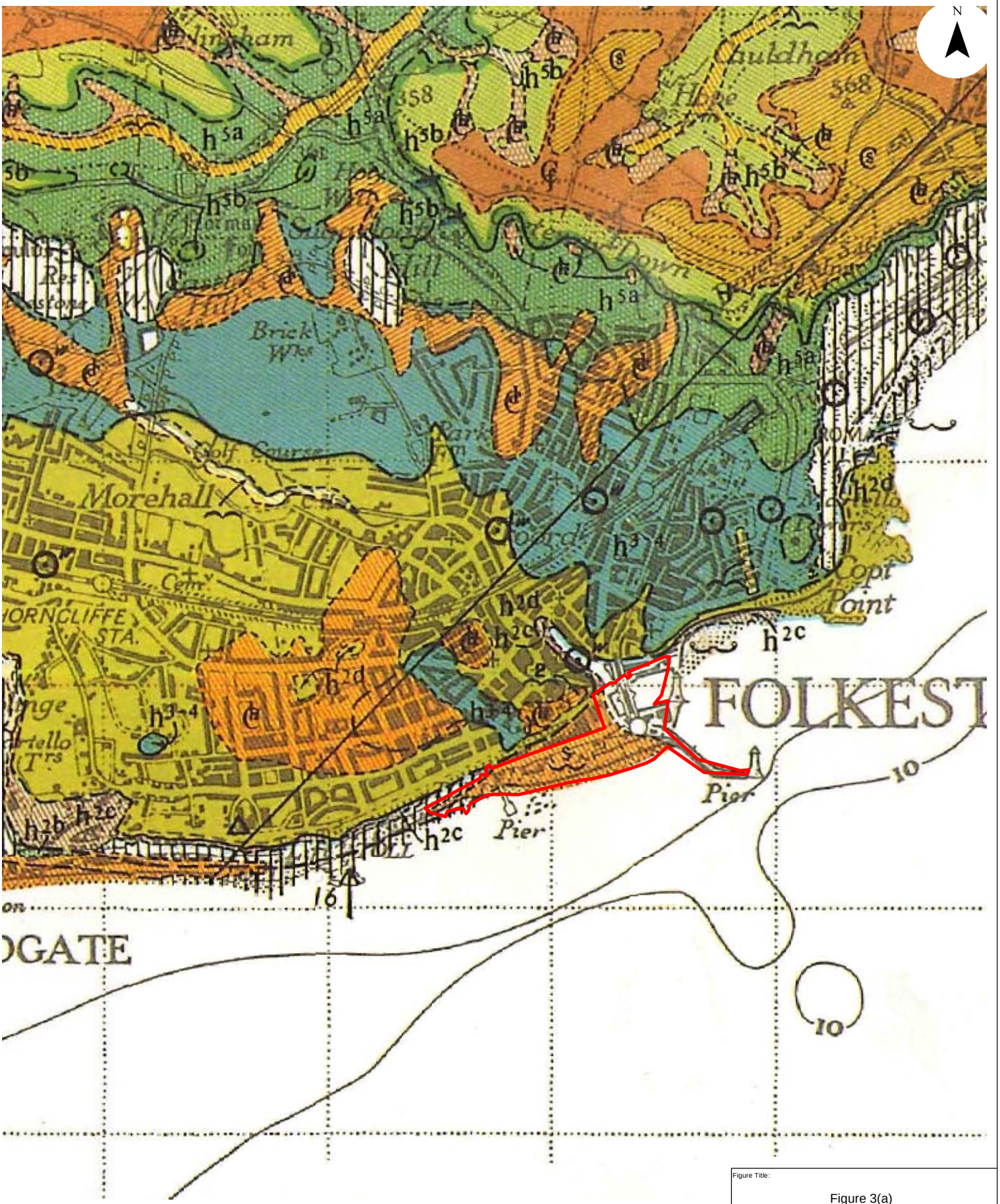
Folkestone Harbour

Project No:	Report No.	Scale:
X0364	X0364-R1-1	NTS

BAE SYSTEMS

BAE Systems Environmental
Westcott Venture Park, Westcott, Aylesbury, HP18 0NP
Tel. 01296 652124 Fax. 01296 652121

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This map is for identification purposes only and should not be relied upon for accuracy.



Approximate site boundary

Figure Title:

Figure 3(a)
Geology Map

Project:

Folkestone Harbour

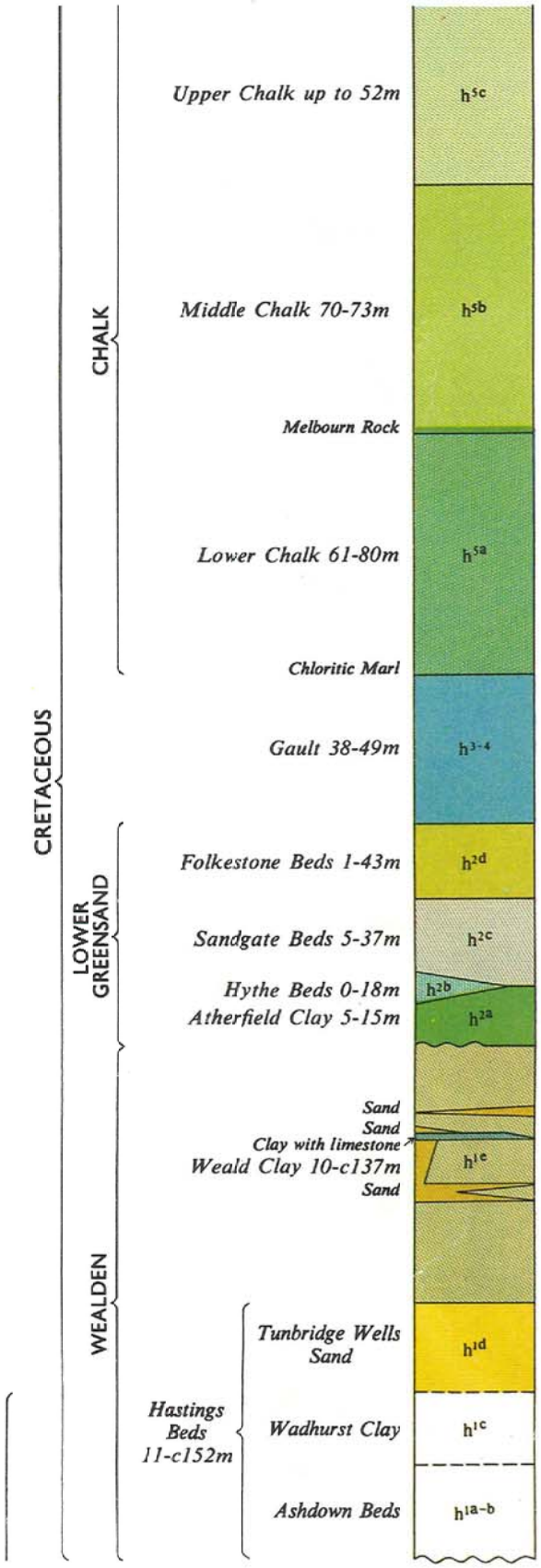
Project No:	Report No.	Scale:
X0364	X0364-R1-1	NTS

BAE SYSTEMS

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Tel. 01296 652124 Fax. 01296 652121

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SOLID
GENERALIZED VERTICAL SECTION
Scale: 1 cm to 20 metres



DRIFT
Not drawn to scale

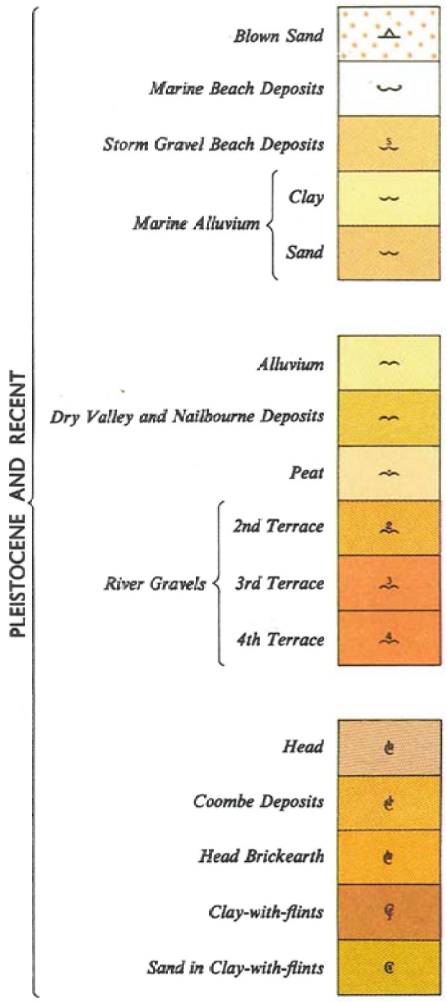


Figure Title:	Figure 3(b) Geology Map Key
Project:	Folkestone Harbour
Project No: X0364	Report No. X0364-R1-1
Scale:	NTS

BAE SYSTEMS

BAE Systems Environmental
Westcott Venture Park, Westcott, Aylesbury, HP18 0NP
Tel. 01296 652124 Fax. 01296 652121

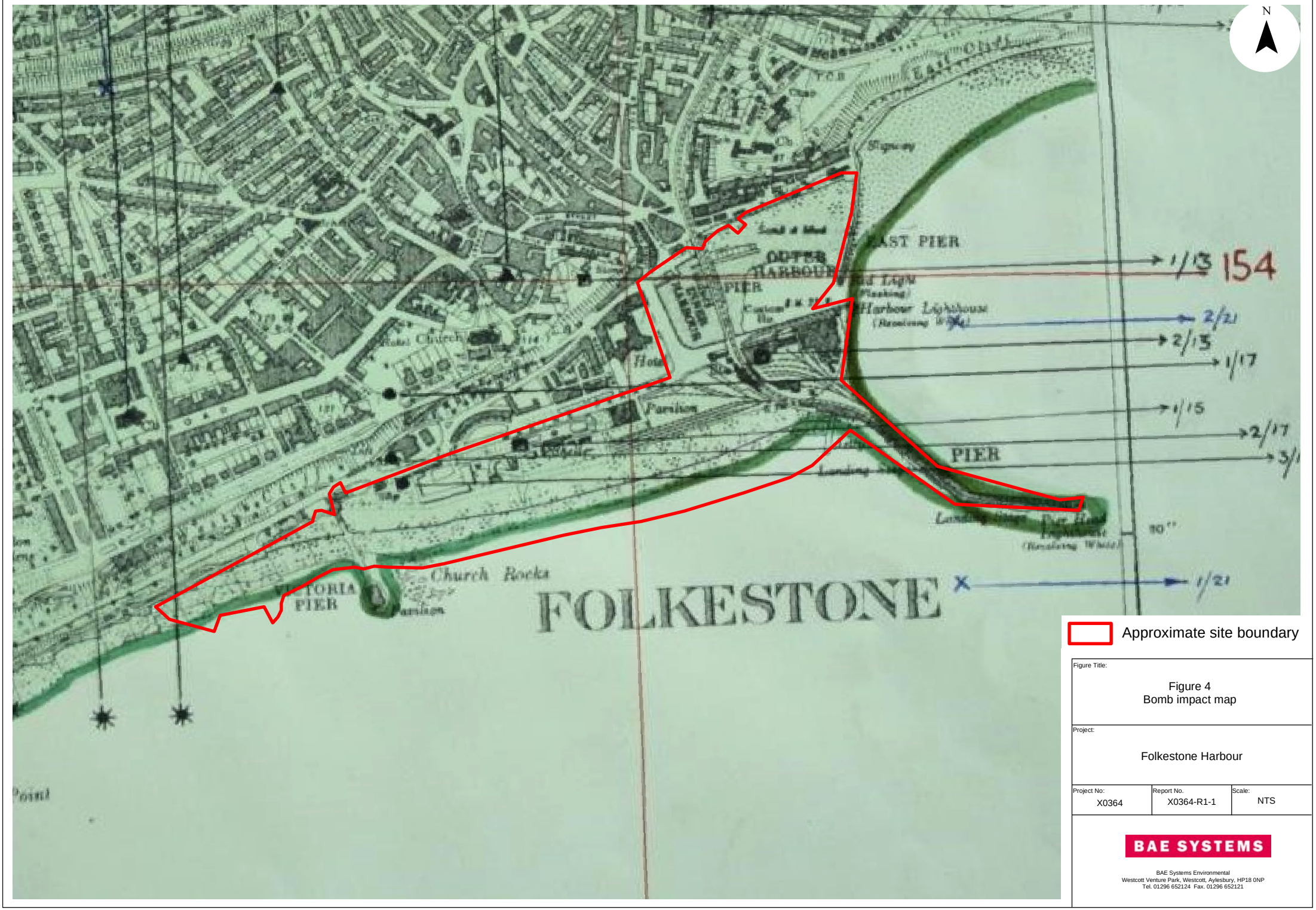


Figure Title:

Figure 4
Bomb impact map

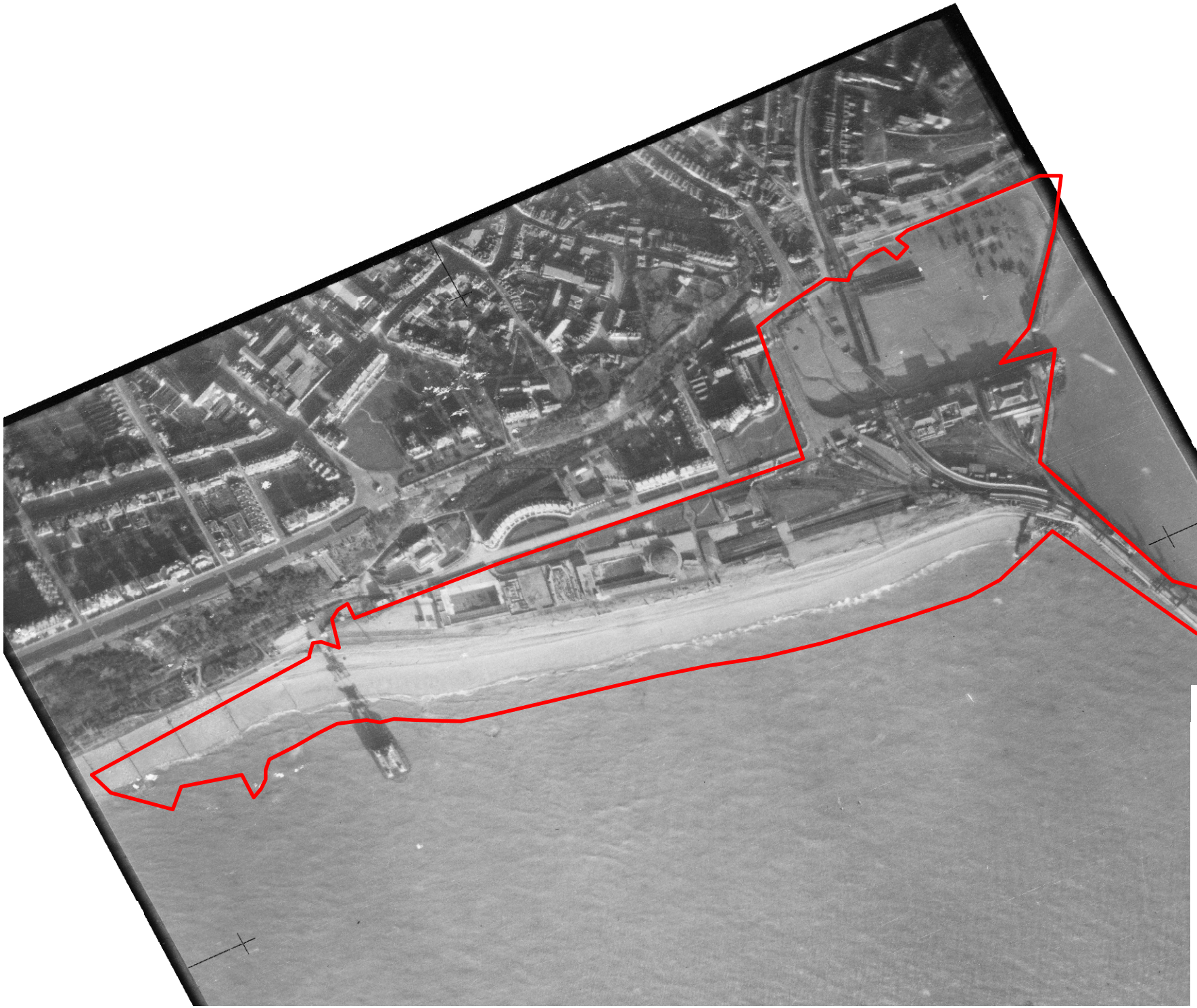
Project:

Folkestone Harbour

Project No:	Report No.	Scale:
X0364	X0364-R1-1	NTS

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Tel. 01296 652124 Fax. 01296 652121



Approximate site boundary

Figure Title:

Figure 5
Aerial photographs
2nd Feb 1941

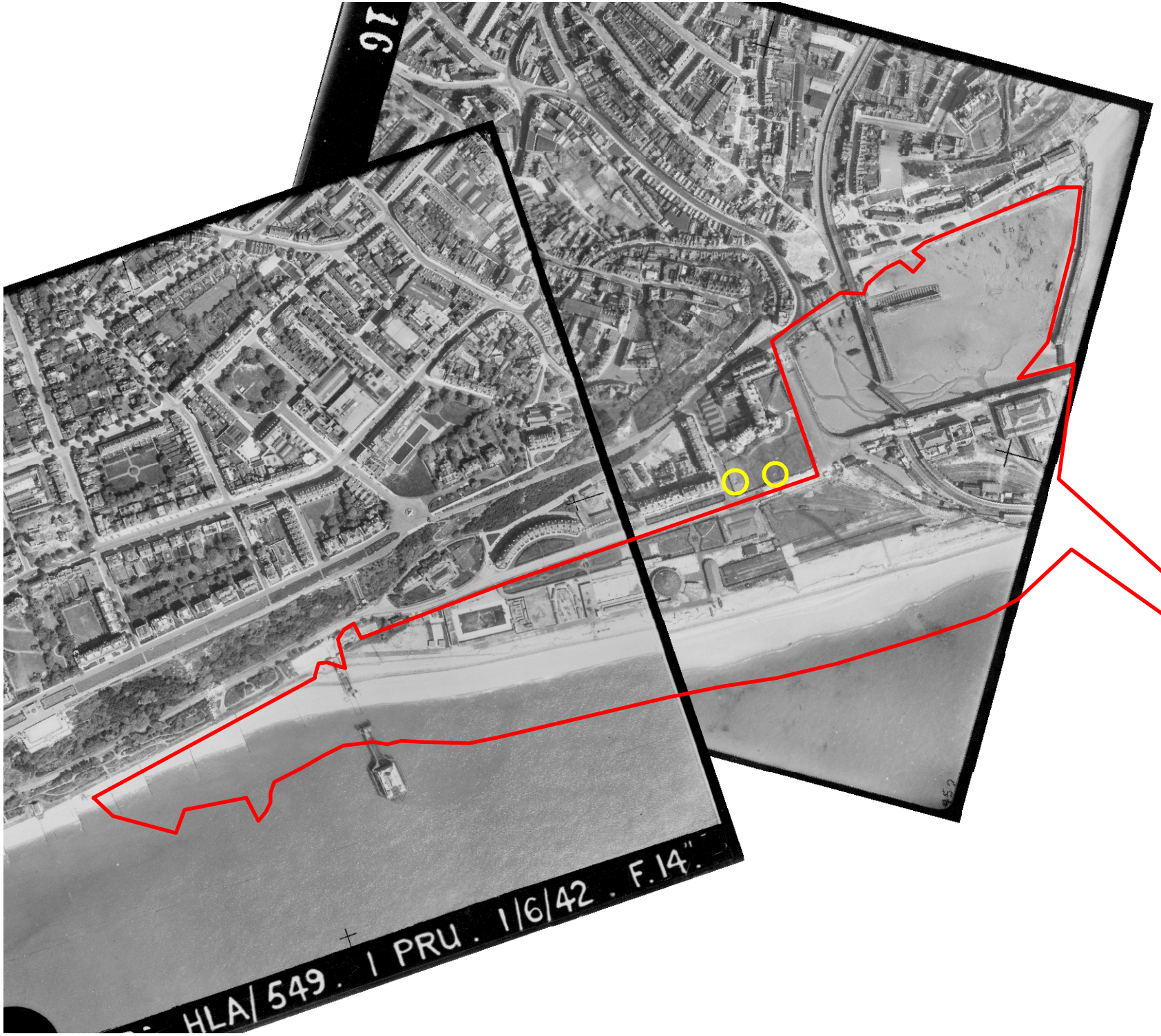
Project:

Folkestone Harbour

Project No:	Report No.	Scale:
X0364	X0364-R1-1	NTS

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BAE Systems Environmental
Westcott Venture Park, Westcott, Aylesbury, HP18 0NP
Tel. 01296 652124 Fax. 01296 652121



N

Possible bomb impact

Approximate site boundary

Figure Title:
Figure 5
Aerial photographs
6th May 1942

Project:
Folkestone Harbour

Project No:	Report No.	Scale:
X0364	X0364-R1-1	NTS

BAE SYSTEMS

BAE Systems Environmental
Westcott Venture Park, Westcott, Aylesbury, HP18 0NP
Tel. 01296 652124 Fax. 01296 652121

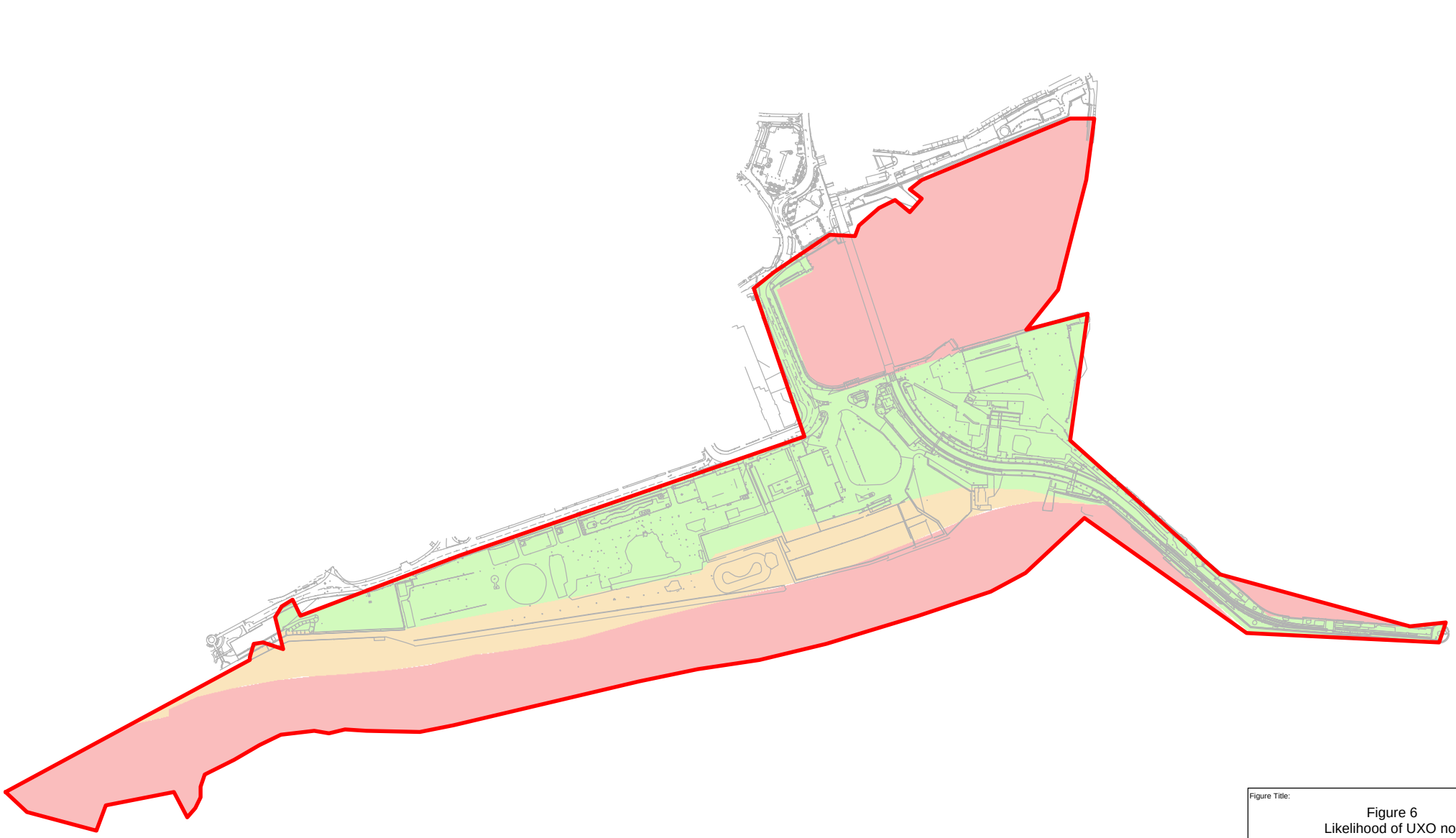


Figure Title:

Figure 6
Likelihood of UXO not being detected during WWII

Project:

Folkestone Harbour

Project No:	Report No.	Scale:
X0364	X0364-R1-1	NTS

BAE SYSTEMS

BAE Systems Environmental
Westcott Venture Park, Westcott, Aylesbury, HP18 0NP
Tel. 01296 652124 Fax. 01296 652121

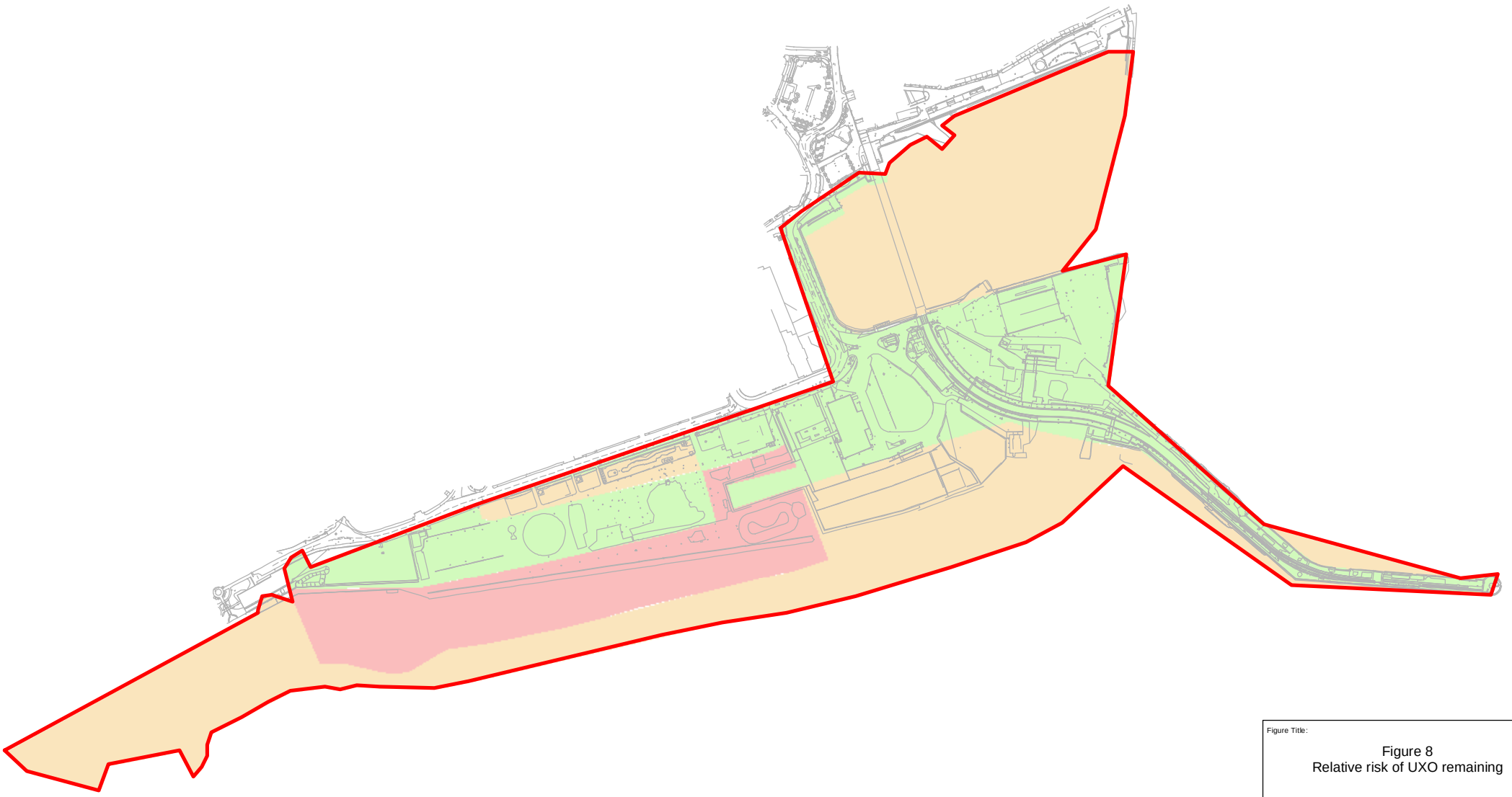


Figure Title:

Figure 8
Relative risk of UXO remaining

Project:

Folkestone Harbour

Project No:	Report No.	Scale:
X0364	X0364-R1-1	NTS

BAE SYSTEMS

BAE Systems Environmental
Westcott Venture Park, Westcott, Aylesbury, HP18 0NP
Tel. 01296 652124 Fax. 01296 652121

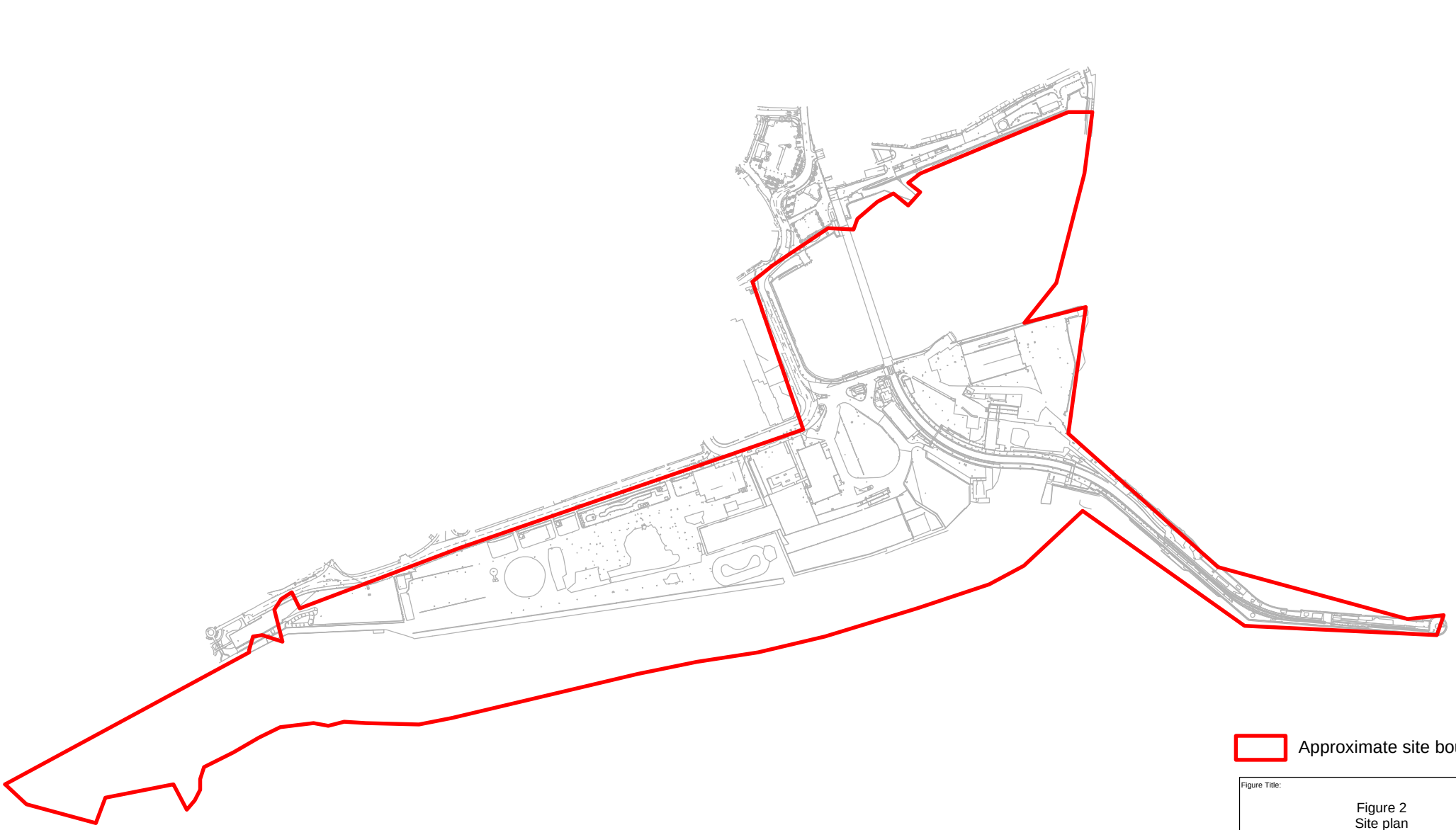


Figure Title:

Figure 2
Site plan

Project:

Folkestone Harbour

Project No:	Report No.	Scale:
X0364	X0364-R1-1	NTS

BAE SYSTEMS

BAE Systems Environmental
Westcott Venture Park, Westcott, Aylesbury, HP18 0NP
Tel. 01296 652124 Fax. 01296 652121

BUROHAPPOLD ENGINEERING

Appendix C Soil Screening Chemical Assessment Sheets

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BUROHAPPOLD ENGINEERING

Project: Folkestone Harbour
Project Number: 34029
Date: Sep-2016

Asbestos

Asbestos Screen	No. Samples	No. samples detected	No. samples ND	% of samples detect
	51	2	49	3.92
Asbestos Quantification	No. Quants	No. samples <0.001%	No. samples >0.001% <0.01%	No. samples >0.01%
	0	0	0	0

Human Health

Soil Organic Matter 1%
N/A = no screening criteria available

		Residential with uptake	Residential without Uptake	Commercial	***No. samples exceeding*** Residential with uptake	Residential without Uptake	Commercial	No Tests	No <LOD	Min	Max	Location of Maximum
Cyanide	mg/kg	4.6	760	16000				69	68	2.00	2.00	WS08 0.5mbgl
Arsenic	mg/kg	37	40	640				69	1	2.00	32.00	TP(L)12 0.65mbgl
Barium	mg/kg	N/A	N/A	N/A				69		4.00	323.00	BH14 0.2mbgl
Beryllium	mg/kg	1.7	1.7	12	3	3		69	38	1.00	2.00	DP31 0.3mbgl
Boron	mg/kg	290	11000	240000				69	44	1.00	4.20	BH21-G 1mbgl
Cadmium	mg/kg	26	149	410				69	42	0.50	2.00	TP(L)12 0.65mbgl
Chromium	mg/kg	910	910	8600				69		4.00	40.00	BH20-G 0.1mbgl
Copper	mg/kg	2400	7100	68000				69		1.00	406.00	TP(L)12 0.65mbgl
Lead	mg/kg	200	310	2330	8	6	2	69		3.00	5430.00	WS09 0.15mbgl
Mercury (inorganic)	mg/kg	40	56	58								
Nickel	mg/kg	130	180	980				69		3.00	36.00	DP31 0.3mbgl
Selenium	mg/kg	250	430	12000				69	57	1.00	3.00	TP(L)12 0.65mbgl
Vanadium	mg/kg	410	1200	9000				69		4.00	59.00	BH20-G 0.1mbgl
Zinc	mg/kg	3700	40000	730000				69		5.00	776.00	TP(L)12 0.65mbgl
TPH	mg/kg	490	490	38000								
Benzene	mg/kg	0.087	0.38	27				69	69			
Toluene	mg/kg	130	869	869				69	68	0.02	0.02	WS03 0.4mbgl
Ethyl Benzene	mg/kg	47	83	518				69	69			
m/p Xylenes	mg/kg	56	79	576				69	69			
o Xylenes	mg/kg	60	88	478				69	69			
Xylenes	mg/kg	56	79	576								
MTBE	mg/kg	N/A	N/A	N/A				69	69			
Naphthalene	mg/kg	2.3	2.3	190				69	44	0.03	0.48	DP25 0.3mbgl
Acenaphthylene	mg/kg	170	2900	83000				69	19	0.01	1.18	BH21-G2 2mbgl
Acenaphthene	mg/kg	210	3000	84000				69	18	0.01	2.65	DP17 0.2mbgl
Fluorene	mg/kg	170	2800	63000				69	20	0.01	2.54	BH21-G2 2mbgl
Phenanthrene	mg/kg	95	1300	22000				69	10	0.03	39.80	BH07-W 0.7mbgl
Anthracene	mg/kg	2400	31000	520000				69	13	0.03	14.70	DP17 0.2mbgl
Fluoranthene	mg/kg	280	1500	23000				69	8	0.09	100.00	DP17 0.2mbgl
Pyrene	mg/kg	620	3700	54000				69	7	0.08	96.70	DP17 0.2mbgl
Benzo[a]anthracene	mg/kg	7.2	11	170	9	5		69	7	0.06	53.70	DP17 0.2mbgl
Chrysene	mg/kg	15	30	350	2	2		69	7	0.06	50.50	DP17 0.2mbgl
Benzo[b]fluoranthene	mg/kg	2.6	3.9	44	23	17	1	69	7	0.09	51.40	DP17 0.2mbgl
Benzo[k]fluoranthene	mg/kg	77	110	1200				69	13	0.07	17.10	DP17 0.2mbgl
Benzo[a]pyrene	mg/kg	2.2	3.2	35	23	18	1	69	7	0.07	45.10	DP17 0.2mbgl
Indeno[123-cd]pyrene	mg/kg	27	45	500				69	7	0.05	20.20	DP17 0.2mbgl
Dibenzo[ah]anthracene	mg/kg	0.24	0.31	3.5	30	25	2	69	20	0.04	4.26	BH07-W 0.7mbgl
Benzo[ghi]perylene	mg/kg	320	360	3900				69	10	0.06	14.40	BH07-W 0.7mbgl
Total USEPA 16 PAHs	mg/kg	N/A	N/A	N/A				69	7	0.52	513.00	DP17 0.2mbgl
Aliphatic C5 - C6	mg/kg	42	42	3200				69	68	0.02	0.02	DP03 0.3mbgl
Aliphatic C6 - C8	mg/kg	100	100	7800				69	69			
Aliphatic C8 - C10	mg/kg	27	27	2000				69	69			
Aliphatic C10 - C12	mg/kg	130	130	9700				69	68	1.30	1.30	DP11 0.35mbgl
Aliphatic C12 - C16	mg/kg	1100	1100	59000				69	63	0.60	16.90	DP11 0.35mbgl
Aliphatic C16 - C21	mg/kg	65000	65000	1600000				69	59	0.40	24.40	DP11 0.35mbgl
Aliphatic C21 - C35	mg/kg	65000	65000	1600000				69	54	0.50	304.00	DP11 0.35mbgl
Total Aliphatic	mg/kg	N/A	N/A	N/A				69	54	0.70	347.00	DP11 0.35mbgl
Aromatic C5 - C7	mg/kg	70	370	26000				69	69			
Aromatic C7 - 8	mg/kg	130	860	56000				69	68	0.02	0.02	WS03 0.4mbgl
Aromatic C8 - C10	mg/kg	34	47	3500				69	61	0.01	0.14	DP26 0.4mbgl
Aromatic C10 - 12	mg/kg	74	250	16000				69	68	0.20	0.20	DP27 0.3mbgl
Aromatic C12 - C16	mg/kg	140	1800	36000				69	48	0.30	25.10	DP17 0.2mbgl
Aromatic C16 - C21	mg/kg	260	1900	28000	1			69	15	0.10	420.00	DP17 0.2mbgl
Aromatic C21 - C35	mg/kg	1100	1900	28000				69	17	0.10	588.00	DP17 0.2mbgl
Total Aromatic	mg/kg	1100	1900	28000				69	14	0.30	1030.00	DP17 0.2mbgl
Total Aliphatic and Aromatic	mg/kg	490	490	38000	2	2		69	14	0.30	1030.00	DP17 0.2mbgl

BUROHAPPOLD ENGINEERING

Project: Folkestone Harbour
Project Number: 34029
Date: Sep-2016

Asbestos

Asbestos Screen	No. Samples	No. samples detected	No. samples ND	% of samples detect
	51	2	49	3.92
Asbestos Quantification	No. Quants	No. samples <0.001%	No. samples >0.001% <0.01%	No. samples >0.01%
	0	0	0	0

Human Health

Soil Organic Matter 1%
N/A = no screening criteria available

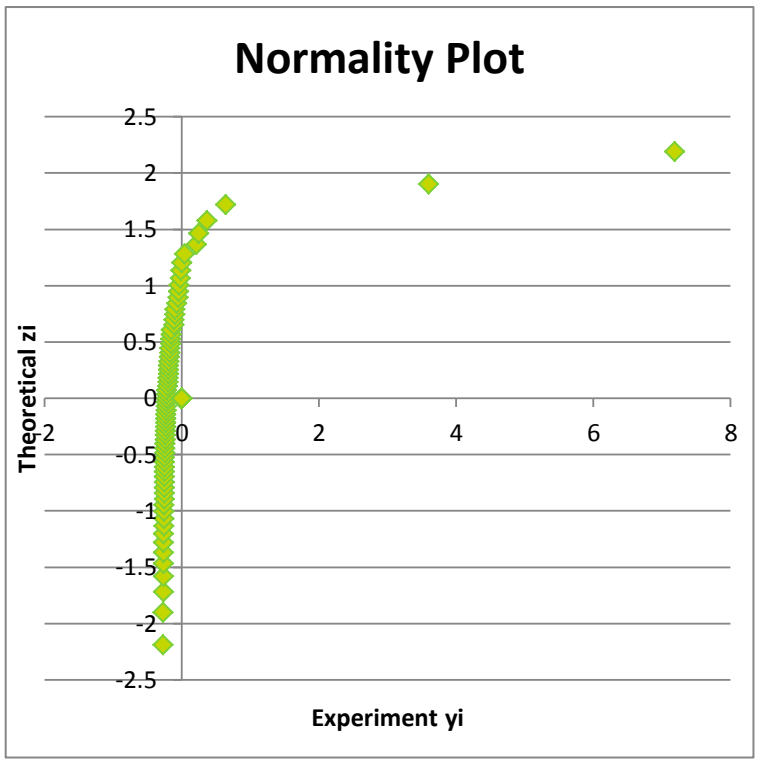
		Residential with uptake	Residential without Uptake	Commercial	***No. samples exceeding*** Residential with uptake	Residential without Uptake	Commercial	No Tests	No <LOD	Min	Max	Location of Maximum
Cyanide	mg/kg	4.6	760	16000				69	68	2.00	2.00	WS08 0.5mbgl
Arsenic	mg/kg	37	40	640				69	1	2.00	32.00	TP(L)12 0.65mbgl
Barium	mg/kg	N/A	N/A	N/A				69		4.00	323.00	BH14 0.2mbgl
Beryllium	mg/kg	1.7	1.7	12	3	3		69	38	1.00	2.00	DP31 0.3mbgl
Boron	mg/kg	290	11000	240000				69	44	1.00	4.20	BH21-G 1mbgl
Cadmium	mg/kg	26	149	410				69	42	0.50	2.00	TP(L)12 0.65mbgl
Chromium	mg/kg	910	910	8600				69		4.00	40.00	BH20-G 0.1mbgl
Copper	mg/kg	2400	7100	68000				69		1.00	406.00	TP(L)12 0.65mbgl
Lead	mg/kg	200	310	2330	8	6	2	69		3.00	5430.00	WS09 0.15mbgl
Mercury (inorganic)	mg/kg	40	56	58								
Nickel	mg/kg	130	180	980				69		3.00	36.00	DP31 0.3mbgl
Selenium	mg/kg	250	430	12000				69	57	1.00	3.00	TP(L)12 0.65mbgl
Vanadium	mg/kg	410	1200	9000				69		4.00	59.00	BH20-G 0.1mbgl
Zinc	mg/kg	3700	40000	730000				69		5.00	776.00	TP(L)12 0.65mbgl
TPH	mg/kg	490	490	38000								
Benzene	mg/kg	0.087	0.38	27				69	69			
Toluene	mg/kg	130	869	869				69	68	0.02	0.02	WS03 0.4mbgl
Ethyl Benzene	mg/kg	47	83	518				69	69			
m/p Xylenes	mg/kg	56	79	576				69	69			
o Xylenes	mg/kg	60	88	478				69	69			
Xylenes	mg/kg	56	79	576								
MTBE	mg/kg	N/A	N/A	N/A				69	69			
Naphthalene	mg/kg	2.3	2.3	190				69	44	0.03	0.48	DP25 0.3mbgl
Acenaphthylene	mg/kg	170	2900	83000				69	19	0.01	1.18	BH21-G2 2mbgl
Acenaphthene	mg/kg	210	3000	84000				69	18	0.01	2.65	DP17 0.2mbgl
Fluorene	mg/kg	170	2800	63000				69	20	0.01	2.54	BH21-G2 2mbgl
Phenanthrene	mg/kg	95	1300	22000				69	10	0.03	39.80	BH07-W 0.7mbgl
Anthracene	mg/kg	2400	31000	520000				69	13	0.03	14.70	DP17 0.2mbgl
Fluoranthene	mg/kg	280	1500	23000				69	8	0.09	100.00	DP17 0.2mbgl
Pyrene	mg/kg	620	3700	54000				69	7	0.08	96.70	DP17 0.2mbgl
Benzo[a]anthracene	mg/kg	7.2	11	170	9	5		69	7	0.06	53.70	DP17 0.2mbgl
Chrysene	mg/kg	15	30	350	2	2		69	7	0.06	50.50	DP17 0.2mbgl
Benzo[b]fluoranthene	mg/kg	2.6	3.9	44	23	17	1	69	7	0.09	51.40	DP17 0.2mbgl
Benzo[k]fluoranthene	mg/kg	77	110	1200				69	13	0.07	17.10	DP17 0.2mbgl
Benzo[a]pyrene	mg/kg	2.2	3.2	35	23	18	1	69	7	0.07	45.10	DP17 0.2mbgl
Indeno[123-cd]pyrene	mg/kg	27	45	500				69	7	0.05	20.20	DP17 0.2mbgl
Dibenzo[ah]anthracene	mg/kg	0.24	0.31	3.5	30	25	2	69	20	0.04	4.26	BH07-W 0.7mbgl
Benzo[ghi]perylene	mg/kg	320	360	3900				69	10	0.06	14.40	BH07-W 0.7mbgl
Total USEPA 16 PAHs	mg/kg	N/A	N/A	N/A				69	7	0.52	513.00	DP17 0.2mbgl
Aliphatic C5 - C6	mg/kg	42	42	3200				69	68	0.02	0.02	DP03 0.3mbgl
Aliphatic C6 - C8	mg/kg	100	100	7800				69	69			
Aliphatic C8 - C10	mg/kg	27	27	2000				69	69			
Aliphatic C10 - C12	mg/kg	130	130	9700				69	68	1.30	1.30	DP11 0.35mbgl
Aliphatic C12 - C16	mg/kg	1100	1100	59000				69	63	0.60	16.90	DP11 0.35mbgl
Aliphatic C16 - C21	mg/kg	65000	65000	1600000				69	59	0.40	24.40	DP11 0.35mbgl
Aliphatic C21 - C35	mg/kg	65000	65000	1600000				69	54	0.50	304.00	DP11 0.35mbgl
Total Aliphatic	mg/kg	N/A	N/A	N/A				69	54	0.70	347.00	DP11 0.35mbgl
Aromatic C5 - C7	mg/kg	70	370	26000				69	69			
Aromatic C7 - 8	mg/kg	130	860	56000				69	68	0.02	0.02	WS03 0.4mbgl
Aromatic C8 - C10	mg/kg	34	47	3500				69	61	0.01	0.14	DP26 0.4mbgl
Aromatic C10 - 12	mg/kg	74	250	16000				69	68	0.20	0.20	DP27 0.3mbgl
Aromatic C12 - C16	mg/kg	140	1800	36000				69	48	0.30	25.10	DP17 0.2mbgl
Aromatic C16 - C21	mg/kg	260	1900	28000	1			69	15	0.10	420.00	DP17 0.2mbgl
Aromatic C21 - C35	mg/kg	1100	1900	28000				69	17	0.10	588.00	DP17 0.2mbgl
Total Aromatic	mg/kg	1100	1900	28000				69	14	0.30	1030.00	DP17 0.2mbgl
Total Aliphatic and Aromatic	mg/kg	490	490	38000	2	2		69	14	0.30	1030.00	DP17 0.2mbgl

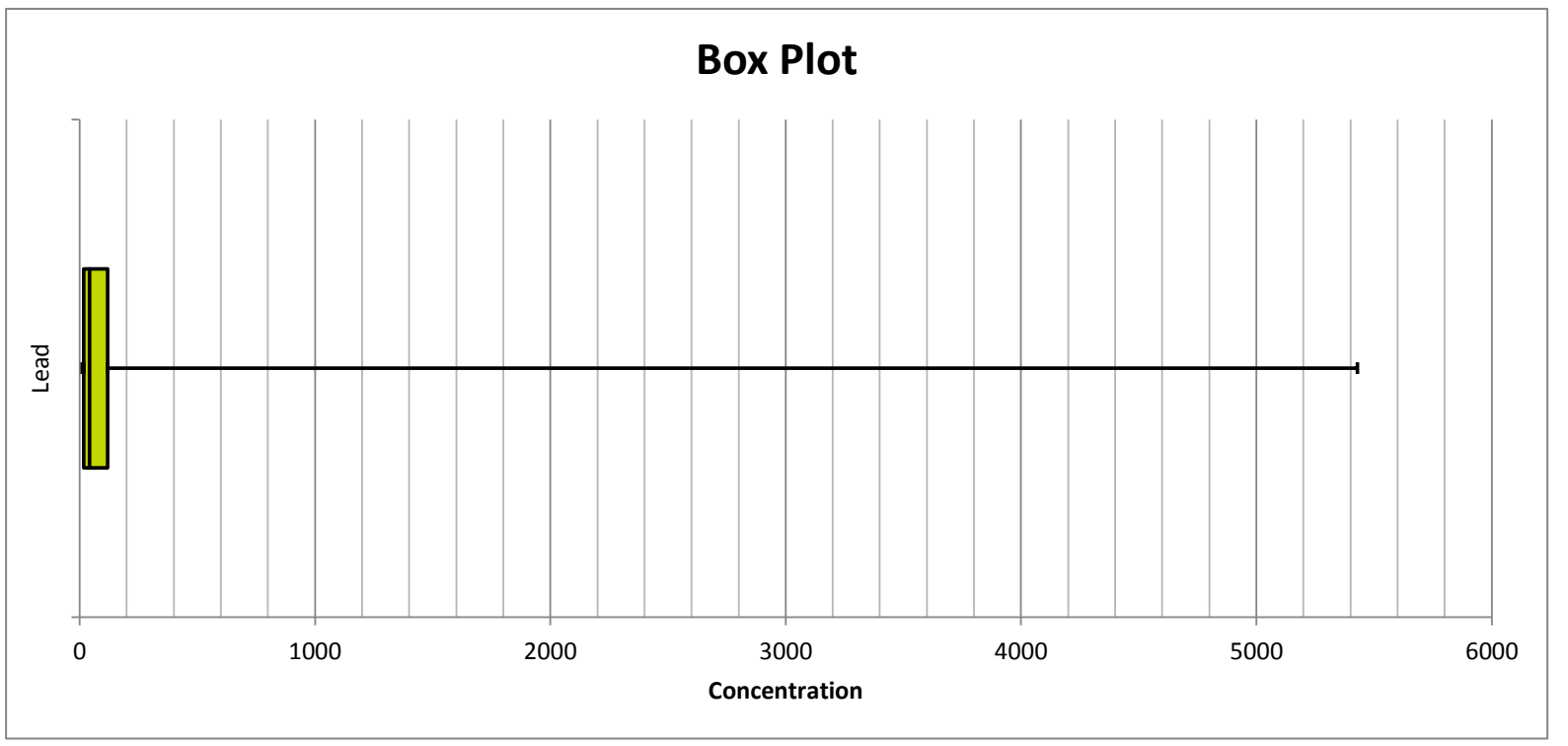
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Confidence Limit for Outliers	0.05

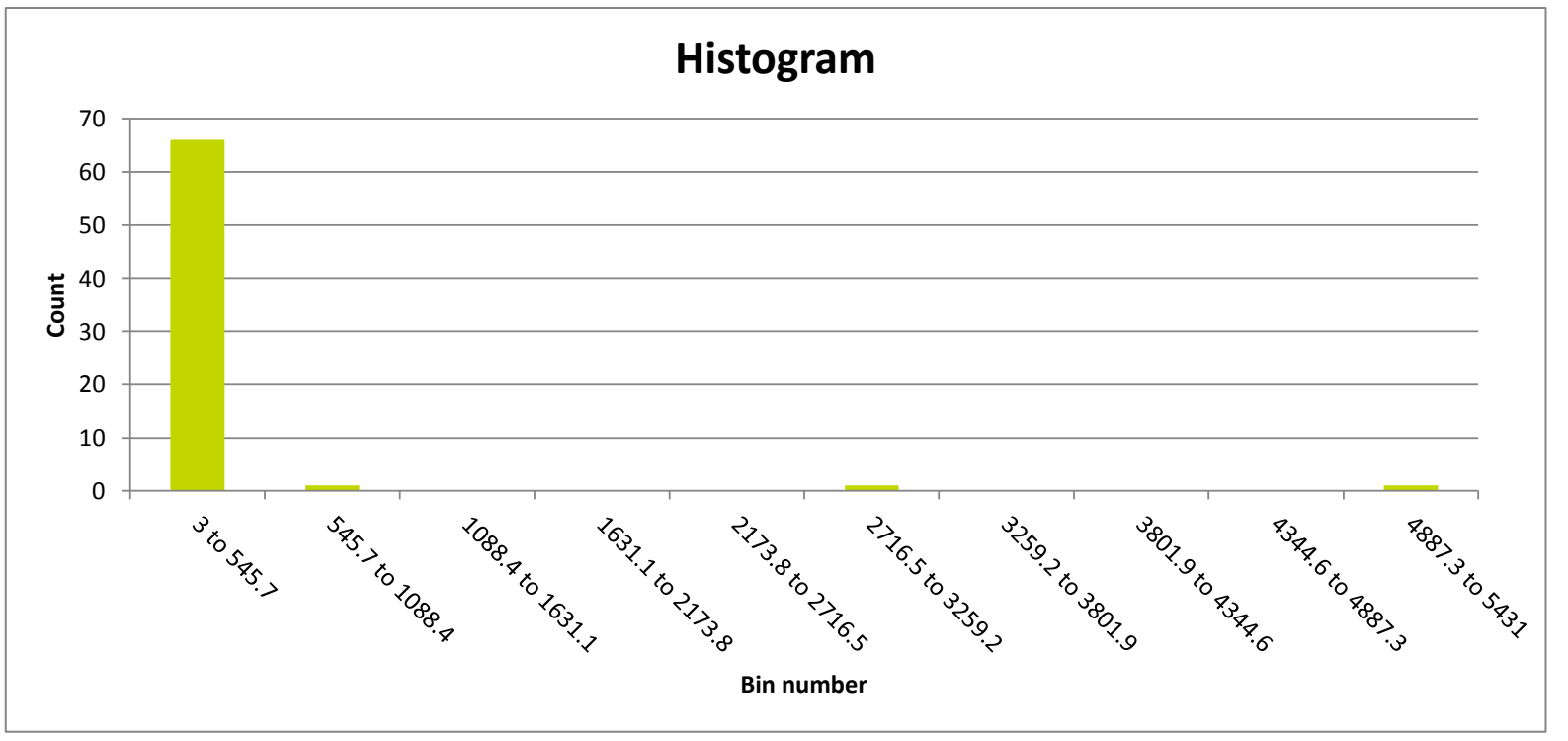
Statistics	
Total Tests	69
Number below detection limits	0
% below detection limits	0.0
UCL (including outlier)	582.84
LCL (including outlier)	-181.15

Box Plots	
Arithmetic Mean	200.84
Median	42
Lower Quartile	18
Upper Quartile	118.5

Outliers	Concentration	Outlier?
Maximum concentration	5430.00	Yes
Second highest	2820.00	Yes
Third highest	665.00	No
Minimum concentration above detection limits	3	





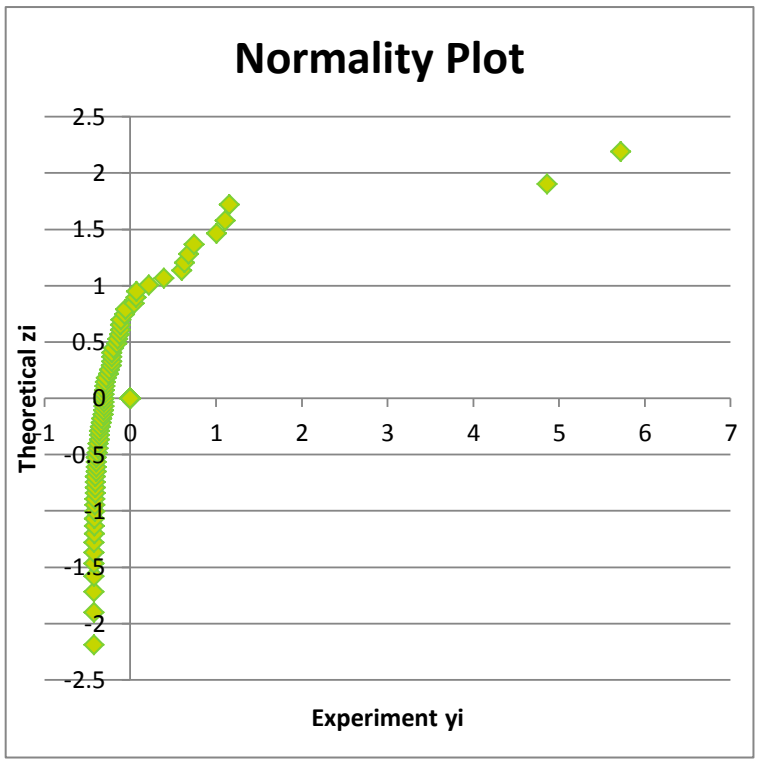


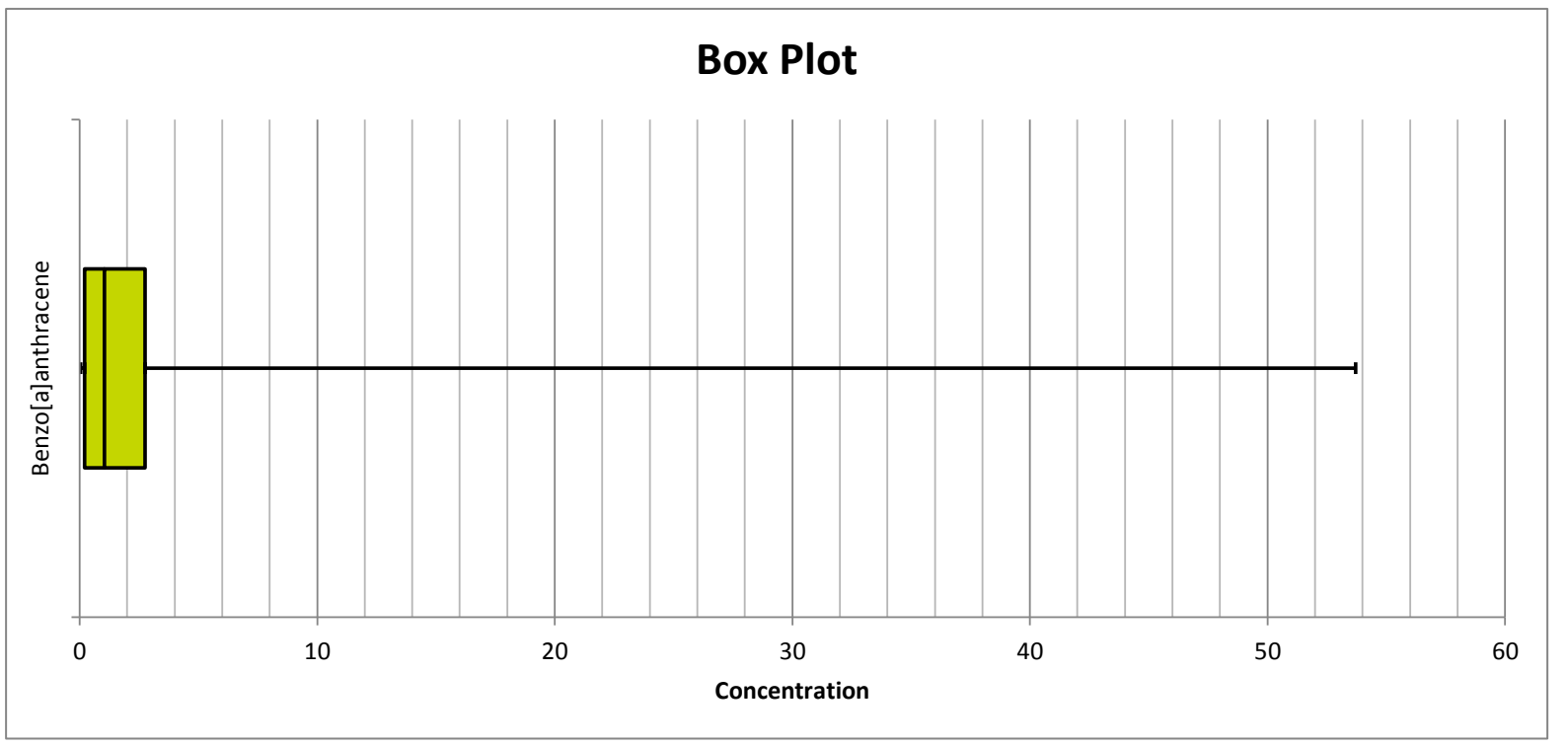
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Confidence Limit for Outliers	0.05

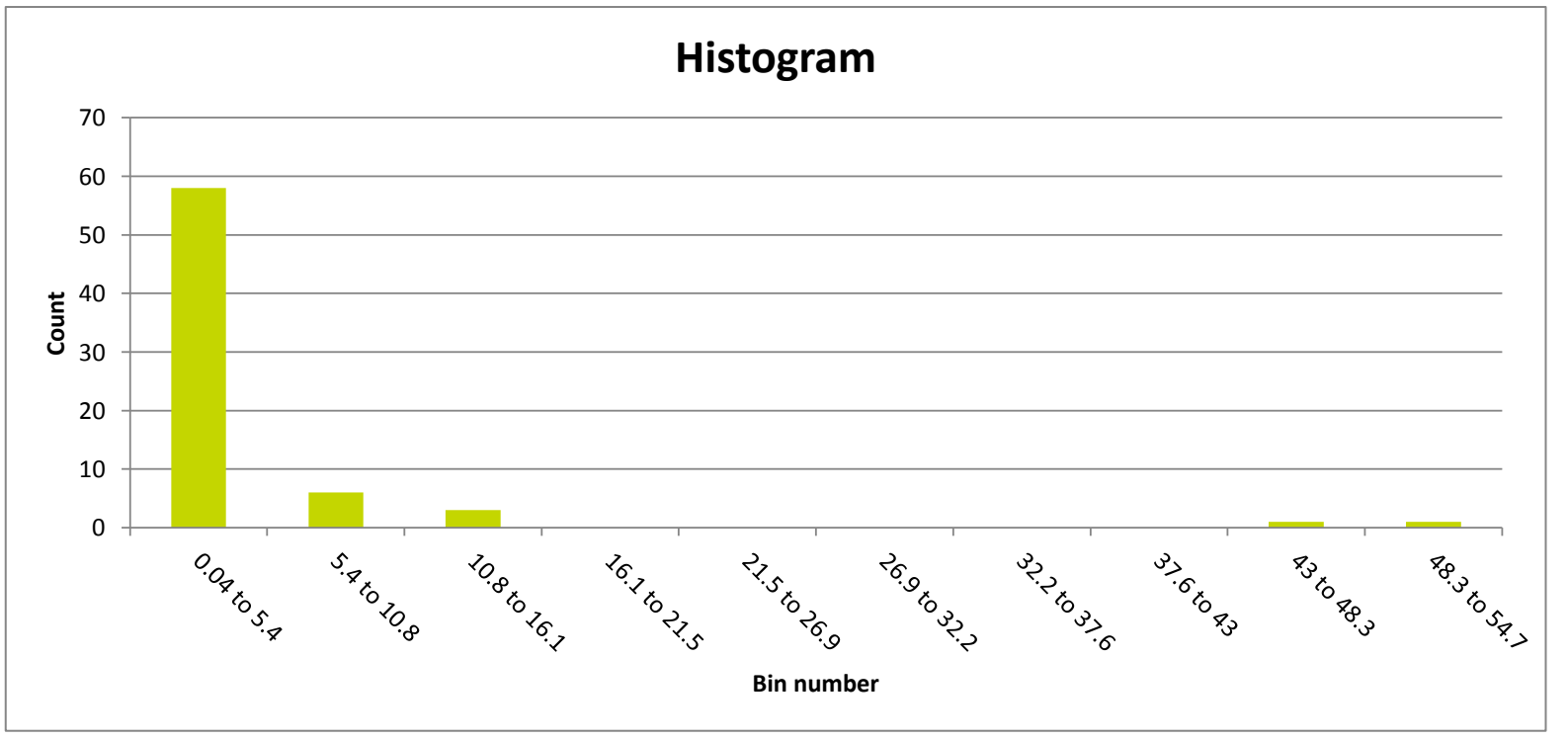
Statistics	
Total Tests	69
Number below detection limits	7
% below detection limits	10.1
UCL (including outlier)	8.30
LCL (including outlier)	-0.88

Box Plots	
Arithmetic Mean	3.71
Median	1.05
Lower Quartile	0.2
Upper Quartile	2.755

Outliers	Concentration	Outlier?
Maximum concentration	53.70	Yes
Second highest	46.20	Yes
Third highest	13.80	No
Minimum concentration above detection limits	0.06	





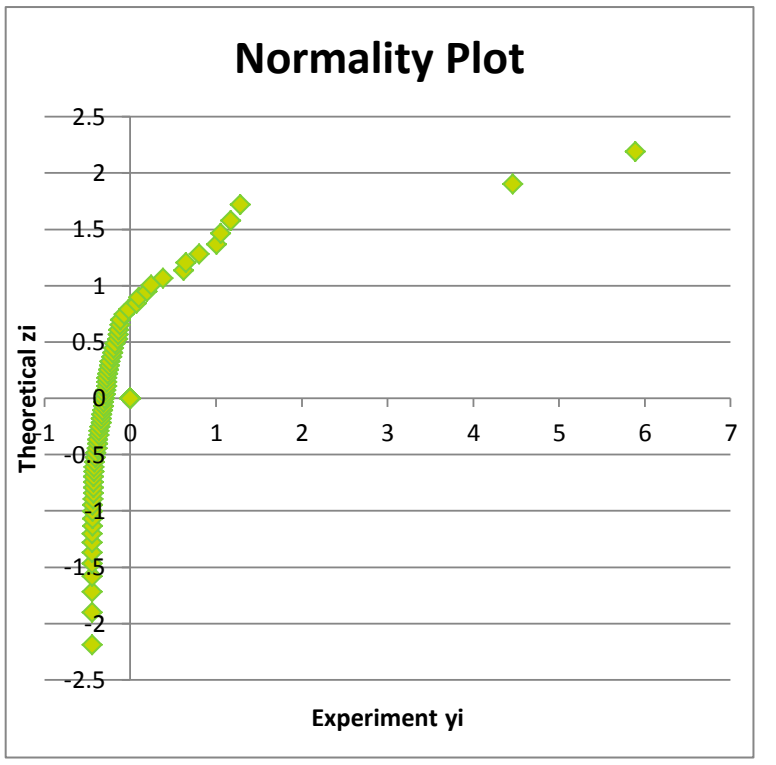


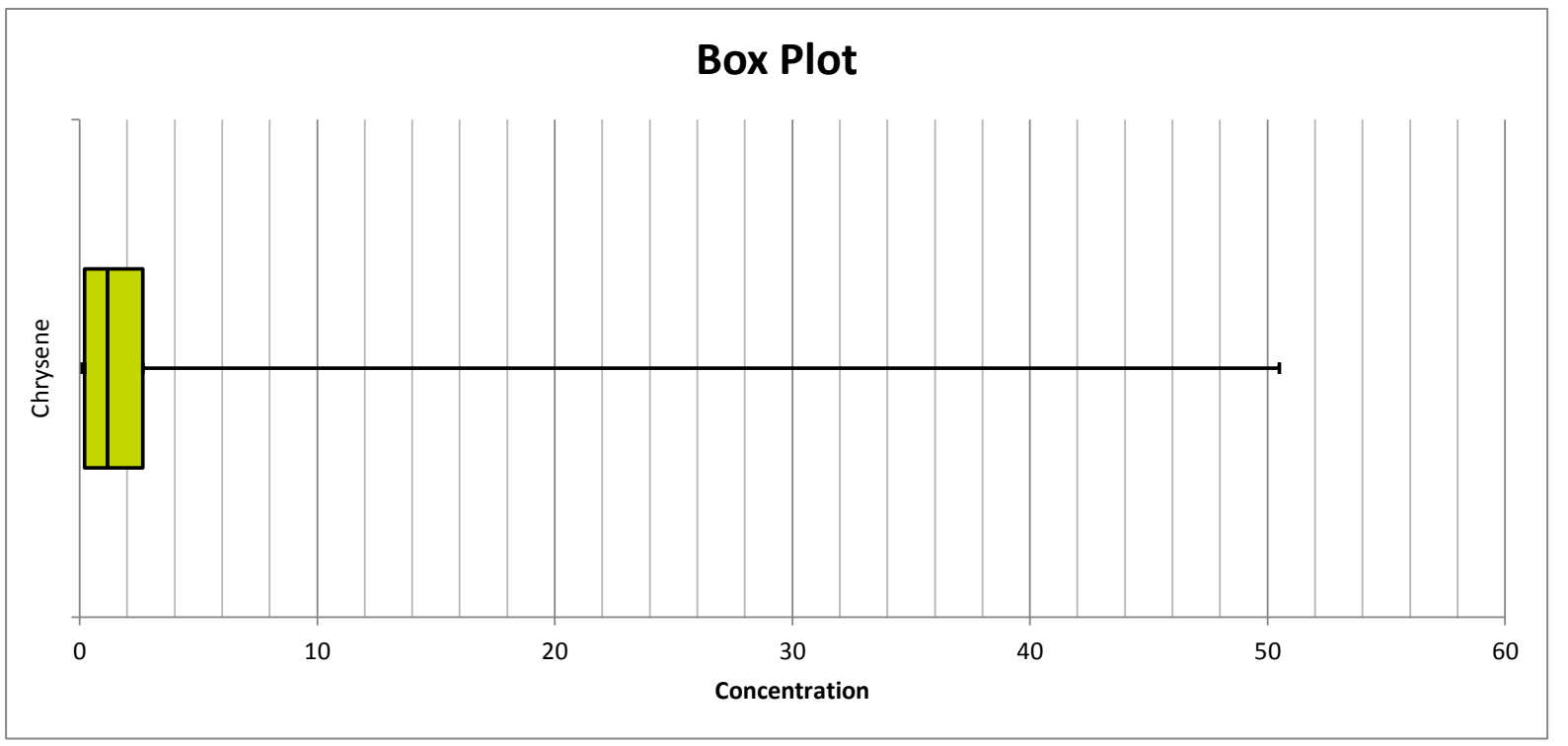
Select Chemical	Chrysene
Confidence Limit for Outliers	0.05

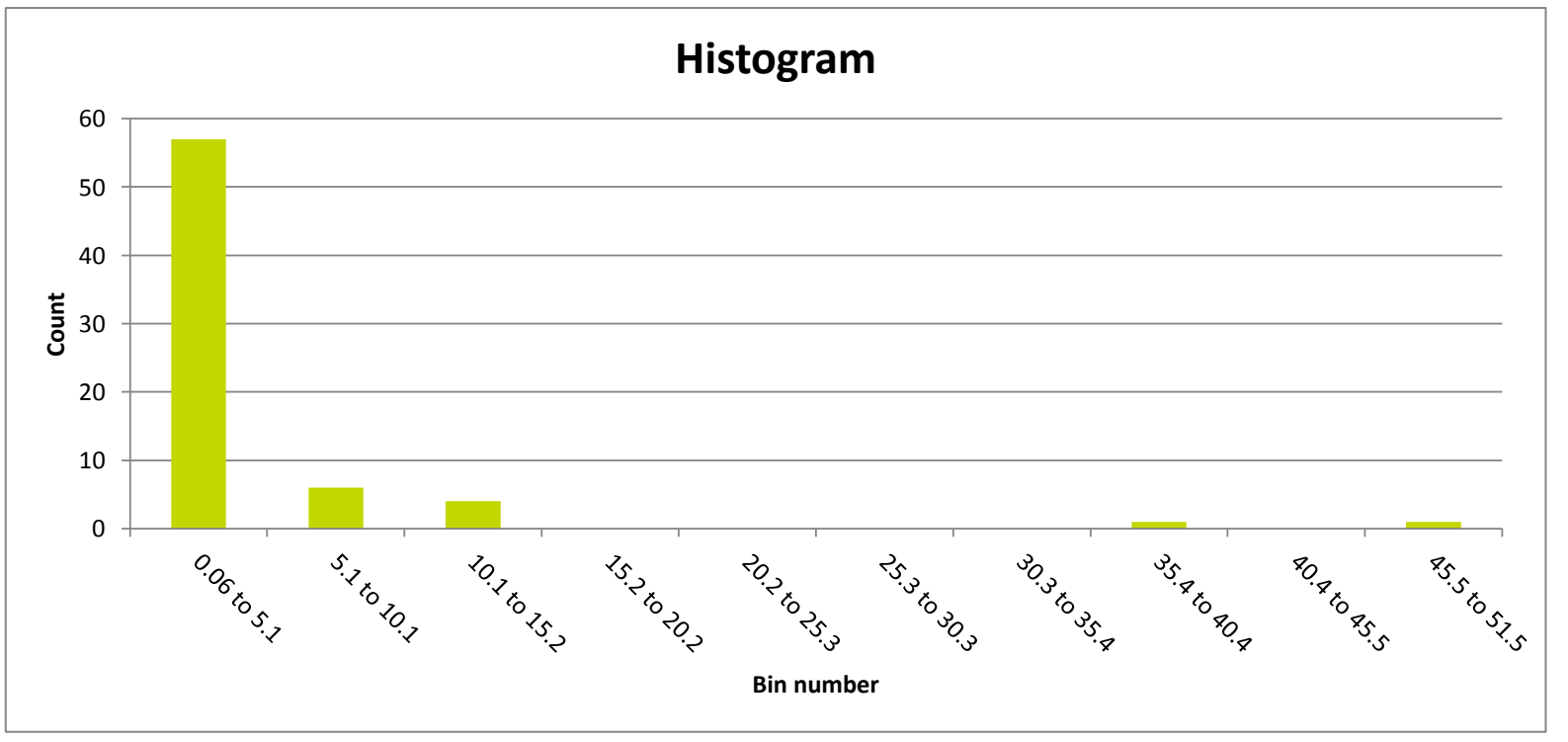
Statistics	
Total Tests	69
Number below detection limits	7
% below detection limits	10.1
UCL (including outlier)	7.77
LCL (including outlier)	-0.59

Box Plots	
Arithmetic Mean	3.59
Median	1.18
Lower Quartile	0.2
Upper Quartile	2.66

Outliers	Concentration	Outlier?
Maximum concentration	50.50	Yes
Second highest	39.10	Yes
Third highest	13.80	No
Minimum concentration above detection limits	0.06	







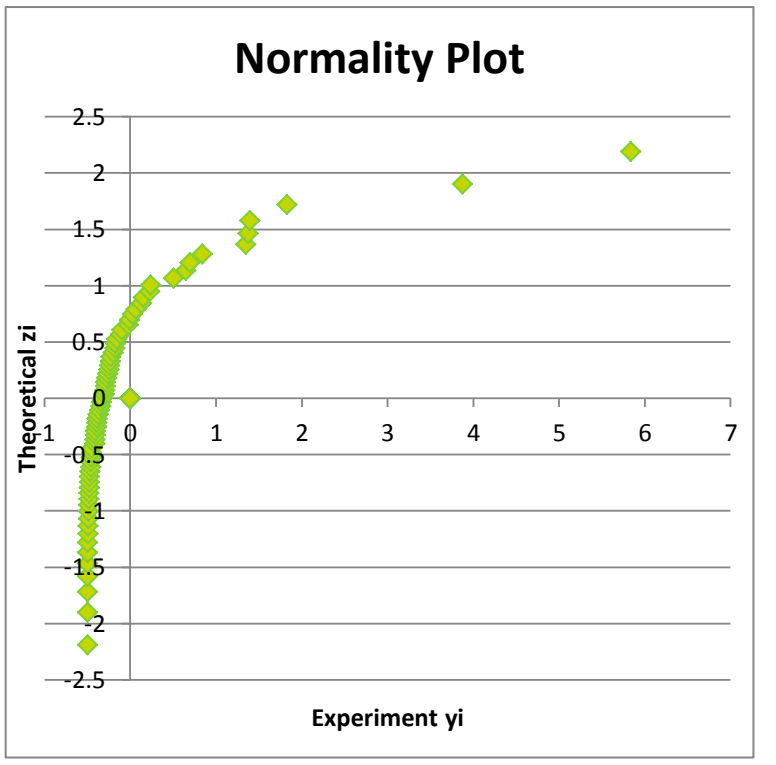
Select Chemical Benzo[b]fluoranthene

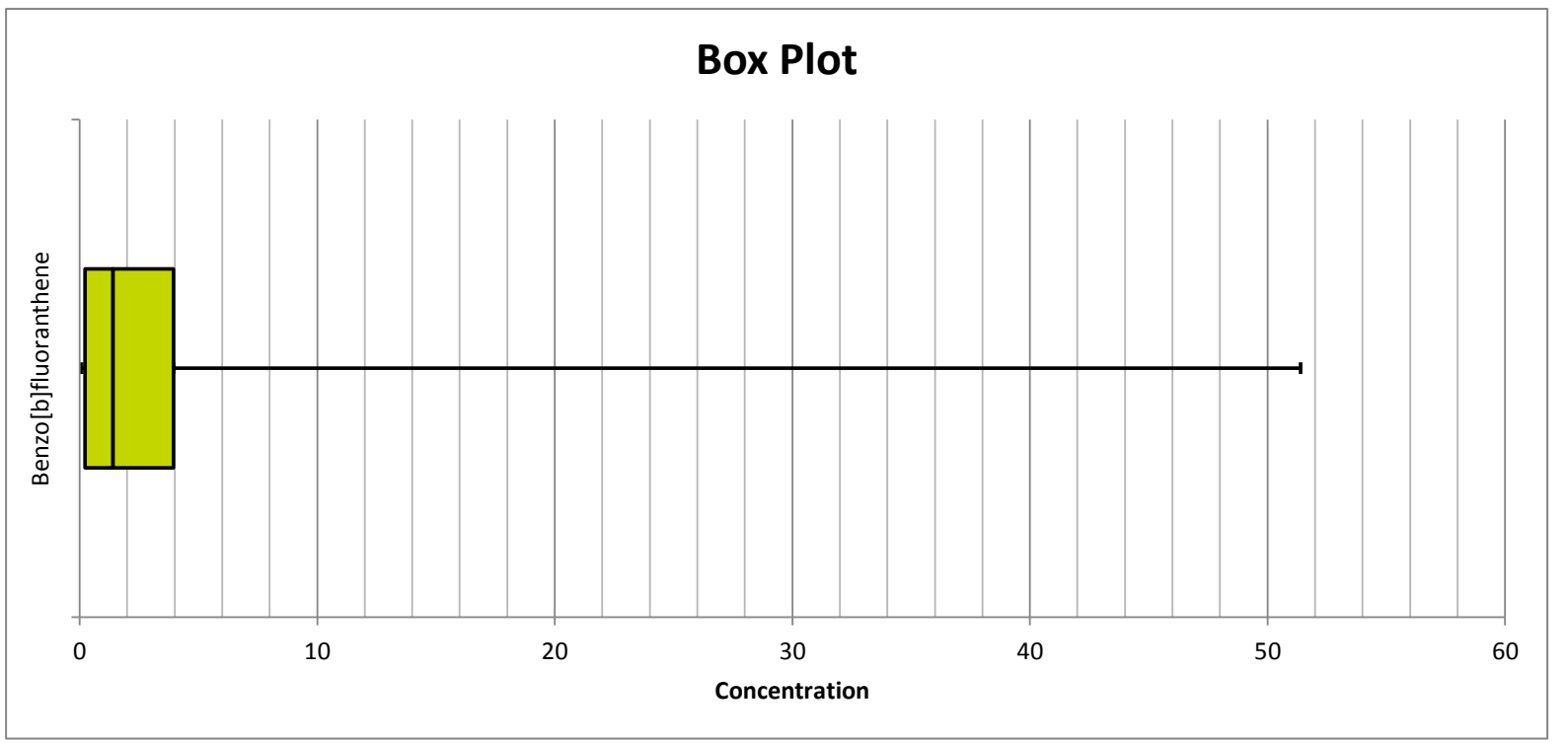
Confidence Limit for Outliers 0.05

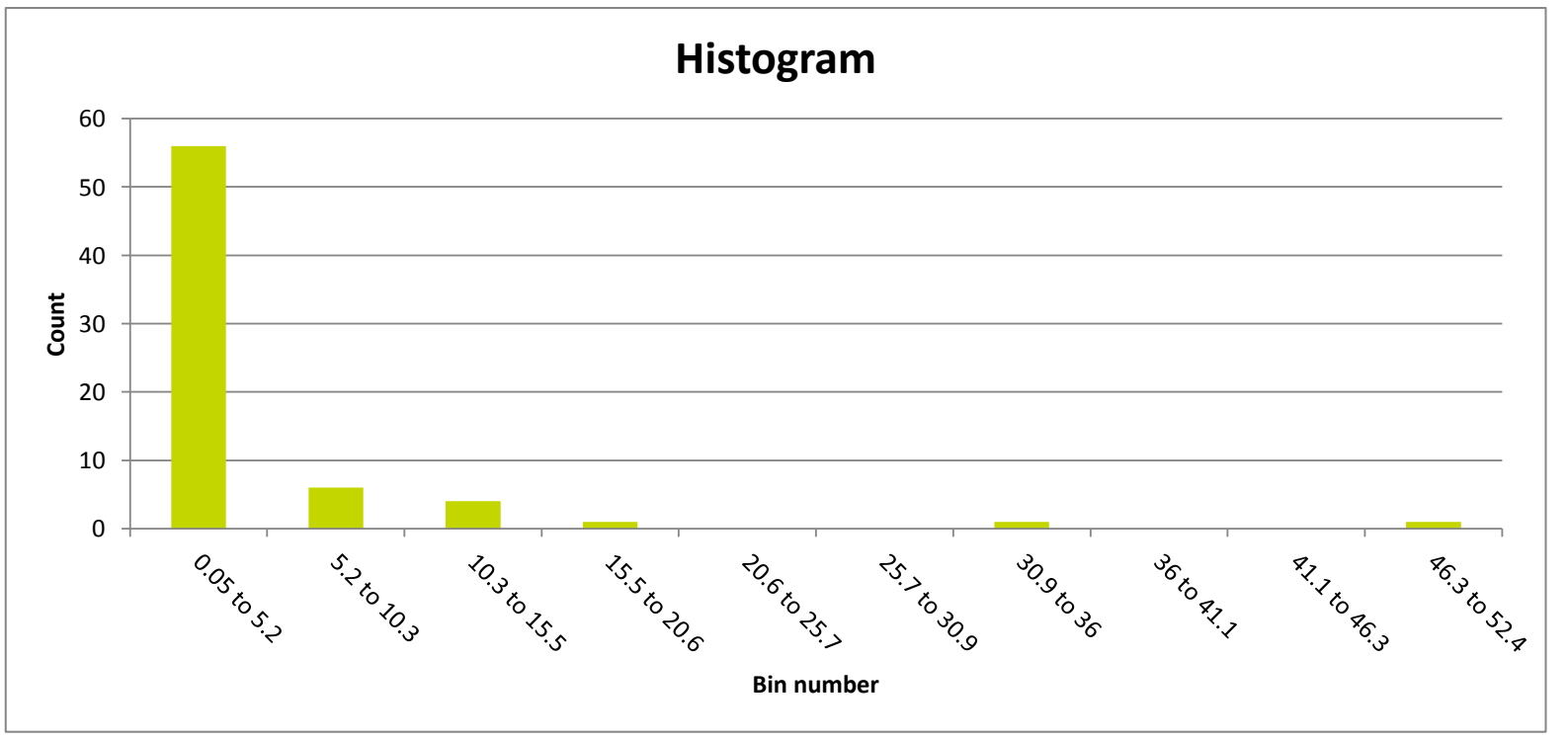
Statistics	
Total Tests	69
Number below detection limits	7
% below detection limits	10.1
UCL (including outlier)	8.32
LCL (including outlier)	-0.19

Box Plots	
Arithmetic Mean	4.07
Median	1.41
Lower Quartile	0.23
Upper Quartile	3.945

Outliers	Concentration	Outlier?
Maximum concentration	51.40	Yes
Second highest	35.50	Yes
Third highest	18.90	No
Minimum concentration above detection limits	0.09	





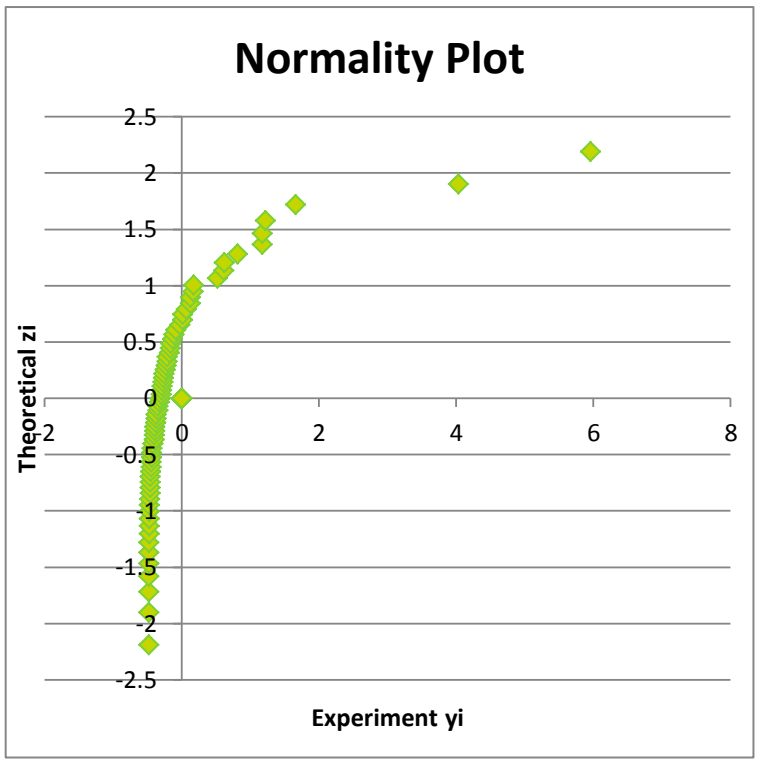


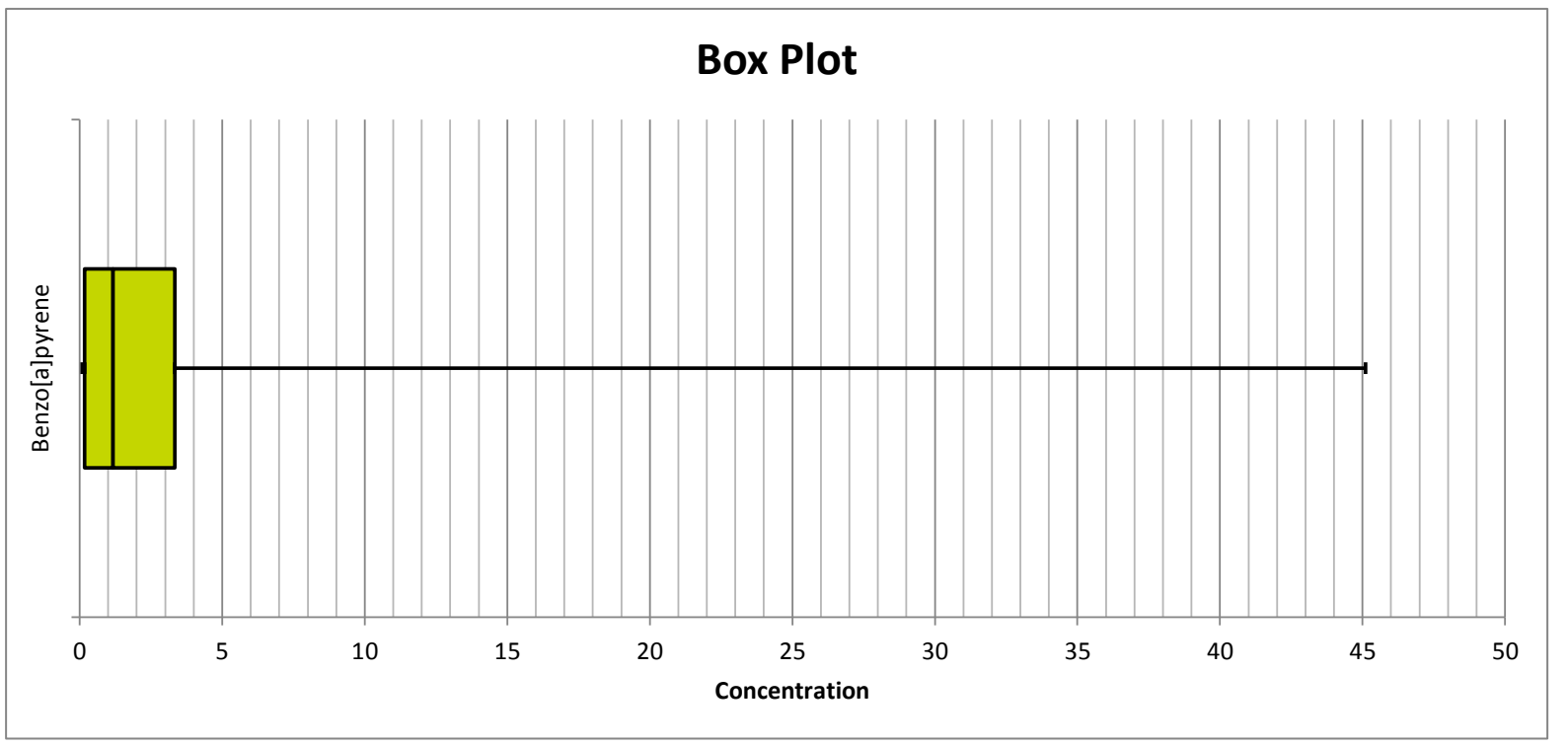
Select Chemical	Benzo[a]pyrene
Confidence Limit for Outliers	0.05

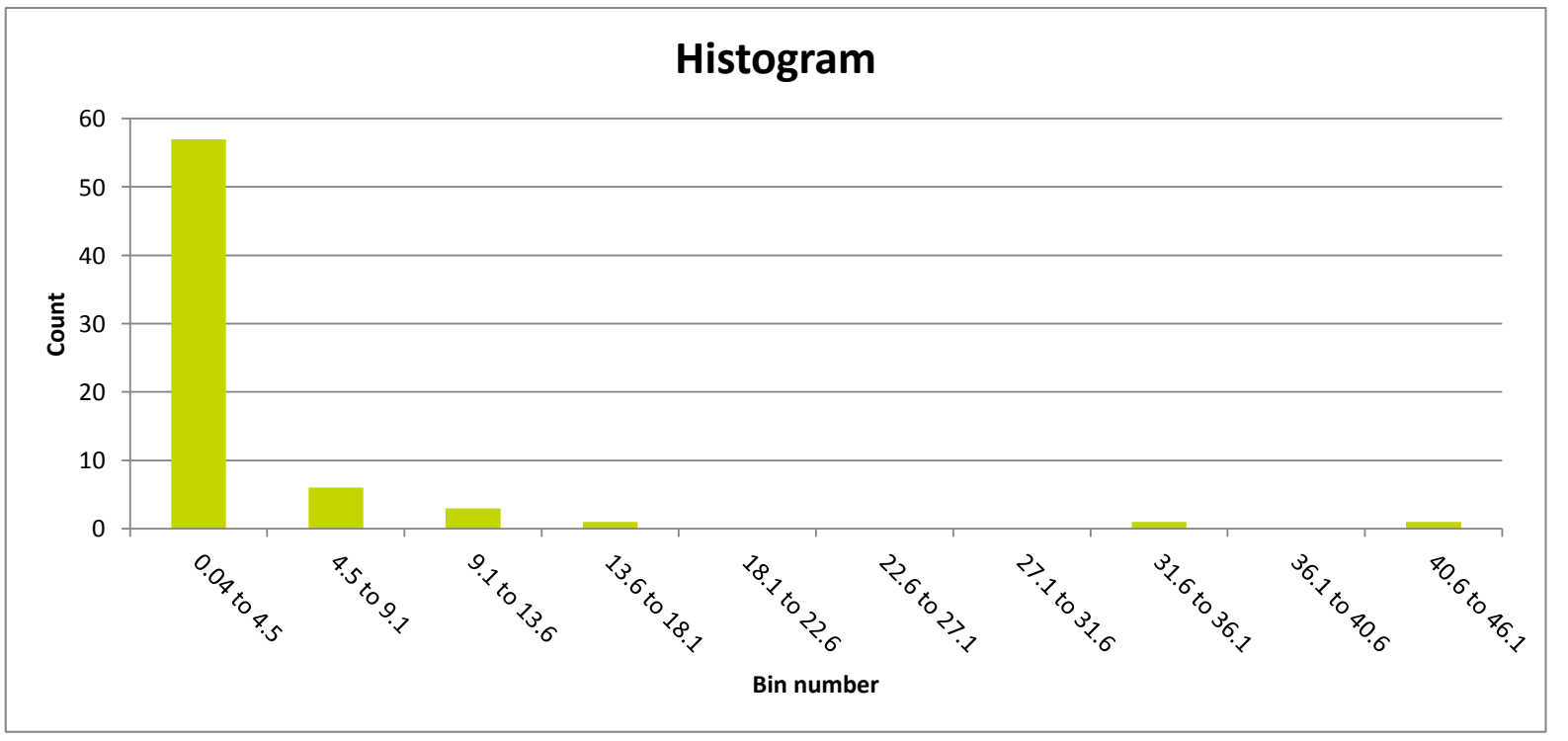
Statistics	
Total Tests	69
Number below detection limits	7
% below detection limits	10.1
UCL (including outlier)	7.05
LCL (including outlier)	-0.30

Box Plots	
Arithmetic Mean	3.37
Median	1.17
Lower Quartile	0.18
Upper Quartile	3.345

Outliers	Concentration	Outlier?
Maximum concentration	45.10	Yes
Second highest	31.60	Yes
Third highest	15.00	No
Minimum concentration above detection limits	0.07	







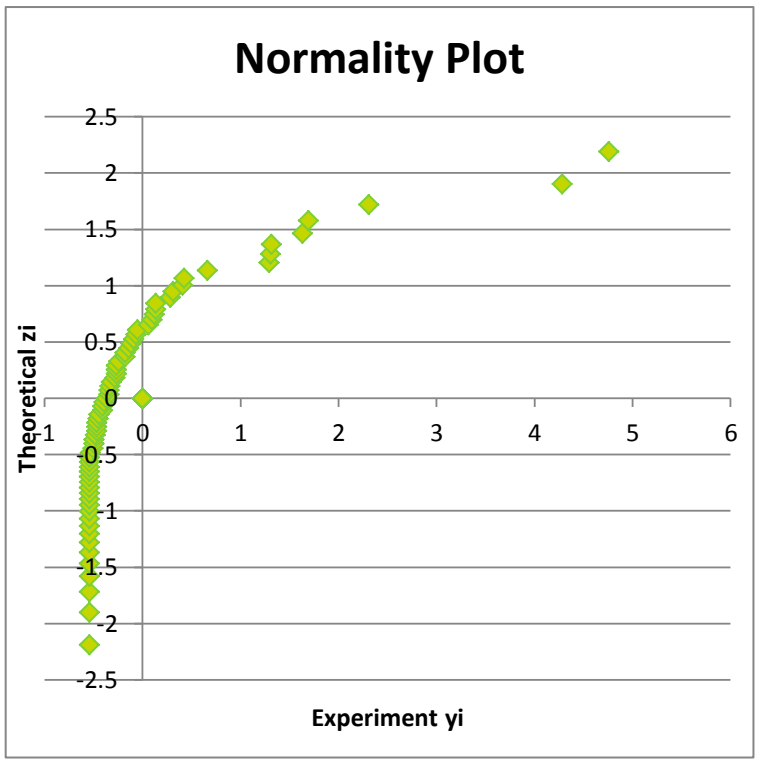
Select Chemical ibenzo[ah]anthracene

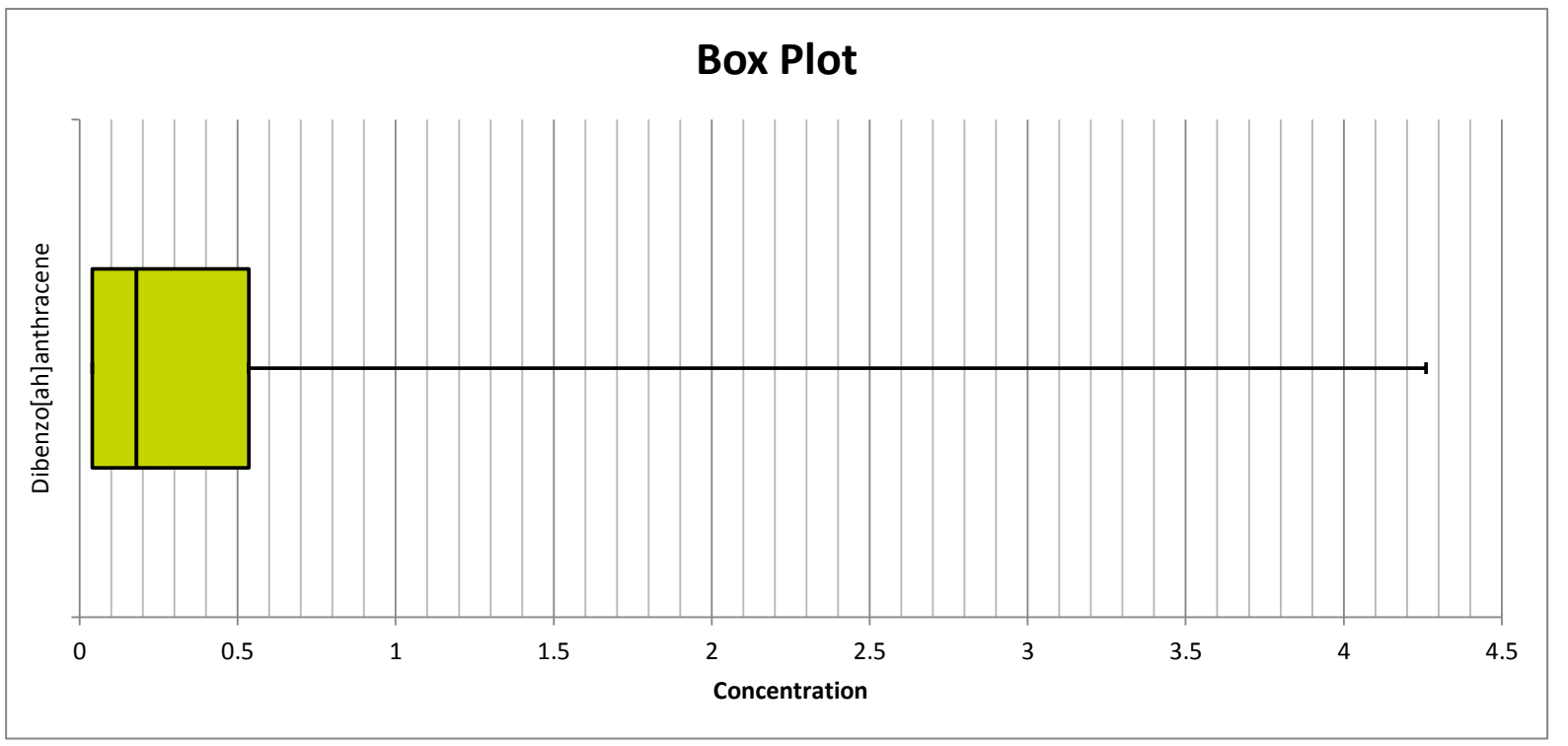
Confidence Limit for Outliers 0.05

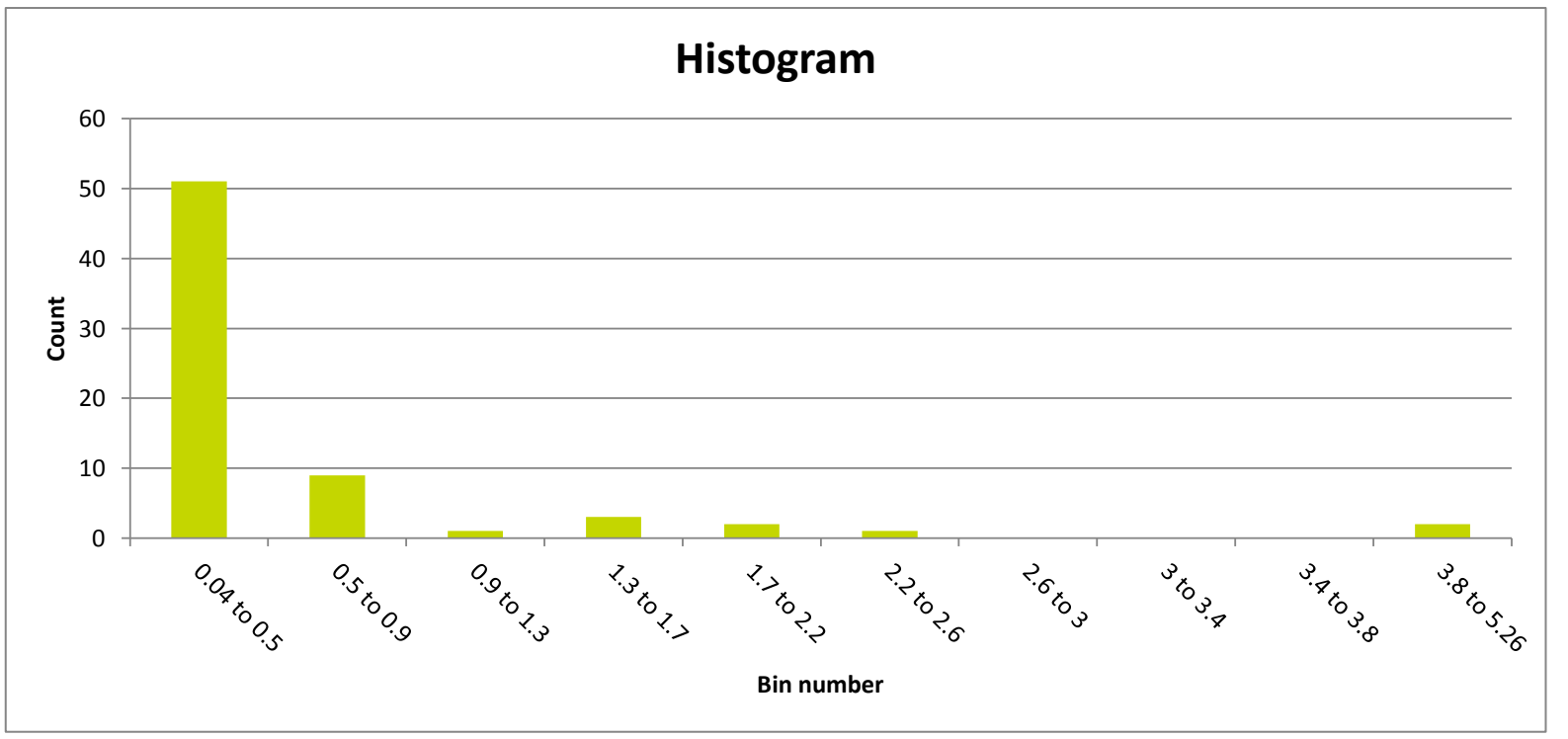
Statistics	
Total Tests	69
Number below detection limits	20
% below detection limits	29.0
UCL (including outlier)	0.89
LCL (including outlier)	0.05

Box Plots	
Arithmetic Mean	0.47
Median	0.18
Lower Quartile	0.04
Upper Quartile	0.535

Outliers	Concentration	Outlier?
Maximum concentration	4.26	Yes
Second highest	3.88	Yes
Third highest	2.31	No
Minimum concentration above detection limits	0.04	





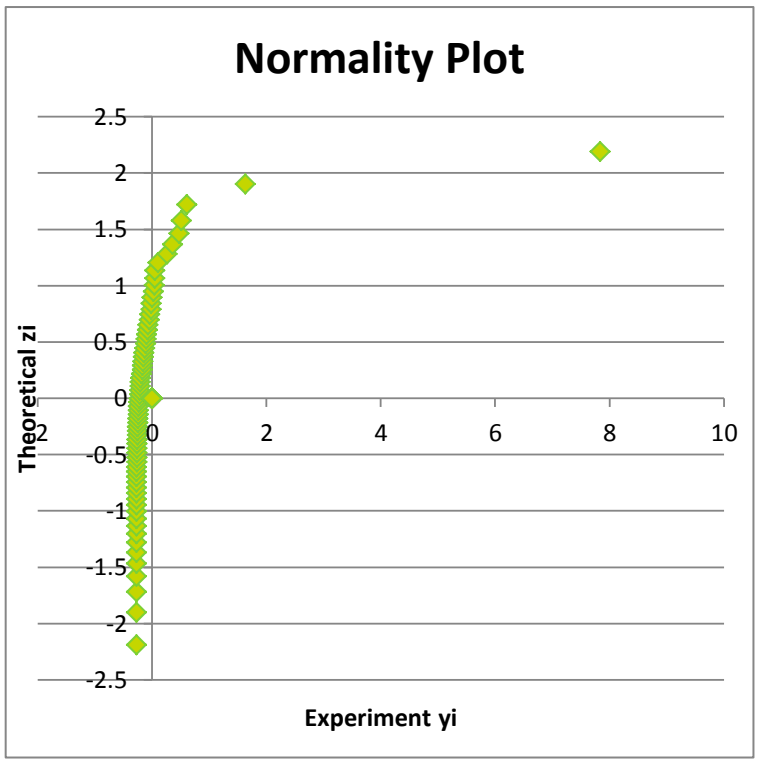


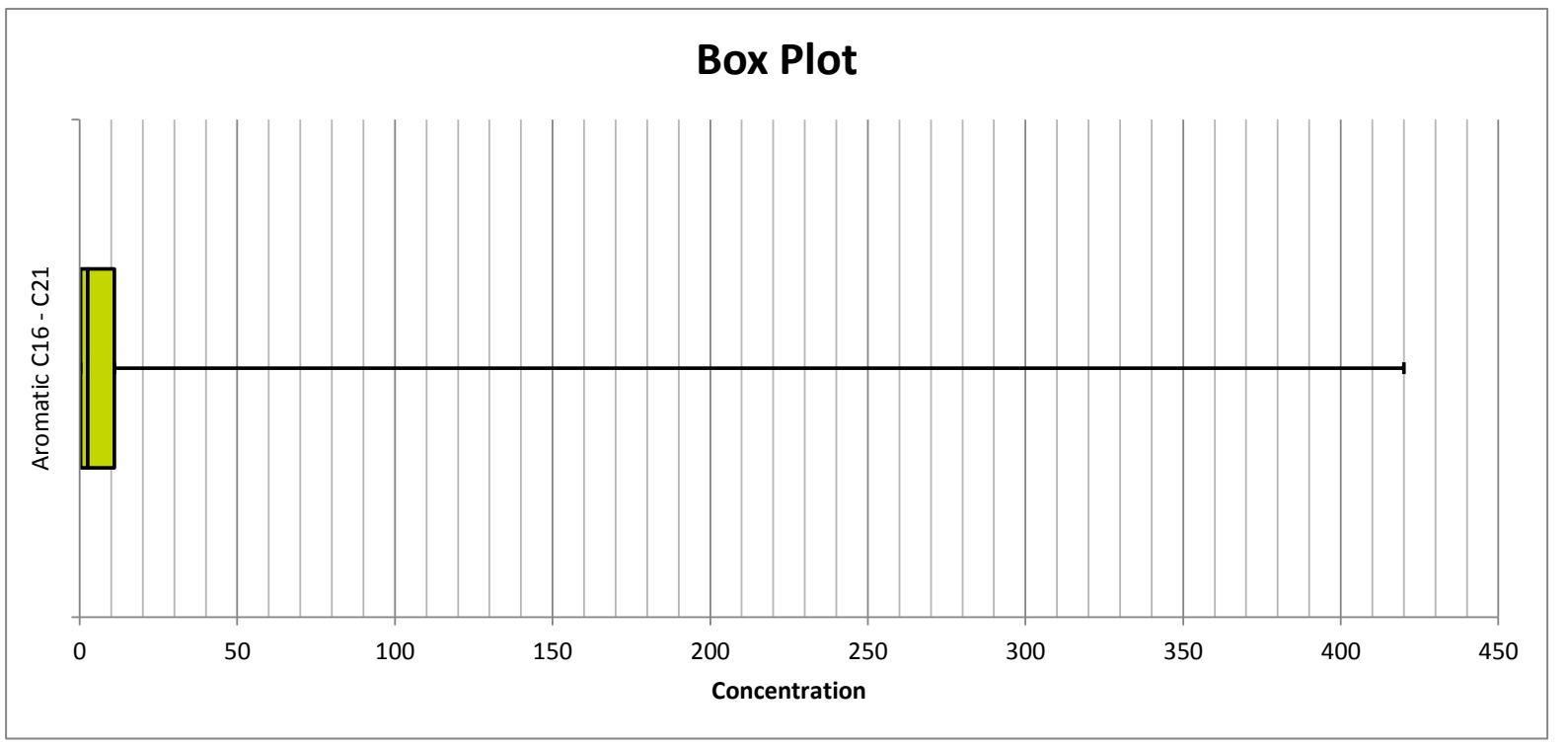
Select Chemical	Aromatic C16 - C21
Confidence Limit for Outliers	0.05

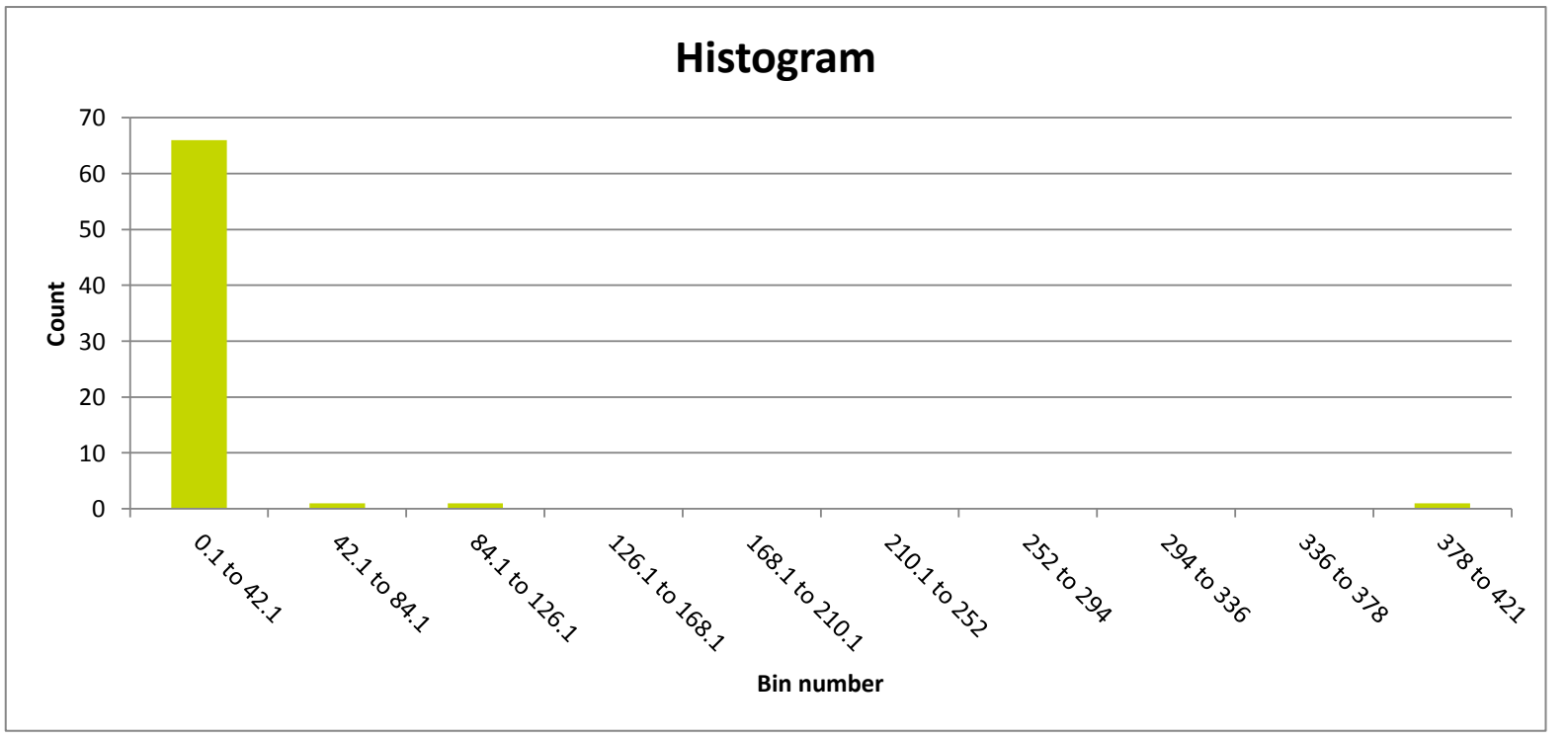
Statistics	
Total Tests	69
Number below detection limits	15
% below detection limits	21.7
UCL (including outlier)	41.45
LCL (including outlier)	-12.91

Box Plots	
Arithmetic Mean	14.27
Median	2.6
Lower Quartile	0.25
Upper Quartile	11.05

Outliers	Concentration	Outlier?
Maximum concentration	420.00	Yes
Second highest	98.60	Yes
Third highest	45.70	No
Minimum concentration above detection limits	0.1	







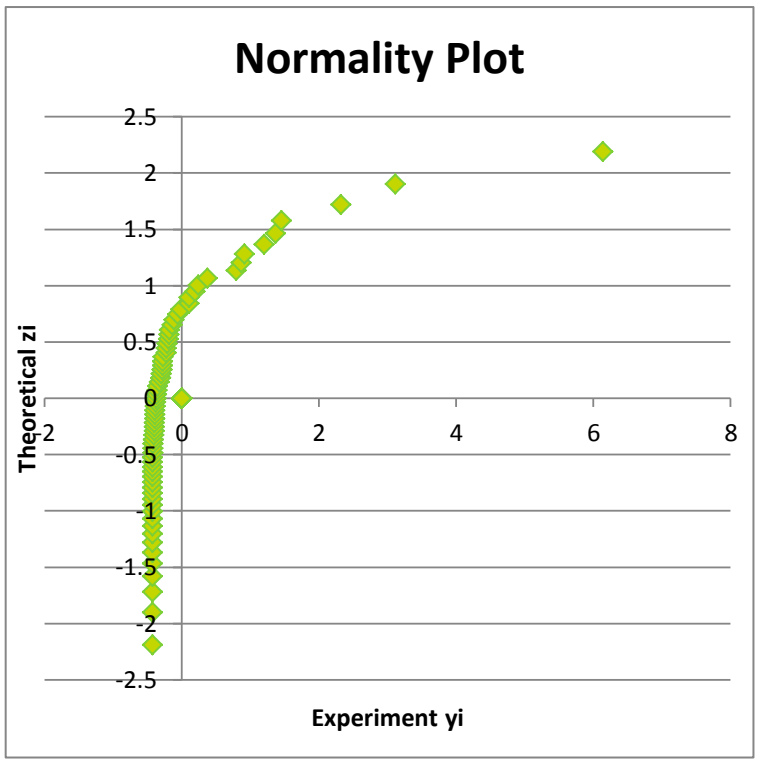
Select Chemical liphatic and Aromatic

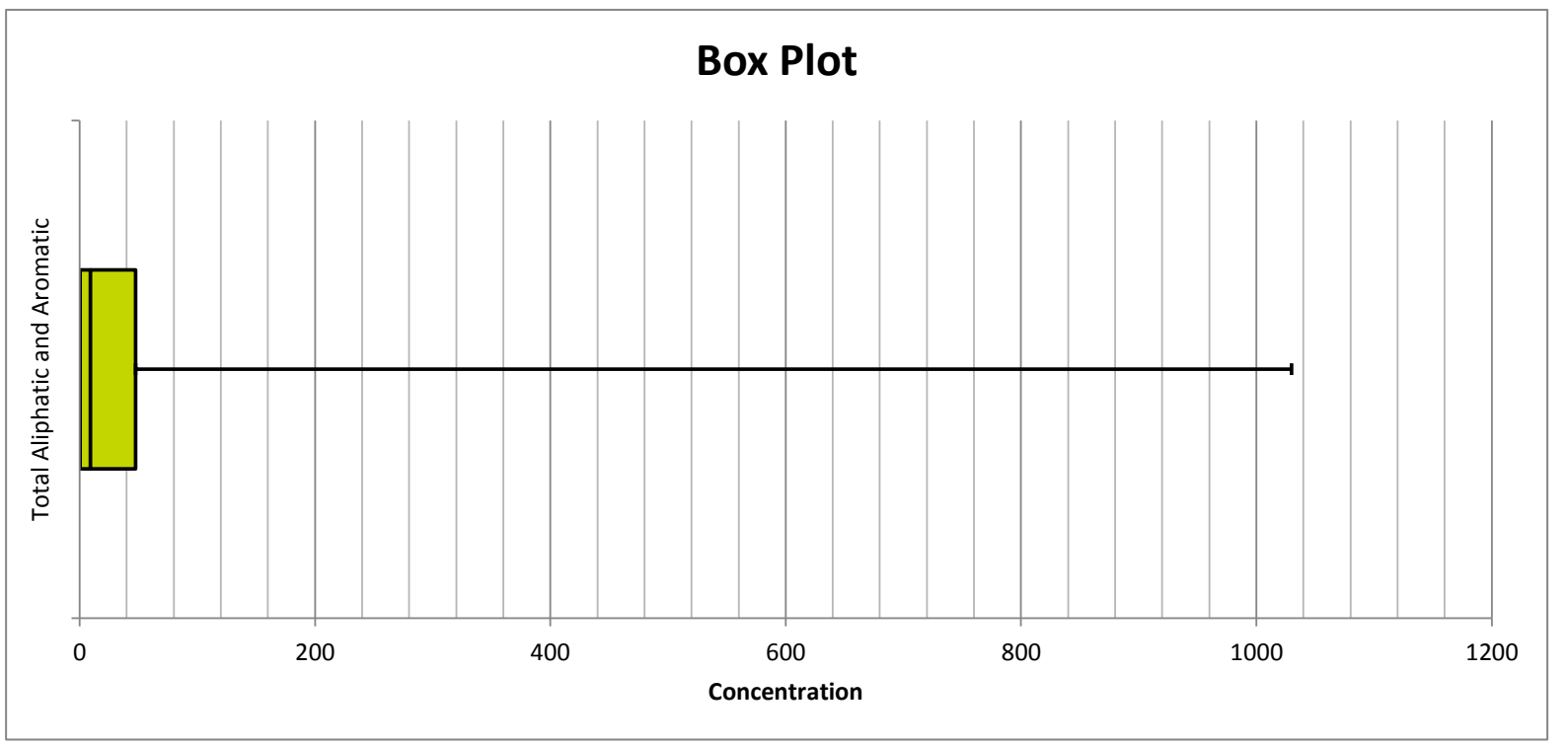
Confidence Limit for Outliers 0.05

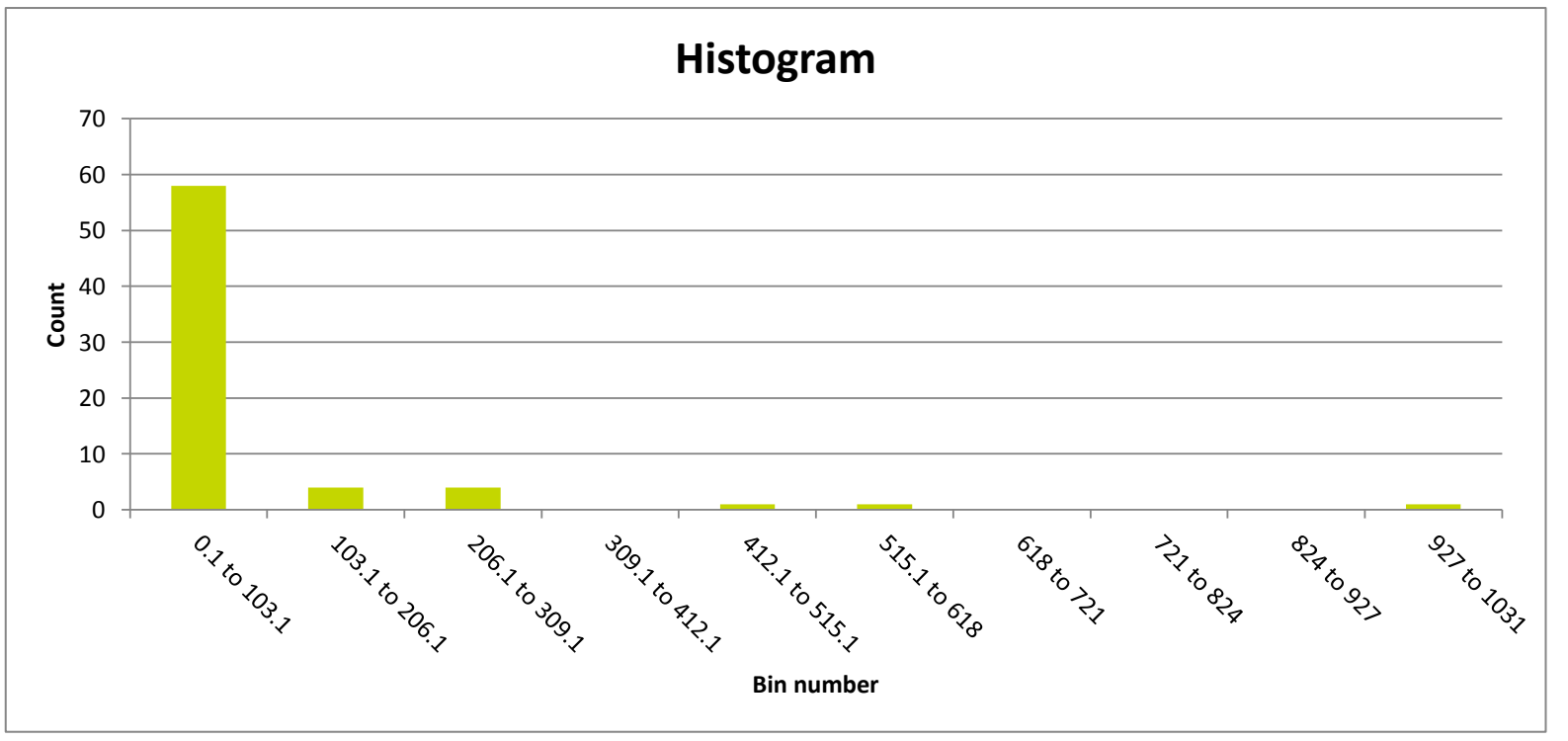
Statistics	
Total Tests	69
Number below detection limits	14
% below detection limits	20.3
UCL (including outlier)	149.49
LCL (including outlier)	-15.14

Box Plots	
Arithmetic Mean	67.17
Median	9
Lower Quartile	0.5
Upper Quartile	47.5

Outliers	Concentration	Outlier?
Maximum concentration	1030.00	Yes
Second highest	555.00	Yes
Third highest	431.00	Yes
Minimum concentration above detection limits	0.3	







BUROHAPPOLD ENGINEERING

Project: Folkestone Harbour (Natural Strata)
Project Number: 34029
Date: Sep-2016

Asbestos

Asbestos Screen	No. Samples	No. samples detected	No. samples ND	% of samples detect
	24	5	19	20.83
Asbestos Quantification	No. Quants	No. samples <0.001%	No. samples >0.001% <0.01%	No. samples >0.01%
	5	3	2	0

Human Health

Soil Organic Matter 1%
N/A = no screening criteria available

No. samples exceeding

		Residential with uptake	Residential without Uptake	Commercial	Residential with uptake	Residential without Uptake	Commercial	No Tests	No <LOD	Min	Max	Location of Maximum
Cyanide	mg/kg	4.6	760	16000				38	38			
Arsenic	mg/kg	37	40	640				38		2.00	9.00	BH15-P 2mbgl
Barium	mg/kg	N/A	N/A	N/A				38		2.00	95.00	DP24 0.4mbgl
Beryllium	mg/kg	1.7	1.7	12				38	34	1.00	1.00	WS08 1.2mbgl
Boron	mg/kg	290	11000	240000				38	20	1.10	8.90	River Trial Pit 0.3mbgl
Cadmium	mg/kg	26	149	410				38	27	0.50	1.80	IN-2 0.35mbgl
Chromium	mg/kg	910	910	8600				38		4.00	25.00	WS08 1.2mbgl
Copper	mg/kg	2400	7100	68000				38	5	1.00	34.00	DP24 0.4mbgl
Lead	mg/kg	200	310	2330				38		2.00	173.00	BH13-G 0.5mbgl
Mercury (inorganic)	mg/kg	40	56	58								
Nickel	mg/kg	130	180	980				38		3.00	23.00	WS08 1.2mbgl
Selenium	mg/kg	250	430	12000				38	32	1.00	1.00	DP24 0.4mbgl
Vanadium	mg/kg	410	1200	9000				38		4.00	34.00	WS08 1.2mbgl
Zinc	mg/kg	3700	40000	730000				38	2	5.00	209.00	DP24 0.4mbgl
TPH	mg/kg	490	490	38000								
Benzene	mg/kg	0.087	0.38	27				38	38			
Toluene	mg/kg	130	869	869				38	38			
Ethyl Benzene	mg/kg	47	83	518				38	38			
m/p Xylenes	mg/kg	56	79	576				38	38			
o Xylenes	mg/kg	60	88	478				38	38			
Xylenes	mg/kg	56	79	576								
MTBE	mg/kg	N/A	N/A	N/A				38	38			
Naphthalene	mg/kg	2.3	2.3	190				38	37	0.12	0.12	TP(L)14 0.6mbgl
Acenaphthylene	mg/kg	170	2900	83000				38	28	0.01	0.12	BH13-G 0.5mbgl
Acenaphthene	mg/kg	210	3000	84000				38	31	0.01	0.17	BH13-G 0.5mbgl
Fluorene	mg/kg	170	2800	63000				38	31	0.01	0.21	BH13-G 0.5mbgl
Phenanthrene	mg/kg	95	1300	22000				38	25	0.03	1.59	BH13-G 0.5mbgl
Anthracene	mg/kg	2400	31000	520000				38	29	0.02	0.50	BH13-G 0.5mbgl
Fluoranthene	mg/kg	280	1500	23000				38	24	0.12	3.56	BH13-G 0.5mbgl
Pyrene	mg/kg	620	3700	54000				38	22	0.09	3.10	BH13-G 0.5mbgl
Benzo[a]anthracene	mg/kg	7.2	11	170				38	23	0.05	1.80	BH13-G 0.5mbgl
Chrysene	mg/kg	15	30	350				38	25	0.06	1.45	BH13-G 0.5mbgl
Benzo[b]fluoranthene	mg/kg	2.6	3.9	44				38	24	0.05	2.27	BH13-G 0.5mbgl
Benzo[k]fluoranthene	mg/kg	77	110	1200				38	29	0.09	0.93	BH13-G 0.5mbgl
Benzo[a]pyrene	mg/kg	2.2	3.2	35				38	24	0.04	1.60	BH13-G 0.5mbgl
Indeno[123-cd]pyrene	mg/kg	27	45	500				38	24	0.03	1.30	BH13-G 0.5mbgl
Dibenzo[ah]anthracene	mg/kg	0.24	0.31	3.5				38	33	0.05	0.24	BH13-G 0.5mbgl
Benzo[ghi]perylene	mg/kg	320	360	3900				38	28	0.07	1.09	BH13-G 0.5mbgl
Total USEPA 16 PAHs	mg/kg	N/A	N/A	N/A				38	22	0.17	19.90	BH13-G 0.5mbgl
Aliphatic C5 - C6	mg/kg	42	42	3200				38	38			
Aliphatic C6 - C8	mg/kg	100	100	7800				38	38			
Aliphatic C8 - C10	mg/kg	27	27	2000				38	38			
Aliphatic C10 - C12	mg/kg	130	130	9700				38	38			
Aliphatic C12 - C16	mg/kg	1100	1100	59000				38	38			
Aliphatic C16 - C21	mg/kg	65000	65000	1600000				38	38			
Aliphatic C21 - C35	mg/kg	65000	64000	1600000				38	38			
Total Aliphatic	mg/kg	N/A	N/A	N/A				38	38			
Aromatic C5 - C7	mg/kg	70	370	26000				38	38			
Aromatic C7 - 8	mg/kg	130	860	56000				38	38			
Aromatic C8 - C10	mg/kg	34	47	3500				38	38			
Aromatic C10 - 12	mg/kg	74	250	16000				38	38			
Aromatic C12 - C16	mg/kg	140	1800	36000				38	38			
Aromatic C16 - C21	mg/kg	260	1900	28000				38	32	0.30	7.20	BH13-G 0.5mbgl
Aromatic C21 - C35	mg/kg	1100	1900	28000				38	30	0.30	24.70	BH13-G 0.5mbgl
Total Aromatic	mg/kg	1100	1900	28000				38	30	0.30	31.90	BH13-G 0.5mbgl
Total Aliphatic and Aromatic	mg/kg	490	490	38000				38	31	0.30	20.70	TP(H)02 0.5mbgl

Appendix D Groundwater Assessment Sheets

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Folkestone Harbour
34818
19th July 2016

	MG / NG								
	Sample ID	BH02-W	BH04-W	BH06-W	BH09-W	BH10-W	BH12-W	BH17-W	BH19-W
	Depth								
Determinand	Units								
pH (field)*	pH units	8.32	7.925	8.22	7.875	7.475	7.585	7.79	7.73
Conductivity	mS/cm	3.75	4.40	3.69	0.94	12.81	16.67	16.33	35.23
Dissolved Oxygen	mg/l								
BOD	mg/l								
Total Dissolved Solids	g/l								
Hardness	mg/l	209	400	233	287	677	1517	1160	1630
Ammoniacal Nitrogen (NH3-N)	ug/l								
Ammonia (NH4+)	ug/l								
Ammonium (NH3)	ug/l								
Nitrate (NO3-)	ug/l								
Nitrite (NO2-)	ug/l								
Cyanide	ug/l	<0.01	0.044	0.011	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	ug/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	ug/l	1	1	5	2	3	2	2	5
Barium	ug/l	10	20	6	52	22	33	26	44
Beryllium	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Boron	ug/l	152	143	168	91	498	420	355	1690
Cadmium	ug/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	ug/l	<1	<1	2	8	<1	1	<1	1
Copper	ug/l	1	<1	3	6	2	2	1	2
Lead	ug/l	<1	<1	<1	1	<1	<1	<1	<1
Nickel	ug/l	2	3	1	3	4	2	2	1
Selenium	ug/l	<1	1	<1	<1	<1	1	1	<1
Vanadium	ug/l	<1	<1	1	<1	1	1	1	2
Zinc	ug/l	<1	3	1	10	3	3	<1	1
Naphthalene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	ug/l	0.03	0.04	<0.01	0.02	<0.01	<0.01	<0.01	<0.01
Fluoranthene	ug/l	0.18	0.48	0.04	0.28	0.01	0.11	0.2	<0.01
Anthracene	ug/l	0.01	0.08	<0.01	0.02	<0.01	0.01	0.01	<0.01
Phenanthrene	ug/l	0.02	0.06	<0.01	0.06	<0.01	0.03	0.04	<0.01
Fluorene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	ug/l	0.15	0.29	0.03	0.23	<0.01	0.07	0.14	<0.01
Pyrene	ug/l	0.21	0.51	0.04	0.29	0.01	0.12	0.2	<0.01
Benzo(a)anthracene	ug/l	0.12	0.26	0.02	0.13	<0.01	0.07	0.12	<0.01
Benzo(b)fluoranthene	ug/l	0.25	0.38	0.04	0.31	<0.01	0.1	0.18	<0.01
Benzo(k)fluoranthene	ug/l	0.1	0.16	0.02	0.14	<0.01	0.04	0.11	<0.01
Benzo(a)pyrene	ug/l	0.21	0.29	0.03	0.22	<0.01	0.07	0.14	<0.01
Dibenzo(a,h)anthracene	ug/l	0.02	0.03	<0.01	0.03	<0.01	<0.01	0.02	<0.01
Benzo(g,h,i)perylene	ug/l	0.15	0.2	0.03	0.22	<0.01	0.06	0.09	<0.01
Indeno(1,2,3-cd)pyrene	ug/l	0.15	0.23	0.03	0.22	<0.01	0.05	0.12	<0.01
PAH, Total Detected USEPA 16	ug/l	1.6	3.01	0.28	2.17	0.02	0.73	1.37	<0.01
Sum of UK DWS four 7	ug/l								
Methyl tertiary butyl ether (MTBE)	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
m,p-Xylene	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Sum of detected Xylenes	ug/l	<2	<2	<2	<2	<2	<2	<2	<2
Sum of detected BTEX	ug/l	<4	<4	<4	<4	<4	<4	<4	<4
Aliphatics >C5-C6	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Aliphatics >C6-C8	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Aliphatics >C8-C10	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Aliphatics >C10-C12	ug/l	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C12-C16	ug/l	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C16-C21	ug/l	<5	<5	<5	<5	<5	<5	<5	<5
Aliphatics >C21-C35	ug/l	<5	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics >C12-C35	ug/l								
Aromatics >EC5-EC7	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Aromatics >EC7-EC8	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Aromatics >EC8-EC9	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Aromatics >EC9-EC10	ug/l	<1	<1	<1	<1	<1	<1	<1	<1
Aromatics >EC10-EC12	ug/l	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC12-EC16	ug/l	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC16-EC21	ug/l	<5	<5	<5	<5	<5	<5	<5	<5
Aromatics >EC21-EC35	ug/l	<5	<5	<5	<5	<5	<5	<5	<5
Total Aromatics >EC12-EC35	ug/l	<5	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics & Aromatics >C5-35	ug/l	<5	<5	<5	<5	<5	<5	<5	<5
Phenols	ug/l								
Tetrachloroethylene (PCE)	ug/l								
Trichloroethylene (TCE)	ug/l								
Dichloroethylene (DCE)	ug/l								
1,2 - Dichloroethane (DCA)	ug/l								
Vinyl choride (VC)	ug/l								
Carbon tetrachloride / tetrachlorometh	ug/l								

Appendix E Gas Risk Assessment

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Gas Risk Assessment Spreadsheet

Data entered by: Alison Nicholson

Site Name: Folkestone
Job Number: 34029

Methodology based on Wilson et al, 2006, Assessing Risks Posed by Hazardous Ground Gases to Buildings, CIRIA Report C665

Step 1: Summary of Monitoring Data

Table 1

Borehole	Maximum Flow rate (l/hr)	Peak Methane concentrations* (%)	Peak Carbon Dioxide concentrations* (%)	Minimum Oxygen concentrations (%)	Peak Carbon Monoxide concentrations (ppm)	Peak Hydrogen Sulphide concentrations (ppm)
BH03-G	0.5	0.0	0.1	20.1	2	0
BH05-G	-	0.0	0.1	20.8	0	0
BH13-G	0.1	0.0	0.1	20.1	5	1
BH18-G	0.4	0.0	0.3	20.1	3	1
BH20-G	0.1	0.0	0.1	20.3	4	1
BH21-G3	0.3	0.0	0.1	20.4	2	0
BH23-G	0.1	0.0	0.3	19.7	2	1
BH24-G	0.2	0.0	0.2	20.2	3	0
Worst Case Example+	0.5	0.0	0.3	19.7	5	1

*Using 0.05% instead of 0% as this is half the minimum detection limit of the monitoring instrument used

+ Using highest concentration and highest flow rate

Situation A: All other development excluding low rise housing with gardens

Ref. 1 defines gas screening value (GSV) of gas = Chg/100 x q
Where: C_{hg} = hazardous gas concentrations (% v/v)
q = flow rate (litres/hour)

Table 2

Borehole	Peak CH4 GSV (l/hr)	CH4 GSV for peak gas concentration and flow rate (Table 8.5 - Ref. 1)	Peak CO2 GSV (l/hr)	CO2 GSV for peak gas concentration and flow rate (Table 8.5 - Ref. 1)
BH03-G	0.0000	1	0.0005	1
BH05-G				
BH13-G	0.0000	1	0.0001	1
BH18-G	0.0000	1	0.0012	1
BH20-G	0.0000	1	0.0001	1
BH21-G3	0.0000	1	0.0003	1
BH23-G	0.0000	1	0.0003	1
BH24-G	0.0000	1	0.0004	1
Worst Case	0.0000	1	0.0015	1

Lower limit (l/hr)		Upper limit (l/hr)
0	1	0.07
0.07	2	0.7
0.7	3	3.5
3.5	4	15
15	5	70
70	6	

Based on Wilson *et al*, 1999, Reliability and Risk in Gas Protection Design

Situation B: Low rise housing with gardens

Ref. 1 defines gas screening value (GSV) of gas = Chg/100 x q
Where: C_{hg} = hazardous gas concentrations (% v/v)
q = flow rate (litres/hour)

Table 3

Borehole	CH4 Peak GSV (l/hr)	CH4 GSV for peak gas concentration and flow rate (Table 8.7 - Ref. 1)	CO2 Peak GSV (l/hr)	CO2 GSV for peak gas concentration and flow rate (Table 8.7 - Ref. 1)
BH03-G	0.00000	Green	0.0005	Green
BH05-G				
BH13-G	0.00000	Green	0.0001	Green
BH18-G	0.00000	Green	0.0012	Green
BH20-G	0.00000	Green	0.0001	Green
BH21-G3	0.00000	Green	0.0003	Green
BH23-G	0.00000	Green	0.0003	Green
BH24-G	0.00000	Green	0.0004	Green
Worst Case Example+	0.0000	Green	0.0015	Green

CH4

Lower limit (l/hr)	Upper limit (l/hr)		Typical Maximum
0	Green	0.16	1
0.16	Amber 1	0.63	5
0.63	Amber 2	1.56	20
1.56	Red		

CO2

Lower limit (l/hr)	Upper limit (l/hr)		Typical Maximum
0	Green	0.78	5
0.78	Amber 1	1.56	10
1.56	Amber 2	3.13	30
3.13	Red		

Based on Boyle and Witherington, 2006, Guidance on Evaluation of Development Proposals on Sites Where Methane and Carbon Dioxide are Present, Incorporating 'Traffic Lights'

Ref. 1: Wilson et al, 2007, Assessing Risks Posed by Hazardous Ground Gases to Buildings, CIRIA Report C665

Appendix F Waste Classification Reports

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Appendix G Ground Investigation Logs

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH01-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16** End: **27.4.16**	**6.59**	**E:622835.1 N:135636.7**	**1** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
0.00-0.15	1	ES								MADE GROUND: Asphalt.	6.44	0.15	
0.00-0.10	1	B								(MADE GROUND)			
0.20-0.50	2	ES								MADE GROUND: Dark brownish black slightly sandy GRAVEL with a medium cobble content. Sand is medium to coarse. Gravel is subangular to very angular medium to coarse slate, cement and brick fragments. Cobbles are angular to very angular sandstone (<150mm in diameter).		(0.35)	
0.30-0.50	2	B								(MADE GROUND)	6.09	0.50	
0.70-1.00	3	ES								Dark orangish brown very gravelly CLAY. Gravel is well rounded to subangular medium to coarse mixed lithologies. (SUPERFICIAL DEPOSITS)		(1.50)	
1.20-1.65	3	SPT	N=10										
1.20-1.40	3	B									4.59	2.00	
2.00-2.20	4	ES								Dark greyish brown sandy gravelly CLAY. Sand is medium to coarse. Gravel is subrounded to very angular medium to coarse grained flint chalk and chert. (SUPERFICIAL DEPOSITS)		(0.50)	
2.00-2.45	5	SPT(c)	N=19								4.09	2.50	
2.00-2.70	6	B											
2.50-2.70	7	B								Medium dense orange mottled light brown sandy GRAVEL. Sand is medium to coarse. Gravel is rounded to subrounded medium to coarse flint and quartz. (BEACH DEPOSIT)		(2.70)	
3.00-3.45	7	SPT(c)	N=22						1				
4.50-4.95	8	SPT(c)	N=15						1	. . . slightly sandy at 4.50m.			
4.50-4.80	9	B											
5.00-5.45	10	SPT(c)	N=18								1.39	5.20	
5.20-5.90	9	B								Medium dense grey silty slightly gravelly SAND. Sand is fine. Gravel is rounded to subrounded medium to coarse flint and quartz. (BEACH DEPOSIT)		(0.50)	
											0.89	5.70	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
12/04/16	08:00	8.00	7.50	200	5.00
19/04/16	08:00	14.20	14.00	200	1.60
20/04/16	10:20	25.60	25.00	150	6.30
20/04/16	15:00	27.40	25.00	150	4.40
27/04/16	07:30	40.40	40.40	150	5.45
27/04/16	17:30	27.10	None	150	5.70
25/04/16	11:00	32.10	32.10	150	5.20
25/04/16	16:30	34.10	34.10	150	6.25

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 14.20m depth.
3. Groundwater struck at 4.50m depth, rising to 4.00m depth after 5 minutes, and then holding steady (monitored for a total of 20 minutes).

All dimensions in metres | Scale: **1:32**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**Martin Reeves + Jamie Grigor**	**OGoddard + RLynes**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH01-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16** End: **27.4.16**	**6.59**	**E:622835.1 N:135636.7**	**2** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.00-6.45	12	SPT(c)	N=38							Dense dark greenish grey silty SAND. Sand is fine. (SANDGATE FORMATION) *(stratum copied from 5.70m from* previous sheet)		(2.30)	
7.50-7.95	13	SPT(c)	N=40							. . . at 7.0m becomming slightly clayey.	-1.41	8.00	
8.00-8.20	14	B								Dark greenish grey silty sandy CLAY. Driller notes clay is interbedded with clayey SAND. Sand is fine. (SANDGATE FORMATION)		(1.00)	
9.00-9.44	15	SPT	N=52*							Dense to very dense dark greenish grey very clayey SAND varying to very sandy silty CLAY. Sand is fine. (SANDGATE FORMATION)	-2.41	9.00	
10.50-10.90	16	SPT	N=58*										
11.00-11.20	17	B											
11.50-11.95	18	SPT	N=37									(5.20)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
26/04/16	07:00	34.10	34.10	150	5.25
26/04/16	17:30	40.40	40.40	150	5.25

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

4. Borehole extended below 14.20m depth using rotary wireline coring techniques with SW size equipment and water flush.
5. On completion 19mm diameter standpipe complete with flush protective cover installed to 27.10m depth (response zone 26.00-28.00m depth).

All dimensions in metres | Scale: **1:32**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**Martin Reeves + Jamie Grigor**	**OGoddard + RLynes**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH01-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16** End: **27.4.16**	**6.59**	**E:622835.1 N:135636.7**	**3** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.20	19	B								Dense to very dense dark greenish grey very clayey SAND varying to very sandy silty CLAY. Sand is fine. (SANDGATE FORMATION) *(stratum copied from 9.00m from* previous sheet)			
13.00-13.42	20	SPT	N=57*										
14.00-14.41	21	SPT	N=59*										
14.00-14.20	22	B									-7.61	14.20	
14.20-15.70 (0:30)	22	SPT(c)	N=50							Very dense greenish grey very clayey SAND. (SANDGATE FORMATION)			
14.20-14.65	24	B										(0.75)	
14.30-14.95											-8.36	14.95	
14.95-15.05	25	D		93	40	30				Firm becoming stiff greenish grey silty CLAY with occasional thin laminae of green sand. (Destructively weathered clay). (SANDGATE FORMATION)	-8.46	15.05	
14.97		HP	c_u=63				NI 150						
15.00		HP	c_u=150				220					(0.65)	
										Extremely weak thinly laminated brown distinctly weathered MUDSTONE. Bedding is horizontal. Joints are 55-65° medium spaced planar rough infilled with grey clay up to 2mm. (SANDGATE FORMATION)	-9.11	15.70	
15.70-16.60 (0:20)	23	SPT(c)	N=36									(0.45)	
15.70-16.15	26	B											
15.70-16.15											-9.56	16.15	
16.15-16.45	28	B		100	100	100				. . . between 15.14m and 15.25m joint is 65° planar rough infilled with grey clay.			
										. . . between 15.40m and 15.58m joint is 55° planar rough partly open infilled with grey clay up to 1.5mm.	-9.86	16.45	
16.45-16.60	27	C											
16.60-18.10 (0:15)	24	SPT(c)	N=50							Greenish grey clayey very silty SAND. (SANDGATE FORMATION)			
16.60-17.05							NI 200						
				100	93	87	400			Stiff becoming very stiff greenish grey silty CLAY with occasional thin laminae or pockets of greenish grey fine to coarse sand. (SANDGATE FORMATION)		(1.85)	

Boring Progress and Water Observations						Chiselling / Slow Progress		
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)

General Remarks

6. On completion borehole backfilled with bentonite pellets to 28.00m depth, gravel filter to 26.00 m depth, bentonite pellets to 0.20m depth, then a concreted flush cover.
7. SPT hammers AR1240-2016 (E_r = 70.00%) , AR829-2016 (E_r = 78.81%) used.

All dimensions in metres | Scale: **1:32**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**Martin Reeves + Jamie Grigor**	**OGoddard + RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH01-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16** End: **27.4.16**	**6.59**	**E:622835.1 N:135636.7**	**4** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
										. . . between 16.15m and 16.25m clay becomes locally very soft.			
17.75-17.90	29	C		100	93	87	NI 200 400			Extremely weak thinly laminated brown distinctly weathered MUDSTONE with occasional greenish grey weathered fine sand or silt and rare pyrite crystals. Bedding is horizontal. Bedding fractures are subhorizontal very closely to medium spaced undulating rough open infilled with clay up to 2.5m. (SANDGATE FORMATION)			
18.10-19.60 (0:18)	25	SPT(c)	N=50								-11.71	18.30	
18.10-18.55											-11.83	18.42	
										(stratum copied from 16.45m from previous sheet) . . . at 17.70m rare fine to coarse pyrite crystal up to 15mm at 17.80m. . . . between 17.85m and 18.10m joint is 85° undulating rough with smears.			
18.75-19.10	30	C		100	100	93				Medium strong thinly laminated fine to medium fresh SANDSTONE. (SANDGATE FORMATION)		(1.33)	
19.60-21.10 (0:15)										Very stiff thinly laminated greenish grey and brown clayey SILT with occasional thin laminae of greenish grey medium to coarse sand with rare pyrite nodules up to 5mm. Extremely weak thinly laminated greyish brown and green silty MUDSTONE with occasional thin laminae of greenish grey weathered sand or sandstone. (SANDGATE FORMATION)	-13.16	19.75	
20.35-20.80	31	C		100	100	100							
20.70		HP	c_u=145							Very stiff thinly laminated brown silty CLAY. Extremely weak thinly laminated brown silty MUDSTONE with occasional thin laminae of brown silt. Bedding is horizontal. (SANDGATE FORMATION)		(1.95)	
21.10-22.60 (0:11)											-15.11	21.70	
21.70-22.40	32	C								Very stiff thinly laminated brown silty CLAY with thin laminae of brown silt (Possible weathered mudstone) and rare pyrite nodules up to 40mm. Clay is sheared at different depths with varying shear strength. (SANDGATE FORMATION)			
21.70		HP	c_u=200	93	47	33						(0.90)	
22.60-24.10 (0:20)											-16.01	22.60	
										Description on next sheet			
				100	87	87							
23.10-23.50	33	C											

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:32**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**Martin Reeves + Jamie Grigor**	**OGoddard + RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH01-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16** End: **27.4.16**	**6.59**	**E:622835.1 N:135636.7**	**5** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
				100	87	87				Very stiff thinly laminated brown silty CLAY. Extremely weak thinly laminated brown silty MUDSTONE with occasional thin laminae of brown silt up to 1mm. Bedding is horizontal. (SANDGATE FORMATION) *(stratum copied from 22.60m from previous sheet)*	-17.31	(1.30) 23.90	
24.10-25.60 (0:27) 24.20-25.00	34	B		100	27	17				Very stiff thinly laminated brown silty CLAY. Extremely weak thinly laminated brown silty MUDSTONE with occasional thin laminae of green fine to coarse sand up to 2mm. Bedding is horizontal. (SANDGATE FORMATION)	-17.61	24.20	
25.15-25.37	35	C								Greenish black clayey very silty SAND with occasional fine to coarse brown shells and laminae of brown clay. Greenish grey sand is naturally compacted to very dense state. (SANDGATE FORMATION)	-18.51	(0.90) 25.10	
25.60-26.50 (0:30)										Medium strong thinly laminated greenish black SANDSTONE with very thin bed of grey sandy clay. (SANDGATE FORMATION)	-19.01	(0.50) 25.60	
26.00-26.20	36	C		100	100	78				Medium strong thinly laminated brown sandy shelly LIMESTONE with occasional fine to coarse shell fragments. Fractures are 0- 25° very closely to medium spaced undulating rough infilled with greenish grey clay/clayey sand. (HYTHE FORMATION)			
26.50-27.10 (0:15)				100	80	42				. . . between 26.58m and 26.68m non-intact recovered fine to coarse angular fragments of limestone.		(2.60)	
27.10-28.10							NI 160 300						
27.40-27.70	37	C		110	95	25							
28.10-29.10											-21.61	28.20	
				150	135	74				*Description on next sheet* . . . between 28.40m and 28.52m very weak thinly laminated grey sandstone. . . . between 28.60m and 28.85m joint is 65° undulating rough infilled with grey fine to coarse sand.			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:32**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**Martin Reeves + Jamie Grigor**	**OGoddard + RLynes**	AML AGS

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log COMPOSITE LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 11:40 | AML1 |

STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH01-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16** End: **27.4.16**	**6.59**	**E:622835.1 N:135636.7**	**6** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
29.10-30.60										. . . between 28.90m and 29.20m joint is 85° undulating rough infilled with grey fine to coarse sand. Medium strong thinly laminated brown sandy shelly LIMESTONE with medium spaced thinly bedded very weak thinly laminated grey fine to coarse sandstone. Fractures are 5-85° very closely to medium spaced undulating rough open infilled with grey clayey sand or sandy clay up to 2mm. (HYTHE FORMATION) *(stratum copied from 28.20m from* previous sheet) . . . between 29.10m and 29.20m very weak thinly laminated grey sandstone. . . . between 29.70m and 29.78m very weak thinly laminated grey sandstone. . . . between 29.78m and 29.98m non-intact recovered as fine to coarse angular gravel of limestone. No recovery.		(2.16)	
29.35-29.90	38	C		53	20	7	NI 160 300				-23.77	30.36	
30.60-34.40													
30.60-30.72	26	SPT(c)	N=429*										
32.10-32.48	27	SPT(c)	N=66*	0	0	0						(4.04)	ZCL
34.10-34.41	28	SPT	N=96*								-27.81	34.40	
34.40-35.90 (1:23)				100	85	71	10 180 480			*Description on next sheet*			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:32**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**Martin Reeves + Jamie Grigor**	**OGoddard + RLynes**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH01-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16** End: **27.4.16**	**6.59**	**E:622835.1 N:135636.7**	**7** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
35.20-35.66	101	C		100	85	71				Very weak thinly laminated medium grey partially weathered SILTSTONE. Fracture set 1: Fractures are dipping 0 - 10° medium spaced undulating striated moderately wide to wide infilled with silty clay. Fracture set 2: Fractures are dipping 45 - 60° medium to widely spaced planar smooth tight to partly open with some dark grey discolouration. (HYTHE FORMATION) *(stratum copied from 34.40m from* previous sheet)			
35.90-37.40 (1:11)				100	66	51							
36.90-37.10	102	C											
37.40-38.90 (1:00)							10 180 480					(6.00)	
38.20-38.60	103	C		88	53	53							
38.90-40.40 (1:04)													
				100	37	37					-33.81	40.40	
										Borehole terminated at 40.40m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:32**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**Martin Reeves + Jamie Grigor**	**OGoddard + RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log COMPOSITE LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH02-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**10.5.16** End: **12.5.16**	**6.26**	**E:622952.9 N:135670.8**	**1** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Asphalt. (MADE GROUND)	6.06	0.20	
						MADE GROUND: Dark grey slightly silty sandy GRAVEL with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone, slag, coal and clinker. Cobbles are subrounded limestone. (MADE GROUND)	5.91	0.35	
								(0.45)	
							5.46	0.80	
1.00-1.45	1	SPT(c)	N=15			MADE GROUND: Light greenish yellow silty slightly gravelly SAND with occasional clay pockets. Gravel is angular to subrounded fine to coarse of chert. (MADE GROUND)	5.16	1.10	
						POSSIBLE MADE GROUND: Light greenish yellow silty gravelly SAND with some cobbles. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of chert. Cobbles are subangular sandstone. (POSSIBLE MADE GROUND)			
2.00-2.45 2.00-2.50	2 5	SPT(c) B	N=18			Medium dense multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to well rounded fine to medium and occasional coarse of chert and quartzite. (BEACH DEPOSIT)			
3.00-3.45 3.00-3.50	3 6	SPT(c) B	N=20						
4.00-4.45 4.00-4.50	4 7	SPT(c) B	N=21		1			(6.90)	
5.00-5.45 5.00-5.50	5 8	SPT(c) B	N=24						

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
10/05/16	11:00	5.00	4.00	200	4.20
10/05/16	16:00	9.50	9.40	200	4.20
11/05/16	08:00	10.00	10.00	200	4.80
11/05/16	12:00	17.45	10.90	200	4.80

Chiselling / Slow Progress

From	To	Duration (hh:mm)
17.00	17.45	01:30

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 17.45m depth.
3. Groundwater struck at 4.20m depth holding steady for a total of 20 minutes.
4. On completion 50mm diameter standpipe

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SDS**	**APope**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH02-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**10.5.16** End: **12.5.16**	**6.26**	**E:622952.9 N:135670.8**	**2** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.50-6.95 6.50-7.00	6 9	SPT(c) B	N=25			Medium dense multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to well rounded fine to medium and occasional coarse of chert and quartzite. (BEACH DEPOSIT) *(stratum copied from 1.10m from previous sheet)* . . . 7.10-7.40m driller notes sandstone "band" (possible boulder).	-1.74	8.00	
8.00-8.45 8.50-8.50	7 10	SPT(c) B	N=26			Medium dense dark green silty gravelly SAND. Sand is fine to coarse. Gravel is subrounded to well rounded fine to coarse of chert. (BEACH DEPOSIT)	-3.24	(1.50) 9.50	
9.50-9.95	8	SPT(c)	N=29			SANDSTONE (Driller's Description) (SANDGATE FORMATION)	-3.54	9.80	
10.00-10.50	11	B				Firm becoming stiff dark grey locally thickly laminated slightly gravelly silty CLAY with frequent light grey silt interlaminations and pockets. Gravel is rounded to well rounded fine to coarse of chert. (SANDGATE FORMATION)			
11.00-11.45 11.00-11.50	9 12	SPT(c) B	N=47						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

complete with flush protective cover installed to 8m depth (response zone 1.0m-8.0m depth).

5. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SDS**	**APope**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH02-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**10.5.16**	**6.26**	**E:622952.9 N:135670.8**	**3** of **3**
	End: **12.5.16**			

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.50-12.95	10	SPT	N=50			Firm becoming stiff dark grey locally thickly laminated slightly gravelly silty CLAY with frequent light grey silt interlaminations and pockets. Gravel is rounded to well rounded fine to coarse of chert. (SANDGATE FORMATION) *(stratum copied from 9.80m from previous sheet)*			
13.50-13.70	14	D						(7.60)	
14.00-14.37	11	SPT	N=68*						
15.00-15.20	16	D							
15.50-15.89	12	SPT	N=62*						
16.50	18	D							
17.00-17.32	13	SPT	N=88*						
17.40	20	D				SANDSTONE (Driller's Description) (SANDGATE FORMATION)	-11.14	17.40	
						Borehole terminated at 17.45m depth.	-11.19	17.45	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SDS**	**APope**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH03-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**7.4.16** End: **14.4.16**	**6.07**	**E:623060.2 N:135699.5**	**1** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
0.00-0.10	1	B									MADE GROUND: Dark greyish black asphalt. (MADE GROUND)	5.95	0.12	
0.10-0.40	1	B										5.67	0.40	
0.40-0.60	2	B									MADE GROUND: Light grey concrete. (MADE GROUND)			
0.50-0.80	1	ES									POSSIBLE MADE GROUND: Light brownish grey mottled light brownish orange slightly clayey GRAVEL. Gravel is well rounded to subrounded medium to coarse flint. (MADE GROUND)	4.97	(0.70) 1.10	
2.20-2.30	4	ES									Light bluish grey mottled light brownish orange slightly sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded medium to coarse grained flint. (BEACH DEPOSIT)			
3.00-3.45	3	SPT(c)	N=15							1			(3.90)	
3.50-3.80	4	B												
4.00-4.45	5	SPT(c)	N=17									1.07	5.00	
5.00-5.20	3	ES									Dense dark greyish green very sandy GRAVEL. Sand is fine to medium. Gravel is well rounded to subrounded medium to coarse sandstone and flint (BEACH DEPOSIT)			
5.00-5.20	6	B												
5.00-5.45	7	SPT(c)	N=41											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
08/04/16	08:00	10.00	10.00	N/R	3.20
12/04/16	14:30	14.00	11.00	N/R	3.30
12/04/16	17:00	21.20	21.20	N/R	0.20
13/04/16	08:00	21.20	21.20	N/R	1.30
13/04/16	18:00	36.00	36.00	N/R	4.80
14/04/16	08:00	36.00	36.00	N/R	5.50

Chiselling / Slow Progress

From	To	Duration (hh:mm)
9.80	10.00	01:00

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 15.20m depth.
3. Groundwater struck at 3.20m depth, rising to 3.10m depth after 20 minutes.
4. Borehole extended to 39.00m depth using

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH03-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**7.4.16** End: **14.4.16**	**6.07**	**E:623060.2 N:135699.5**	**2** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
6.00-6.45	8	SPT(c)	N=46								Dense dark greyish green very sandy GRAVEL. Sand is fine to medium. Gravel is well rounded to subrounded medium to coarse sandstone and flint (BEACH DEPOSIT) *(stratum copied from 5.00m from* previous sheet)	-1.24	(2.30) 7.30	
7.30	9	B									Grey COBBLES. Cobbles are rounded to subrounded sandstone. (BEACH DEPOSIT)	-2.94	(1.70) 9.00	
7.50-7.88	10	SPT(c)	N=66*											
9.00-9.45	11	SPT(c)	N=34								Dense dark grey slightly silty SAND. Sand is fine to medium. (BEACH DEPOSIT)	-3.64	(0.70) 9.70	
9.00-9.20	12	B												
9.70-9.80	13	D									Very dense dark grey mottled orange very gravelly SAND. Sand is fine to medium. Gravel is well rounded to subrounded flint. (BEACH DEPOSIT)	-4.44	(0.80) 10.50	
10.00-10.21	14	SPT(c)	N=150*											
10.50-10.70	15	B									Light yellowish orange and light orangish brown slightly sandy GRAVEL. Sand is fine to medium. Gravel is well rounded to rounded medium to coarse grained mixed lithologies including flint, chert, quartz and sandstone. (BEACH DEPOSIT)	-4.94	(0.50) 11.00	
11.00-11.20	16	B										-5.24	11.30	
11.30-11.50	17	B									Dark grey light orange gravelly SAND. Sand is fine to medium. Gravel is well rounded to subrounded coarse. (BEACH DEPOSIT)	-5.94	(0.70) 12.00	

Boring Progress and Water Observations						Chiselling / Slow Progress		
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)

General Remarks

rotary wireline coring techniques with SW size equipment and water flush.

5. On completion 50mm diameter standpipe installed to 4m depth (response zone 1.0m-4.0m depth).
6. SPT hammers AR829-2016 (E_r = 78.81%) , EQU089-2015 (E_r = 59.51%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH03-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**7.4.16** End: **14.4.16**	**6.07**	**E:623060.2 N:135699.5**	**3** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.44	18	SPT(c)	N=52*								Dark grey slightly clayey SAND. Sand is fine to medium. (SANDGATE FORMATION)			
12.50-12.70	19	B									Dark grey silty sandy CLAY. Sand is fine. (SANDGATE FORMATION)			
13.50-13.95	20	SPT(c)	N=51*										(3.20)	
15.00-15.35	21	SPT(c)	N=75*									-9.14	15.20	
15.20-16.70 (0:05)				87				95% return Water (Grey)			Very dense dark greenish grey silty SAND with occasional fine green sandstone gravel. Sand is fine to medium. (SANDGATE FORMATION)			
16.70-18.20 (0:10)				100				95% return Water (Grey)					(3.64)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH03-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**7.4.16** End: **14.4.16**	**6.07**	**E:623060.2 N:135699.5**	**4** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
18.00-18.20	101	D		100							Very dense dark greenish grey silty SAND with occasional fine green sandstone gravel. Sand is fine to medium. (SANDGATE FORMATION) *(stratum copied from 15.20m from* previous sheet)			
18.20-19.70 (0:10) 18.20-18.60	22	SPT(c)	N=61*					95% return Water (Grey)			. . . at 18.00m laboratory description of sample on which shear box test was completed is grey sandy CLAY.	-12.78	18.84	
				100							Dark greenish grey silty sandy CLAY. Sand is fine. (SANDGATE FORMATION)		(0.96)	
19.50		HP	c_u=225											
19.70-21.20 (0:12) 19.70-20.07 19.80	23	SPT(c) HP	N=68* c_u=>225	100	100	100		95% return Water (Grey)			Extremely weak destructured dark greenish grey silty SANDSTONE containing pyrite. (SANDGATE FORMATION)	-13.74	19.80	
20.70-21.10	102	C									. . . at 20.70m comprises very stiff grey sandy CLAY.			
21.20-22.70 (0:10) 21.20-21.56	103	C		100				90% return Water (Grey)						
22.70-24.20 (0:15)				100				90% return Water (Grey)						

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH03-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**7.4.16** End: **14.4.16**	**6.07**	**E:623060.2 N:135699.5**	**5** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
24.20-25.70 (0:08)	104	D		100				90% return Water (Grey)			Extremely weak destructured dark greenish grey silty SANDSTONE containing pyrite. (SANDGATE FORMATION) *(stratum copied from 19.80m from* previous sheet) . . . between 24.30m and 24.37m band of dark black and gold mineralisation (including pyrite). Possible fossilised wood/lignite and pyritised shells.		(9.40)	
24.30-24.37	105	C												
24.37-24.68														
25.70-27.20 (0:09)	24	SPT(c)	N=68*	100				90% return Water (Grey)						
25.70-26.07														
26.71-27.00	106	C												
27.20-28.70 (0:15)				100				80% return Water (Grey)						
28.70-30.20 (0:25)	107	C		83	55	53		0% return Water				-23.14	29.20	
28.70-29.00														
29.50-29.70	108	C									*Description on next sheet*			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH03-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**7.4.16** End: **14.4.16**	**6.07**	**E:623060.2 N:135699.5**	**6** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
				83	55	53					Strong distinctly weathered light grey sandy LIMESTONE with occasional shells. fractures are medium to widely spaced undulating rough very wide infilled with light grey silty clay with inclusions of limestone. (HYTHE FORMATION) . . . between 29.20m and 29.25m weathered to a sandy clay at upper boundary.*(stratum copied* from 29.20m from previous sheet)			
30.20-31.70 (0:15)														
				97	53	53		0% return Water						
31.05-31.50	109	C												
31.70-33.20 (0:20)														
31.90-32.10	110	C					NI 300 450						(5.55)	
				80	47	35		0% return Water						
33.20-33.70 (0:25)														
				280				0% return Water						
												-28.69	34.75	
34.70-36.00 (0:20)											Medium strong partially unweathered thinly laminated dark grey silty SANDSTONE with rare shells. (HYTHE FORMATION)		(0.52)	
												-29.21	35.27	
35.27-35.70	111	C		100	84	69		0% return Water			Strong partially unweathered light grey LIMESTONE. (HYTHE FORMATION) . . . unconformable upper and lower boundary.	-29.51	35.57	
											Description on next sheet		(0.84)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH03-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**7.4.16** End: **14.4.16**	**6.07**	**E:623060.2 N:135699.5**	**7** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
36.00-37.50 (0:20)											. . . at 35.70m inclusion of limestone 30mm across. Medium strong thinly laminated dark grey sandy SILTSTONE. (HYTHE FORMATION)			
36.32-36.62	112	C		100	100	93		0% return Water			*(stratum copied from 35.57m from* previous sheet) . . . at 36.27m layer of halite 2mm across. . . . at 36.40m nodule of pyrite along lower boundary.	-30.35	36.41	
											Strong distinctly weathered light grey LIMESTONE. Fractures are extremely close undulating smooth very tight orientated at 70°. (HYTHE FORMATION)	-30.64	36.70	
37.50-39.00 (0:20)				100	87	87		0% return Water			Medium strong thinly laminated dark grey sandy SILTSTONE with rare shells. (HYTHE FORMATION) . . . lies unconformably on lower boundary.	-30.96	37.02	
38.60-38.85	113	C									Strong distinctly weathered light grey LIMESTONE. (HYTHE FORMATION)	-31.21	37.27	
											Medium strong thinly laminated sandy SILTSTONE. (HYTHE FORMATION) . . . at 37.28m cubic crystals of halite up to 20mm across. . . . at 37.34m layer of halite 2mm thick. . . . between 37.40m and 37.45m layer of limestone. . . . at 37.45m inclusion of limestone 50mm across. . . . between 37.50m and 38.00m occasional mottling of limestone/inclusion of limestone.	-32.94	(1.73) 39.00	
											Borehole terminated at 39.00m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH04-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**6.4.16** End: **7.4.16**	**6.10**	**E:623118.0 N:135722.5**	**1** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Asphalt. (MADE GROUND)	5.90	0.20	
						MADE GROUND: Concrete. (MADE GROUND)	5.80	0.30	
0.50	2	ES				MADE GROUND: Soft orange brown sandy CLAY (Driller's Description). (MADE GROUND)	5.46	0.64	
1.00-1.45 1.00-1.50 1.00	2 3 4	SPT(c) B ES	N=18			Medium dense multicoloured (orangish brown, black, light grey, red, white and brown) slightly sandy GRAVEL with occasional shells. Sand is fine to coarse. Gravel is angular to rounded fine to medium flint, chert, quartz and shell fragments. (BEACH DEPOSIT) . . . between 0.64m and 2.00m gravel contains greater proportion of medium material.		(2.36)	
2.00-2.45 2.00-2.50 2.00	4 5 6	SPT(c) B ES	N=24			. . . between 2.00m and 3.00m gravel contains greater proportion of fine material.			
2.50	7	ES					3.10	3.00	
3.00-3.45 3.00-3.50 3.00	6 8 9	SPT(c) B ES	N=23			Medium dense multicoloured (orangish brown, black, light grey, red, white and brown) slightly sandy GRAVEL. Sand is coarse. Gravel is subangular to rounded fine to coarse flint, chert and quartz. (BEACH DEPOSIT)			
4.00-4.45 4.00-4.50 4.00	9 10 11	SPT(c) B ES	N=20					(2.00)	
							1.10	5.00	
5.00-5.45 5.00-5.50 5.00	11 12 13	SPT(c) B ES	N=40			Dense multicoloured (orangish brown, black, light grey, red, white and brown) sandy GRAVEL with medium cobble content. Sand is medium to coarse. Gravel is angular to rounded fine to coarse flint, chert, quartz and shell fragments. Cobbles are rounded flint. (BEACH DEPOSIT)			

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
07/04/16	11:10	3.90	3.00	200	3.90
07/04/16	11:30	3.90	3.90	200	3.90
08/04/16	08:00	12.50	12.50	200	3.90
08/04/16	14:00	17.00	14.50	200	3.90

Chiselling / Slow Progress

From	To	Duration (hh:mm)
17.20	17.25	01:00

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 17.45m depth.
3. Groundwater struck at 3.90m depth.
4. On completion 50mm diameter standpipe complete with flush protective cover installed

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH04-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**6.4.16** End: **7.4.16**	**6.10**	**E:623118.0 N:135722.5**	**2** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.50-6.95 6.50-7.00	13 14	SPT(c) B	N=50			Dense multicoloured (orangish brown, black, light grey, red, white and brown) sandy GRAVEL with medium cobble content. Sand is medium to coarse. Gravel is angular to rounded fine to coarse flint, chert, quartz and shell fragments. Cobbles are rounded flint. (BEACH DEPOSIT) *(stratum copied from 5.00m from previous sheet)*		(4.40)	
8.00-8.45 8.00-8.50	15 15	SPT(c) B	N=44			. . . from 8.00m becoming very sandy.			
							-3.30	9.40	
9.50-9.95	16	SPT	N=48			Dense, becoming very dense with depth dark greenish grey slightly clayey SAND. Sand is fine to medium. (SANDGATE FORMATION)			
10.50-11.00	17	B						(2.70)	
11.00-11.15	18	SPT	N=200*			. . . at 11.20m occasional bands of yellow sand.			
11.50	18	B							

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

to 6.00m depth (response zone - 1.00m to 6.00m depth).

5. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH04-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**6.4.16** End: **7.4.16**	**6.10**	**E:623118.0 N:135722.5**	**3** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
							-6.00	12.10	
12.10 12.20	19	D HP	c_u=130			Firm to stiff dark grey sandy silty CLAY. (SANDGATE FORMATION)			
12.50-12.85	20	SPT	N=75*					(1.40)	
							-7.40	13.50	
13.50	21	D				Firm to stiff dark grey silty slightly sandy CLAY. Sand is fine. (SANDGATE FORMATION)			
14.00-14.42	21	SPT	N=56*					(1.70)	
15.00	22	D							
15.00	23	D					-9.10	15.20	
15.50-15.90	22	SPT	N=60*			Very dense dark grey silty SAND. Sand is fine to medium. Flaser bedding. (SANDGATE FORMATION)			
16.50	25	D						(2.25)	
17.00-17.13	23	SPT	N=200*						
							-11.35	17.45	
						Borehole terminated at 17.45m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH05-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16** End: **15.4.16**	**6.24**	**E:623238.6 N:135784.9**	**1** of **22**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
0.00-0.10	1	B									MADE GROUND: Asphalt.	6.10	0.14	
0.00-0.14	1	ES									(MADE GROUND)			
0.50-0.95	1	SPT	N=9								MADE GROUND: Dark brown and brownish grey sandy GRAVEL. Sand is medium to coarse. Gravel is subrounded to angular medium to coarse flint brick and chalk fragments.		(0.76)	
0.50-0.70	2	B												
0.60-0.70	2	ES										5.34	0.90	
											(MADE GROUND)			
1.20-1.50	3	B									MADE GROUND: Medium dense dark grey mottled orange slightly clayey sandy GRAVEL. Sand is medium to coarse. Gravel is angular to subrounded medium to coarse flint, brick.			
1.40-1.50	3	ES												
1.50-1.95	4	SPT(c)	N=13											
1.50-2.00	5	B									(MADE GROUND)			
											. . . loose amosite asbestos fibres detected by laboratory in sample at 1.40m depth.			
2.00-2.45	6	SPT	N=13								. . . driller identified base of made ground as probaby being at 2.00m during drilling; samples logged as made ground below 2.00m may include material mixed in from overlying strata.		(2.60)	
2.50-3.00	7	B												
2.60-3.00	4	ES												
3.00-3.45	8	SPT	N=19											
3.20-3.40	5	ES										2.74	3.50	
3.50-3.80	9	B									Medium dense light brownish orange and light orange sandy GRAVEL. Sand is medium to coarse. Gravel is subrounded to rounded flint.			
3.60-3.80	6	ES												
4.00-4.45	10	SPT(c)	N=19								(BEACH DEPOSIT)			
													(2.00)	
4.50-5.00	11	B												
5.00-5.45	12	SPT	N=30											
5.30-5.60	13	B								1		0.74	5.50	
											Description on next sheet			

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
13/04/16	17:00	17.00	12.00	200	10.00
15/04/16	13:00	21.40	21.40	N/R	4.80
18/04/16	11:00	21.40	21.40	N/R	5.70
18/04/16	17:00	30.40	30.40	N/R	4.80
19/04/16	08:00	31.90	31.90	N/R	4.40

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Inspection pit hand dug to 0.50m depth.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 16.50m depth.
3. Groundwater struck at 5.50m depth.
4. Borehole extended to 40.30m depth using rotary wireline coring techniques with SW size

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 305**	**Ben Horscroft + Dean Walker**	**RLynes + SOFarrell**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH05-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16** End: **15.4.16**	**6.24**	**E:623238.6 N:135784.9**	**2** of **22**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
6.50-6.95	14	SPT(c)	N=41								Dense light brownish orange and light orange very sandy GRAVEL with a low cobble content. Sand is medium to coarse. Gravel is fine to coarse; gravel and cobbles are subrounded to rounded flint and sandstone. (BEACH DEPOSIT) *(stratum copied from 5.50m from* previous sheet)		(2.00)	
												-1.26	7.50	
7.50-7.80	15	B									Light brownish orange and light orange sandy GRAVEL with a low cobble content. Sand is medium to coarse. Gravel is subrounded to rounded fine to coarse flint and sandstone. Cobbles are subrounded to angular. (BEACH DEPOSIT)	-1.56	7.80	
8.00-8.38	16	SPT(c)	N=65*										(1.20)	
8.50-9.00	17	B									Very dense light brownish orange and light orange very sandy GRAVEL. Sand is medium to coarse. Gravel is subrounded to rounded fine to coarse flint and sandstone. (BEACH DEPOSIT)	-2.76	9.00	
9.00-9.45	18	SPT(c)	N=48											
9.00-9.50	19	B									Dense light greyish orange mottled orange slightly silty gravelly SAND. Sand is medium to coarse. Gravel is subangular to rounded medium to coarse grained flint. (BEACH DEPOSIT)		(0.50)	
												-3.26	9.50	
10.50-10.90	20	SPT	N=61*								Dense dark greenish grey silty SAND. Sand is fine to medium. (SANDGATE FORMATION)			
11.20-11.50	21	B												

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	equipment and water flush. 5. On completion 50mm diameter standpipe complete with flush protective cover installed to 4.00m depth (response zone - 1.00m to 4.00m depth). 6. SPT hammers AR829-2015 (E_r = 69.00%) , AR829-2016 (E_r = 78.81%) , EQU089-2015

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 305**	**Ben Horscroft + Dean Walker**	**RLynes + SOFarrell**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH05-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16** End: **15.4.16**	**6.24**	**E:623238.6 N:135784.9**	**3** of **22**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.45	22	SPT(c)	N=48								Dense dark greenish grey silty SAND. Sand is fine to medium. (SANDGATE FORMATION) *(stratum copied from 9.50m from* previous sheet)		(6.50)	
13.00-13.50	23	B												
13.50-13.95	24	SPT	N=51*								. . . below 13.50m very dense.			
14.00-14.50	25	B												
15.00-15.39	26	SPT	N=64*											
												-9.76	16.00	
16.00-16.50	27	B									Dark greenish grey clayey sandy SILT. Sand is fine including frequent pyrite grains. (SANDGATE FORMATION)			
16.20-16.90 (0:03)													(0.80)	
16.50-16.87	28	SPT	N=68*	71				100% return Water (Grey)				-10.56	16.80	
16.90-18.40 (0:05)				87				95% return Water (Grey)			Dense dark greenish grey silty SAND. Sand is fine to medium including frequent pyrite grains. (SANDGATE FORMATION)		(1.60)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

(E_r = 59.51%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 305**	**Ben Horscroft + Dean Walker**	**RLynes + SOFarrell**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH05-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16** End: **15.4.16**	**6.24**	**E:623238.6 N:135784.9**	**4** of **22**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
				87								-12.16	18.40	
18.40-19.90 (0:07) 18.40-18.83	29	SPT(c)	N=54*								Very dense greenish grey slightly gravelly very clayey SAND. Sand is fine to medium. Gravel is sub rounded fine to medium pyrite. (SANDGATE FORMATION)			
19.10-19.40	101	C	100% recovery	87				95% return Water (Grey)			. . . at 19.08m pyrite nodule.		(1.90)	
19.90-21.40 (0:10) 19.90-20.27	30	SPT(c)	N=68*									-14.06	20.30	
				93				95% return Water (Grey)			Dark grey CLAY. (SANDGATE FORMATION)	-14.36	20.60	
											Greenish grey very clayey SAND. Sand is fine to medium. With rare widely spaced flint gravel. (SANDGATE FORMATION) . . . at 20.85m indent of an amonite. . . . at 21.10m pyrite nodule.		(1.10)	
21.40-22.90 (0:15) 21.40-21.77	31	SPT(c)	N=70*									-15.46	21.70	
				97							Stiff dark grey CLAY. (SANDGATE FORMATION)		(0.70)	
22.42-22.75	102	C										-16.16	22.40	
22.90-24.40 (0:13)				97							Firm to stiff dark greenish grey medium spaced very clayey SAND. Sand is fine to medium. (SANDGATE FORMATION)		(1.60)	
												-17.76	24.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 305**	**Ben Horscroft + Dean Walker**	**RLynes + SOFarrell**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH05-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16** End: **15.4.16**	**6.24**	**E:623238.6 N:135784.9**	**5** of **22**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
				97							Firm to very stiff becoming very stiff with depth dark grey CLAY. (SANDGATE FORMATION)			
24.40-25.90 (0:25)													(1.98)	
				60							. . . between 25.80m and 25.90m flint cobble.	-19.74	25.98	
25.90-27.40 (0:10)											Very stiff dark greenish grey slightly sandy CLAY. Sand is fine to medium. (SANDGATE FORMATION)		(0.64)	
												-20.38	26.62	
				100							Grey sandy CLAY. Recovered soft, possibly disturbed by drilling. (SANDGATE FORMATION)	-20.52	26.76	
26.77-27.03	103	C									Very stiff dark greenish grey slightly sandy CLAY/extremely weak MUDSTONE. Sand is fine to medium. (SANDGATE FORMATION)		(0.64)	
												-21.16	27.40	
27.40-28.90 (0:09)											NO RECOVERY.		(1.12)	ZCL
				27								-22.28	28.52	
											Dark greenish grey slightly clayey SAND. Sand is fine to medium. (SANDGATE FORMATION)		(0.38)	
												-22.66	28.90	
28.90-30.40 (0:07)											Dark grey mottled light grey slightly clayey SAND. Sand is fine to medium. (SANDGATE FORMATION)			
29.38-29.75	104	C	100% recovery	100									(1.50)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 305**	**Ben Horscroft + Dean Walker**	**RLynes + SOFarrell**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH05-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16** End: **15.4.16**	**6.24**	**E:623238.6 N:135784.9**	**6** of **22**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
				100								-24.16	30.40	
30.40-31.90											NO RECOVERY.	-25.66	(1.50)	ZCL
31.90-33.40 (0:13)				100							Dark grey silty CLAY. Recovered soft, possibly disturbed by drilling. (SANDGATE FORMATION)	-25.78	32.02	
											Dark greenish grey SAND. Sand is fine to medium. (HYTHE FORMATION)	-26.56	(0.78) 32.80	
											Distinctly weathered dark greenish grey weak to strong fine to medium SANDSTONE fractures are extremely close rough undulating. (HYTHE FORMATION)	-26.81	33.05	
33.15-33.29	1	C										-27.05	33.29	
33.29-33.40	2	C										-27.31	33.55	
33.40-34.90 (0:14)				93	67	43					Medium strong partially weathered light grey sandy LIMESTONE with frequent shell fragments (<20mm diameter) and occasional voids from dissolution of calcific material. Fractures are closely spaced rough undulating open with sandy clay infill. (HYTHE FORMATION)	-27.96	(0.65) 34.20	
34.40-34.90	3	C									Strong light grey LIMESTONE with occasional flint nodules (<15mm diameter) and occasional skeletal fragments. Fractures are extremely close to close rough undulating open subvertical to subhorizontal. (HYTHE FORMATION)	-28.66	(0.70) 34.90	
34.90-36.40 (0:18)												-29.11	(0.45) 35.35	
35.35-35.63	4	C		100	47	47					Very weak distinctly weathered light grey sandy LIMESTONE with occasional shell fragments (<20mm diameter). Fractures are closely spaced open rough undulating with sandy clayey infill.		(1.24)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 305**	**Ben Horscroft + Dean Walker**	**RLynes + SOFarrell**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH05-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16** End: **15.4.16**	**6.24**	**E:623238.6 N:135784.9**	**7** of **22**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
36.10-36.30	5	C		100	47	47					Orientated subhorizontal. (HYTHE FORMATION) . . . between 33.55m to 33.75m recovered non-intact.			
36.40-37.40 (0:12)											Strong light grey slightly sandy LIMESTONE with occasional shells. Fractures are close to medium spaced rough open undulating with sandy infill. Orientated subhorizontal. (HYTHE FORMATION)	-30.35	36.59	
36.72-39.96	6	C		95	53	53					Very weak distinctly weathered light greenish grey SANDSTONE with frequent shell and coal fragments (<50mm diameter). Fractures are extremely close to close rough undulating open with light grey sandy infill. (HYTHE FORMATION)	-30.48	36.72	
37.40-38.90 (0:15)											Weak to strong partially weathered light grey calcareous SANDSTONE with occasional dissolution features (void <10mm diameter) and occasional shell fragments. Fractures are extremely close to close open rough undulating. (HYTHE FORMATION)	-31.26	(0.78) 37.50	
38.00-38.46	7	C		100	83	65					*(stratum copied from 35.35m from* previous sheet) . . . between 36.55m to 36.59m recovered non-intact as subangular fine to coarse sandstone gravel.	-31.39	37.63	
38.90-40.30 (0:15)											Weak to medium strong partially weathered dark grey interbedded SANDSTONE and LIMESTONE with frequent dissolution features and occasional bivalve fossils (<25mm diameter) and sandy laminations. Fractures are closely spaced rough undulating. Orientated subhorizontal. (HYTHE FORMATION)	-32.66	(1.27) 38.90	
39.30-39.75	8	C		104	72	66					Extremely weak to weak partially weathered fine to medium grained dark grey calcareous SANDSTONE with occasional shell fragments (<8mm diameter). Fractures are closely spaced wide undulating rough. Orientated subhorizontal. (HYTHE FORMATION) . . . between 36.96m to 37.40m recovered non-intact as light grey subangular fine to coarse	-34.06	(1.40) 40.30	
39.97-40.30	9	C												

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 305**	**Ben Horscroft + Dean Walker**	**RLynes + SOFarrell**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH05-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16** End: **15.4.16**	**6.24**	**E:623238.6 N:135784.9**	**8** of **22**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
											limestone gravel. . . . between 37.40m to 37.50m recovered non-intact slightly sandy clayey subangular fine to coarse limestone gravel.			
											Extremely weak to weak distinctly weathered dark grey SILTSTONE. Fractures are close wide undulating rough with clayey infill. (HYTHE FORMATION)			
											Weak to strong partially weathered light grey to light greenish grey sandy LIMESTONE with frequent shells and occasional dissolution features (voids <20mm diameter). Fractures are very close to medium spaced undulating rough tight or partially open with dark grey clay infill. Orientated subhorizontal to 8°. (HYTHE FORMATION) . . . at 37.63m unconformable boundary with underlying limestone. . . . sandstone horizons are often grade to a soft clayey sandy at exposed faces. . . . at 38.24m and 39.90m fracture set 1 orientated subhorizontal medium spaced smooth planar open clean aperture. . . . at 38.30m and 38.40m fracture set 3 orientated 70° rough stepped open with soft sandy clay infill.			
											Extremely weak to medium strong light grey to dark grey interbedded sandy LIMESTONE and calcareous SANDSTONE with occasional shell fragments. Sandstone bands are between 50mm and 140mm thick. (HYTHE FORMATION) . . . fracture set 2 orientated subhorizontal rough undulating close to medium spaced. . . . between 39.98m to 40.10m recovered non-intact.			
											Borehole terminated at 40.30m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 305**	**Ben Horscroft + Dean Walker**	**RLynes + SOFarrell**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH06-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**28.4.16** End: **29.4.16**	**6.08**	**E:623287.2 N:135800.4**	**1** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
0.05-0.40	1	B				MADE GROUND: Asphalt. (MADE GROUND)	6.03	0.05	
0.40-0.70	2	B				MADE GROUND: Dark brown to greyish white slightly sandy slightly clayey GRAVEL with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse brick, concrete, flint and ceramic. (MADE GROUND)		(1.20)	
1.20-1.65	3	SPT(c)	N=10				4.83	1.25	
1.20-1.40	4	B				Medium dense multicoloured (yellow, brown and white) slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse flint and quartz. (BEACH DEPOSIT)			
2.00-2.45	5	SPT(c)	N=11						
2.50-2.70	6	B						(2.95)	
3.00-3.45	7	SPT(c)	N=14						
3.50-3.90	8	B							
4.00-4.45	9	SPT(c)	N=20				1.88	4.20	
4.20-4.50	10	B			1.1	Medium dense multicoloured (grey, yellow, white, brown and red) very sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse quartz and flint. (BEACH DEPOSIT)			
5.00-5.45	11	SPT(c)	N=23					(1.60)	
							0.28	5.80	
						Description on next sheet		(0.40)	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
28/04/16	15:00	4.60	4.60	200	4.60
29/04/16	08:30	10.50	10.50	200	4.70
29/04/16	16:00	18.00	10.50	200	8.00

Chiselling / Slow Progress

From	To	Duration (hh:mm)
5.80	6.20	00:30
10.90	11.50	01:00

General Remarks

1. Borehole drilled using cable percussion techniques at 200mm diameter to 18.45m depth.
2. Groundwater struck at 4.60m depth.
3. On completion 50mm diameter standpipe complete with flush protective cover installed to 8.00m depth (response zone - 1.00m to

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**SOFarrell + OGoddard**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH06-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**28.4.16** End: **29.4.16**	**6.08**	**E:623287.2 N:135800.4**	**2** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.00-6.45	12	SPT(c)	N=38			Dense whitish grey slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subangular sandstone. (BEACH DEPOSIT) *(stratum copied from 5.80m from previous sheet)*	-0.12	6.20	
6.50-6.70	13	B				Dense light to dark grey slightly silty very sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse flint, quartz and sandstone. (BEACH DEPOSIT)		(4.00)	
7.50-7.95	14	SPT(c)	N=40						
9.00-9.45	15	SPT(c)	N=45				-4.12	10.20	
10.50-10.84	17	SPT(c)	N=79*			Very dense dark greenish grey silty gravelly SAND with rare pockets of silty CLAY. Sand is fine to medium. Gravel is subrounded to subangular fine to coarse flint. (SANDGATE FORMATION)		(1.30)	
11.00-11.20	18	B				. . . at 10.90m sandstone recovered as subangular fine to coarse gravel.	-5.42	11.50	
11.50-11.70	19	B				Stiff dark grey to dark greenish grey sandy silty CLAY. Sand is fine to medium. (SANDGATE FORMATION)			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

8.00m depth).
4. SPT hammer AR829-2016 (E_r = 78.81%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**SOFarrell + OGoddard**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH06-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**28.4.16** End: **29.4.16**	**6.08**	**E:623287.2 N:135800.4**	**3** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.36	20	SPT	N=71*			Stiff dark grey to dark greenish grey sandy silty CLAY. Sand is fine to medium. (SANDGATE FORMATION) *(stratum copied from 11.50m from previous sheet)*			
13.50-13.86	21	SPT	N=71*						
14.00-14.20	22	B						(5.00)	
15.00-15.36	23	SPT	N=73*						
							-10.42	16.50	
16.50-16.84	24	SPT	N=79*			Dark grey slightly gravelly slightly sandy clayey SILT. Sand is fine to coarse. Gravel is subangular fine to medium sandstone subrounded flint. (SANDGATE FORMATION)			
17.00-17.20	25	B						(1.95)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**SOFarrell + OGoddard**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH06-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**28.4.16** End: **29.4.16**	**6.08**	**E:623287.2 N:135800.4**	**4** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
18.00-18.31	26	SPT	N=94*			Dark grey slightly gravelly slightly sandy clayey SILT. Sand is fine to coarse. Gravel is subangular fine to medium sandstone subrounded flint. (SANDGATE FORMATION)	-12.37	18.45	
						(stratum copied from 16.50m from previous sheet)			
						Borehole terminated at 18.45m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**SOFarrell + OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log COMPOSITE LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH07-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**25.4.16** End: **9.5.16**	**6.19**	**E:623414.7 N:135875.4**	**1** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
											MADE GROUND: Asphalt. (MADE GROUND)	5.99	0.20	
											MADE GROUND: Concrete. Brick wall to the west side of pit. (MADE GROUND)	5.85	0.34	
0.34-0.55	1	B										5.59	0.60	
0.40-0.50	1	ES												
0.60-0.90	2	B									MADE GROUND: Greyish black slightly clayey very sandy GRAVEL. Gravel is rounded to very angular fine to coarse flint, concrete and brick. Weak hydrocarbon odour. (MADE GROUND)	5.29	0.90	
0.70-0.80	2	ES												
0.90-1.10	3	B												
0.95-1.10	3	ES												
1.00-1.45	1	SPT(c)	N=28											
1.00-1.50	1	B												
1.10-1.80	4	B									POSSIBLE MADE GROUND: Greyish brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is rounded to subangular fine to medium flint concrete. Weak hydrocarbon odour. (MADE GROUND)			
2.00-2.45	2	SPT(c)	N=32											
2.00-2.50	2	B												
2.00-2.50	5	B									Medium dense to dense orangish brown slightly sandy GRAVEL. Gravel is well rounded to subrounded fine to medium flint. (BEACH DEPOSIT) . . . at 0.90m recovered as slightly silty and sandy.		(3.10)	
3.00-3.45	3	SPT(c)	N=30											
3.00-3.50	3	B												
3.00-3.50	6	B										2.19	4.00	
4.00-4.45	4	SPT(c)	N=39								Dense orangish brown sandy GRAVEL. Gravel is well rounded to subrounded medium to coarse flint. (BEACH DEPOSIT) . . . between 4.50m and 6.50m driller notes presence of sandstone boulders, took three hours to progress borehole through this zone.		(1.00)	
4.00-4.50	4	B										1.19	5.00	
4.00-4.50	7	B												
5.00-5.50	5	B									Greyish orange very clayey very gravelly SAND. Gravel is angular to very angular flint and sandstone. (BEACH DEPOSIT)		(1.00)	
5.00-5.50	8	B										0.19	6.00	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
26/04/16	16:00	8.00	8.00	200	7.90
27/04/16	08:00	8.00	8.00	200	4.20
27/04/16	16:00	17.60	12.00	200	-
04/05/16	10:30	8.40	7.00	N/R	5.20
04/05/16	17:00	20.20	20.20	N/R	3.60
05/05/16	08:00	20.20	20.20	N/R	6.10
05/05/16	17:00	32.20	32.20	N/R	5.40
06/05/16	08:00	32.20	32.30	N/R	5.80

Chiselling / Slow Progress

From	To	Duration (hh:mm)
4.50	6.50	03:00
10.00	11.20	01:30
17.50	17.60	01:00

General Remarks

1. Inspection pit hand dug to 1.20m by hand.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 17.60m depth.
3. Groundwater struck at 4.20m depth.
4. Borehole extended to 42.10m depth using rotary wireline coring techniques with SW size

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**SE Drilling + Dean Walker**	**OGoddard + RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH07-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**25.4.16** End: **9.5.16**	**6.19**	**E:623414.7 N:135875.4**	**2** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.00	9	B									COBBLES with much sand. Sand is medium to coarse. Cobbles are subrounded to very angular sandstone. (BEACH DEPOSIT)	-0.11	6.30	
6.30	6	D									Medium dense orangish brown slightly sandy GRAVEL. Gravel is well rounded to subrounded medium to coarse flint. (BEACH DEPOSIT)		(2.30)	
6.50-6.95	5	SPT(c)	N=29											
6.50-7.00	10	B												
6.50-7.00	7	B												
8.00-8.45	6	SPT(c)	N=33								. . . at 8.00m dense.			
8.00-8.50	11	B												
8.00-8.50	8	B										-2.41	8.60	
8.60-9.00	12	B									Light greyish orange light brownish yellow very sandy GRAVEL with a medium cobble content. Sand is medium to coarse. Gravel is well rounded to subrounded fine and coarse flint. Cobbles are subrounded to subangular up to (<250mm diameter) sandstone. (BEACH DEPOSIT)		(0.90)	
8.60-9.00	9	B										-3.31	9.50	
9.50-9.73	7	SPT(c)	N=200*								Very dense dark grey slightly silty gravelly SAND with a medium cobble content. Sand is fine to medium. Gravel is well rounded to subangular medium to coarse grained flint and sandstone. Cobbles are up to 200mm in diameter. (BEACH DEPOSIT)		(3.00)	
9.50-10.00	10	B												
9.50-10.00	13	B												
11.00-11.38	8	SPT(c)	N=67*											
11.00-11.50	11	B												
11.00-11.50	14	B												

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
06/05/16	13:00	37.70	37.70	N/R	5.90
09/05/16	12:30	37.70	37.70	N/R	6.10
09/05/16	17:00	42.20	42.20	N/R	5.80
10/05/16	08:00	42.20	72.20	N/R	6.10

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

equipment and water flush.
5. On completion 50mm diameter standpipe complete with flush protective cover installed to 4.00m depth (response zone - 1.00m to 8.00m depth).
6. SPT hammers AR829-2016 (E_r = 78.81%) , EQU089-2015 (E_r = 59.51%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**SE Drilling + Dean Walker**	**OGoddard + RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH07-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**25.4.16** End: **9.5.16**	**6.19**	**E:623414.7 N:135875.4**	**3** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
												-6.31	12.50	
12.50-12.88	9	SPT(c)	N=67*								Very dense dark grey very clayey SAND. Sand is fine. (SANDGATE FORMATION)			
12.50-13.00	12	B												
12.50-13.50	15	B											(1.50)	
												-7.81	14.00	
14.00-14.30	10	SPT	N=100*								Dark grey silty sandy slightly gravelly CLAY. Sand is fine to medium. (SANDGATE FORMATION)			
14.00-14.50	13	B											(0.50)	
14.00-14.50	16	B										-8.31	14.50	
											Dark grey silty SAND. Sand is fine to medium. (SANDGATE FORMATION)			
15.50-15.80	11	SPT	N=100*										(1.80)	
												-10.11	16.30	
16.50-16.80	12	SPT	N=100*					70% return Water (Grey)			Very dense grey fine SAND (Driller's Description). (SANDGATE FORMATION)			
													(1.00)	
												-11.11	17.30	
											Description on next sheet			
17.50		HP	c_u=80											
17.70-18.70														
17.70-17.90	101	D		94	23	10					. . . from 17.70m samples crumble under use of hand			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**SE Drilling + Dean Walker**	**OGoddard + RLynes**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH07-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**25.4.16** End: **9.5.16**	**6.19**	**E:623414.7 N:135875.4**	**4** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
				94	23	10		80% return Water (Grey)			penetrometer. Extremely weak destructured dark greenish grey sandy SILTSTONE with frequent pyrite grains. (SANDGATE FORMATION) . . . between 17.30and 21.70m sample surfaces unstable for UCS/point load and crumble on moving.*(stratum copied from* 17.30m from previous sheet)			
18.70-20.20 18.70-19.07	13	SPT	N=68*											
				34	0	0		80% return Water (Grey)					(5.00)	
20.20-21.70 20.20-20.61	14	SPT	N=59*											
				25	18	8		40% return Water (Grey)						
21.50-21.70	102	C												
21.70-23.20												-16.11	22.30	
				80	80	56		30% return Water (Grey)			Weak distinctly weathered thinly bedded dark grey silty fine to medium grained SANDSTONE with pyrite grains. (SANDGATE FORMATION)			
22.85		HP	c_u=>225											
22.95-23.30	103	C									. . . at 22.95m laboratory describe sample for UCS test as very stiff slightly sandy CLAY. . . . at 23.10m band of rounded pyrite gravel (<30mm dia).			
23.20-24.70													(2.04)	
				100	100	80		30% return Water (Grey)						
23.60-23.96	104	C												

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**SE Drilling + Dean Walker**	**OGoddard + RLynes**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH07-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**25.4.16** End: **9.5.16**	**6.19**	**E:623414.7 N:135875.4**	**5** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
												-18.15	24.34	
				100	100	80					Weak partially unweathered thinly laminated dark grey SILTSTONE with occasional crescent shaped light grey possible organic remains. (SANDGATE FORMATION)			
24.70-26.20														
				93	52	52		0% return Water			. . . between 25.43m and 25.51m becomes stiff silty clay.		(2.92)	
26.20-27.70														
26.54-26.83	105	C												
				99	95	95		0% return Water				-21.07	27.26	
											Medium strong distinctly weathered light grey LIMESTONE. Single fracture penetrates vertically through core sample, stepped rough, closed. (SANDGATE FORMATION)	-21.21	27.40	
27.70-29.20											Weak partially unweathered thinly laminated dark grey SILTSTONE. (SANDGATE FORMATION)			
28.37-28.70	106	C												
				100	97	91		0% return Water					(2.78)	
29.20-30.70														
				34	34	34		0% return Water						

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**SE Drilling + Dean Walker**	**OGoddard + RLynes**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH07-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**25.4.16** End: **9.5.16**	**6.19**	**E:623414.7 N:135875.4**	**6** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
												-23.99	30.18	
30.20-30.56	107	C		34	34	34					Extremely weak to weak partially unweathered light grey very sandy SILTSTONE. Fractures are medium spaced stepped rough infilled with silty clay. (SANDGATE FORMATION)			
30.70-32.20								0% return Water						
31.40-31.80	108	C		67	52	52							(3.52)	
32.20-33.70								0% return Water						
33.00-33.30	109	C		47	47	43								
											. . . at 33.55m band of shelly material.	-27.51	33.70	
33.70-35.20								0% return Water			Medium strong partially weathered dark greenish grey coarse grained SANDSTONE. (SANDGATE FORMATION)		(1.50)	
				16	0	0						-29.01	35.20	
35.20-36.30											*Description on next sheet*			
				56	9	0		0% return Water					(1.43)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**SE Drilling + Dean Walker**	**OGoddard + RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH07-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**25.4.16** End: **9.5.16**	**6.19**	**E:623414.7 N:135875.4**	**7** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
				56	9	0					Weak to medium strong thinly laminated distinctly weathered light brownish grey shelly sandy LIMESTONE. Fractures are closely spaced undulating rough moderately wide some infilling of silty clay. (SANDGATE FORMATION)			
36.30-37.70												-30.44	36.63	
												-30.66	36.85	
36.90-37.23	110	C		78	54	45		0% return Water			*(stratum copied from 35.20m from* previous sheet)	-30.71	36.90	
											Strong thinly laminated partially unweathered light grey LIMESTONE. (HYTHE FORMATION)	-31.04	37.23	
													(0.37)	
											Medium strong thinly laminated distinctly weathered shelly LIMESTONE. (HYTHE FORMATION)	-31.41	37.60	
37.70-38.20				106	22	22	NI 90 200	0% return Water					(0.60)	
											Strong partially weathered light grey LIMESTONE. (HYTHE FORMATION)	-32.01	38.20	
38.20-39.70							NI NI NI				. . . at 37.00m possible fracture penetrating vertically though core (very tight).	-32.25	38.44	
												-32.50	38.69	
38.75-38.95	111	C									Weak to medium strong thinly laminated distinctly weathered light brownish grey LIMESTONE. (HYTHE FORMATION)	-32.81	39.00	
39.00-39.35	112	C		100	78	73		0% return Water			. . . between 37.30m and 37.40m visible cross bedding in laminations.	-33.16	(0.35) 39.35	
											Medium strong to strong distinctly weathered light grey LIMESTONE. (HYTHE FORMATION)	-33.56	(0.40) 39.75	
39.70-41.20											. . . at 37.95m broken piece of calcite, possible vein/fracture infill.			
											Weak distinctly weathered dark brownish grey sandy SILTSTONE with occasional shell fragments. (HYTHE FORMATION)			
				100	93	73		0% return Water			Strong partially weathered light grey LIMESTONE. (HYTHE FORMATION)		(1.95)	
40.80-41.10	113	C					70 200 350				. . . at 38.60m possible fracture penetrating at 70° through the core.			
41.20-42.10											Weak distinctly weathered thinly laminated dark grey slightly sandy SILTSTONE. (HYTHE FORMATION)			
				93	83	56		0% return Water			Strong partially weathered light grey LIMESTONE. (HYTHE FORMATION)	-35.51	41.70	
													(0.50)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**SE Drilling + Dean Walker**	**OGoddard + RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH07-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**25.4.16** End: **9.5.16**	**6.19**	**E:623414.7 N:135875.4**	**8** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
41.94-42.10	114	C		▼	▼	▼		▼			. . . at 39.27m some calcite veins and dissolution voids.	-36.01	42.20	
											Medium strong distinctly weathered thinly laminated dark grey slightly sandy SILTSTONE. (HYTHE FORMATION)			
											Medium strong to strong partially weathered dark grey silty fine grained SANDSTONE interbedded with strong distinctly weathered light grey LIMESTONE. Fractures are horizontal closely spaced undulating rough moderately with to wide aperture with dark grey colour hange up to 30mm from fracture edge. (HYTHE FORMATION) . . . at 40.10m some pyrite grains/crystals visible along vertical discontinuity in core.			
											Strong partially unweathered thinly laminated dark grey silty SANDSTONE with occasional pyrite grains. Fractures are horizontal medium space undulating rough moderately wide aperture infilled with dark silty clay. (HYTHE FORMATION) . . . between 41.70m and 41.90m up to 40mm long lenses of light brownish grey siltstone.*(stratum copied from 41.70m from* previous sheet)			
											Borehole terminated at 42.20m depth.			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**SE Drilling + Dean Walker**	**OGoddard + RLynes**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**3.5.16**	**6.16**	**E:623508.5 N:135900.2**	**1** of **2**
	End: **3.5.16**			

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Black asphalt. (MADE GROUND)	6.11	0.05	
0.35-0.60	1	B				MADE GROUND: Grey GRAVEL. Gravel is subangular to subrounded fine to coarse crushed aggregates of mixed lithologies. (MADE GROUND)	5.81	0.35	
0.40	1	ES					5.56	0.60	
0.60	2	ES				. . . at 0.25m and 0.32m horizontal and vertical 10mm rebar.			
0.60-1.20	2	B				MADE GROUND: Grey slightly sandy clayey GRAVEL. Sand is fine to coarse. Gravel is very angular to subrounded fine to coarse brick, flint and chalk. (MADE GROUND)	4.96	(0.60) 1.20	
1.20-1.65	1	SPT(c)	N=16			MADE GROUND: Light greyish white slightly sandy clayey GRAVEL. Sand is fine to coarse. Gravel is very angular to subangular fine to coarse chalk and flint. (MADE GROUND)	4.46	(0.50) 1.70	
1.20	3	ES							
1.20-1.30	3	B				MADE GROUND: Medium dense grey slightly sandy clayey GRAVEL. Sand is fine to coarse. Gravel is subangular to well rounded fine to coarse chalk and flint. (MADE GROUND)			
2.00-2.45	2	SPT(c)	N=25						
2.00-2.50	4	B				MADE GROUND: Multicoloured (black, brown and white) slightly sandy GRAVEL with a low cobble content. Sand is fine to coarse. Gravel is subrounded to well rounded fine to coarse flint and sandstone. Cobble are subrounded to well rounded flint. (MADE GROUND)		(1.90)	
3.00-3.31	3	SPT(c)	N=94*						
3.00-3.50	5	B					2.56	3.60	
						Borehole terminated at 3.60m depth on grey mottled black boulder of strong standstone. .			

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
03/05/16	12:00	3.60	2.90	200	Dry

Chiselling / Slow Progress

From	To	Duration (hh:mm)
2.60	2.70	02:00
3.60	3.60	01:00

General Remarks

1. Hand dug insection pit to 1.20m depth.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 3.60m depth.
3. Borehole terminated at 3.60m due to obstruction.
4. Borehole backfilled with bentonite pellets and

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SDS**	**SOFarrell**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:		Client:		Borehole:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**BH08**
Contract Ref:	Start: **3.5.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **3.5.16**	**6.16**	**E:623508.5 N:135900.2**	**2** of **2**

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend

Boring Progress and Water Observations						Chiselling / Slow Progress		
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)

General Remarks

asphalt pavement reinstated on completion.
5. Moved position to BH08A.
6. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SDS**	**SOFarrell**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH08A**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.5.16** End: **5.5.16**	**6.25**	**E:623446.1 N:135845.5**	**1** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Asphalt.	6.10	0.15	
						(MADE GROUND)	6.05	0.20	
0.30	1	B				MADE GROUND: Dark greyish green clayey slightly gravelly SAND (sub-base). Sand is medium to coarse. Gravel is angular fine to medium of brick and concrete.			
0.50	2	ES				(MADE GROUND)		(1.00)	
1.00	3	ES				MADE GROUND: Dark greyish brown very clayey sandy GRAVEL with medium cobble content. Sand is fine to coarse including chalk fragments. Gravel is angular to rounded fine to coarse of flint, chert, quartz, brick, mortar and metal wire. Cobbles are angular brick.			
1.10	4	B					5.05	1.20	
1.20-1.65	1	SPT(c)	N=16			(MADE GROUND)			
1.20-1.70	1	B				. . . at 0.90m encountered at edge of pit plastic drainage pipe running East to West. Inspection pit extended by 0.20m to avoid pipe.			
1.50	5	ES							
1.50	6	B							
2.00-2.45	2	SPT(c)	N=22			MADE GROUND: Medium dense multicoloured (brown, orangish brown, clack, grey and white) sandy GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of flint, quartz, chert and shell fragments. Cobbles are rounded of flint up to 100mm.			
2.00-2.50	2	B				(MADE GROUND)			
2.00	7	B				. . . at 1.50m recovery of rounded pieces of coal.			
2.00	8	ES						(2.80)	
3.00-3.45	3	SPT(c)	N=21						
3.00	10	ES							
3.00-3.50	3	B							
3.00	9	B							
							2.25	4.00	
4.00-4.45	4	SPT(c)	N=25			Medium dense multicoloured (brown, red, yellow and white) slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of flint, quartz and limestone.			
						(BEACH DEPOSIT)			
5.00-5.45	5	SPT(c)	N=28						

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
05/05/16	08:50	8.00	7.20	200	7.20
05/05/16	16:00	17.80	12.00	200	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)
17.80	17.80	01:00

General Remarks

1. Borehole drilled using cable percussion techniques at 200mm diameter to 17.80m depth.
2. Groundwater struck at 7.20m depth.
3. On completion borehole backfilled with bentonite pellets and arisings to 0.20m depth then reinstated with concrete and asphalt.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes + SOFarrell**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH08A**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.5.16** End: **5.5.16**	**6.25**	**E:623446.1 N:135845.5**	**2** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.50-6.95	6	SPT(c)	N=30		11	Medium dense multicoloured (brown, red, yellow and white) slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of flint, quartz and limestone. (BEACH DEPOSIT) *(stratum copied from 4.00m from previous sheet)* . . . below 6.50m dense.		(7.20)	
8.00-8.45	7	SPT(c)	N=31						
9.50-9.95	8	SPT(c)	N=35						
11.00-11.45	9	SPT(c)	N=40						
							-4.95	11.20	
						Dense dark brown slightly gravelly silty SAND. Sand is fine to coarse. Gravel is subangular fine to coarse of quartz and flint. (Driller notes "hard boulders of sandstone between 11.20-11.70m.") (BEACH DEPOSIT)		(0.50)	
							-5.45	11.70	
						Description on next sheet			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

4. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes + SOFarrell**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH08A**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.5.16** End: **5.5.16**	**6.25**	**E:623446.1 N:135845.5**	**3** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.50-12.87	10	SPT(c)	N=68*			Very dense dark grey to yellowish brown slightly clayey very sandy GRAVEL with pockets of sandy clay. Sand is fine. Gravel is subangular of sandstone. (BEACH DEPOSIT) *(stratum copied from 11.70m from previous sheet)*	-7.75	(2.30) 14.00	
14.00-14.37	11	SPT(c)	N=68*			Very dense dark grey slightly gravelly very silty SAND. Sand is fine. Gravel is subangular fine of flint, pyrite and quartz. (BEACH DEPOSIT)			
15.50-15.87	12	SPT(c)	N=68*					(3.80)	
17.00-17.30	13	SPT(c)	N=103*				-11.55	17.80	
						Borehole terminated at 17.80m depth (on "very sandy CLAY" - Driller's Description).			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes + SOFarrell**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH09-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**8.5.16** End: **10.5.16**	**5.96**	**E:622767.3 N:135605.6**	**1** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Asphalt.	5.86	0.10	
0.10-0.50	1	B				(MADE GROUND)		(0.40)	
						MADE GROUND: Brown very gravelly slightly clayey SAND. Sand is fine to coarse. Gravel is very angular to subrounded fine to medium concrete and flint.	5.46	0.50	
0.50-1.00	2	B				(MADE GROUND)		(0.40)	
						Light yellowish brown mottled brown slightly silty sandy GRAVEL. Sand is fine to medium. Gravel is subangular to well rounded medium to coarse flint.	5.06	0.90	
						(BEACH DEPOSIT)			
1.20-1.65	3	SPT(c)	N=10			Very dense light yellowish mottled brown slightly silty very sandy GRAVE, locally with a high cobble content. Sand is fine to medium. Gravel is subangular to well rounded medium to coarse flint. Cobbles are flint. (BEACH DEPOSIT)			
1.80-2.00	4	B						(1.90)	
2.00-2.32	5	SPT(c)	N=88*		1.1				
							3.16	2.80	
2.80-3.00	6	B				Very dense light brown gravelly SAND with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded flint and sandstone. Cobbles are angular to subangular fine to medium (<100mm diameter) sandstone. (BEACH DEPOSIT)			
3.00-3.31	7	SPT(c)	N=96*						
3.70-4.00	8	B							
4.00-4.29	9	SPT(c)	N=91*					(2.70)	
5.00-5.30	10	SPT(c)	N=100*						
							0.46	5.50	
5.50-5.80	11	B				Light brown very clayey very gravelly SAND. Sand is fine to medium. Gravel is subangular to well rounded medium to coarse of flint. (BEACH DEPOSIT)	0.16	5.80	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
09/05/16	10:00	2.20	2.20	200	2.20
09/05/16	10:20	2.20	2.20	200	2.20
10/05/16	09:00	9.00	5.00	200	2.20
10/05/16	17:00	19.50	12.00	200	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)
1.80	5.00	06:00

General Remarks

1. Inpection pit hand dug to 1.20m depth.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 20.00m depth.
3. Groundwater struck at 2.20m depth.
4. On completion 50mm diameter standpipe complete with flush protective cover installed

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**OGoddard**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH09-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**8.5.16** End: **10.5.16**	**5.96**	**E:622767.3 N:135605.6**	**2** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.00-6.45	12	SPT	N=4			Soft light brown very sandy CLAY. Sand is fine to medium. (POSSIBLE LANDSLIP MATERIAL) *(stratum copied from 5.80m from previous sheet)*		(1.20)	
							-1.04	7.00	
7.00-7.20	13	B				Loose light brown silty to very silty SAND varying to very sandy SILT (POSSIBLE LANDSLIP MATERIAL)			
7.50-7.95	14	SPT	N=7						
8.00-8.20	15	B						(3.70)	
9.00-9.45	16	SPT	N=10						
10.50-10.95	17	SPT	N=28				-4.74	10.70	
10.70-11.00	18	B				Grey silty sandy CLAY with occasional thin bands of siltstone (estimated as being 600 - 2000mm apart from samples obtained). (SANDGATE FORMATION)			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

to 8.00m depth (response zone - 1.00m to 8.00m depth).
5. SPT hammer AR829-2016 (E_r = 78.81%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**OGoddard**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH09-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**8.5.16** End: **10.5.16**	**5.96**	**E:622767.3 N:135605.6**	**3** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.45	19	SPT	N=47			Grey silty sandy CLAY with occasional thin bands of siltstone (estimated as being 600 - 2000mm apart from samples obtained). (SANDGATE FORMATION) *(stratum copied from 10.70m from previous sheet)*			
13.50-13.95	20	SPT	N=49						
14.00-14.50	21	B							
15.00-15.43	22	SPT	N=55*					(9.13)	
16.50-16.91	23	SPT	N=59*						
17.00-17.50	24	B							

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log COMPOSITE LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH09-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**8.5.16** End: **10.5.16**	**5.96**	**E:622767.3 N:135605.6**	**4** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
18.00-18.36	25	SPT	N=71*			Grey silty sandy CLAY with occasional thin bands of siltstone (estimated as being 600 - 2000mm apart from samples obtained). (SANDGATE FORMATION) *(stratum copied from 10.70m from previous sheet)*			
19.50-19.83	26	SPT	N=83*				-13.87	19.83	
						Borehole terminated at 19.83m depth.			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**OGoddard**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH10-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16** End: **15.4.16**	**5.80**	**E:622845.3 N:135598.5**	**1** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
0.00-1.00	1	B				MADE GROUND: Asphalt. (MADE GROUND)	5.72	0.08	
						MADE GROUND: Reinforced concrete: 35% clasts subangular fine to coarse flint. 65% matrix. (MADE GROUND)	5.45	0.35	
						Medium dense multicoloured slightly sandy GRAVEL. Sand is medium to coarse. Gravel is subrounded to subangular flint and quartz. (BEACH DEPOSIT)	4.80	(0.65) 1.00	
1.00-1.45	1	SPT(c)	N=20			Medium dense multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint, quartz and limestone. (BEACH DEPOSIT)			
1.00	2	B							
2.00-2.45	2	SPT(c)	N=27					(2.00)	
2.00	3	B							
							2.80	3.00	
3.00	1	ES	1xT			Medium dense multicoloured very sandy GRAVEL. Sand is coarse. Gravel is subrounded to subangular fine to coarse flint and quartz. (BEACH DEPOSIT)			
3.00-3.45	3	SPT(c)	N=29		1				
3.00	4	B							
4.00-4.45	4	SPT(c)	N=32			. . . below 4.00m dense.			
4.00	5	B							
5.00-5.45	5	SPT(c)	N=33						
5.00	6	B						(5.00)	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
12/04/16	16:30	0.50	None	200	Dry
13/04/16	11:00	5.45	4.90	200	3.90
13/04/16	16:45	11.50	9.00	200	3.80
14/04/16	15:00	15.00	13.90	200	13.90

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Inspection pit hand dug to 1.0m.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 15.00m depth.
3. Groundwater struck at 3.90m rising to 3.80m depth after 20 minutes.
4. On completion 50mm diameter standpipe

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SDS**	**SOFarrell**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH10-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16** End: **15.4.16**	**5.80**	**E:622845.3 N:135598.5**	**2** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.50-6.95 6.50	6 7	SPT(c) B	N=35			Medium dense multicoloured very sandy GRAVEL. Sand is coarse. Gravel is subrounded to subangular fine to coarse flint and quartz. (BEACH DEPOSIT) *(stratum copied from 3.00m from previous sheet)*			
							-2.20	8.00	
8.00-8.45 8.00	7 8	SPT(c) B	N=38			Dense dark grey to light brown silty sandy GRAVEL with pockets (<30mm diameter) of sandy silt. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and quartz. (BEACH DEPOSIT)		(0.50)	
							-2.70	8.50	
9.50-9.95 9.50 9.50	8 9	SPT(c) B HP	N=40 c_u=30/25/15			Dark grey silty slightly gravelly sandy CLAY. Sand is fine. Gravel is subangular fine mudstone. (SANDGATE FORMATION)		(2.50)	
							-5.20	11.00	
11.00-11.45 11.00 11.00	9 10	SPT(c) B HP	N=46 c_u=60/45/95			Dark grey slightly gravelly sandy CLAY with occasional thin sandy silt laminations. Sand is fine to medium. Gravel is subrounded fine to medium flint (gravel may have been mixed into samples from overlying strata). (SANDGATE FORMATION)		(1.50)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

installed to 8.50m depth (response zone - 0.50m to 8.50m depth).

5. On completion borehole backfilled with bentonite pellets to 8.5m depth, gravel filter to 0.5m depth, bentonite pellets to 0.20m depth, then a concreted flush cover.
6. SPT hammer SEDS4-2015 (E_r = 78.00%)

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SDS**	**SOFarrell**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH10-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16** End: **15.4.16**	**5.80**	**E:622845.3 N:135598.5**	**3** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
							-6.70	12.50	
12.50-12.95 12.50 12.50-13.00 12.50	10 11 12	SPT(c) B B HP	N=50 c_u=60/65/70			Dark grey slightly gravelly sandy SILT with frequent pockets of thinly laminated clayey silt, varying to very silty gravelly SAND. Sand is fine to coarse. Gravel is subrounded to subangular flint, limestone and sandstone. (SANDGATE FORMATION) . . . below 12.50m recovered as firm.		(2.50)	
14.00-14.45 14.00-15.00 14.00	11 13	SPT(c) B HP	N=50 c_u=85/80/80				-9.20	15.00	
						Borehole terminated at 15.00m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SDS**	**SOFarrell**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.5.16** End: **12.5.16**	**6.09**	**E:622948.2 N:135624.0**	**1** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
0.10-0.50	1	B				MADE GROUND: Asphalt. (MADE GROUND) MADE GROUND: Medium dense dark brown clayey sandy GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse brick, concrete, flint and chert. Cobbles are subangular concrete. (MADE GROUND)	5.99	0.10 (2.10)	
1.20-1.65	2	SPT(c)	N=10						
1.80-2.00	3	B							
2.00-2.45	4	SPT(c)	N=14				3.89	2.20	
2.20-2.50	5	B				Medium dense multicoloured (brown, orangish brown, grey, white, black) slightly sandy GRAVEL with a low cobble content. Sand is coarse. Gravel is fine to coarse, gravel and cobbles are subrounded to rounded flint, chert, and occasional sandstone. (BEACH DEPOSIT)		(0.80)	
3.00-3.45	6	SPT(c)	N=21				3.09	3.00	
4.00-4.45	7	SPT(c)	N=24			Medium dense multicoloured (orangish brown, brown, grey, white and black) sandy GRAVEL. Sand is coarse. Gravel is angular to subrounded fine to medium flint, chert and quartz. (BEACH DEPOSIT)		(3.70)	
4.50-4.70	8	B							
5.00-5.32	9	SPT(c)	N=91*						

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
12/05/16	08:00	7.50	7.50	200	3.20
12/05/16	15:30	15.00	10.50	200	7.50

Chiselling / Slow Progress

From	To	Duration (hh:mm)
14.50	15.00	01:00

General Remarks

1. Inspection pit hand dug to 1.00m depth.
2. Groundwater encountered at 3.20m depth.
3. Borehole drilled using cable percussion techniques at 200mm diameter to 15.00m depth.
4. On completion borehole backfilled with bentonite pellets to 0.20m then reinstated with

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.5.16** End: **12.5.16**	**6.09**	**E:622948.2 N:135624.0**	**2** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.00-6.31	10	SPT(c)	N=97*			Medium dense multicoloured (orangish brown, brown, grey, white and black) sandy GRAVEL. Sand is coarse. Gravel is angular to subrounded fine to medium flint, chert and quartz. (BEACH DEPOSIT) *(stratum copied from 3.00m from previous sheet)* . . . very sandy at 6.50m.			
6.50-6.70	11	B					-0.61	6.70	
7.50-7.81	12	SPT(c)	N=95*			Very dense multicoloured (orangish brown, brown, grey, white and black) sandy GRAVEL. Sand is medium to coarse. Gravel is angular to rounded fine to coarse flint, chert and quartz. (BEACH DEPOSIT)		(3.30)	
8.00-8.20	13	B							
9.00-9.35	14	SPT(c)	N=75*				-3.91	10.00	
10.00-10.20	15	B				Dark grey silty sandy CLAY. Sand is fine. (SANDGATE FORMATION)			
10.50-10.95	16	SPT	N=31						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

concrete and asphalt.
5. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.5.16** End: **12.5.16**	**6.09**	**E:622948.2 N:135624.0**	**3** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.45	17	SPT	N=32			Dark grey silty sandy CLAY. Sand is fine. (SANDGATE FORMATION) *(stratum copied from 10.00m from previous sheet)*		(5.45)	
13.00-13.20	18	B							
13.50-13.95	19	SPT	N=44						
15.00-15.45	20	SPT	N=44				-9.36	15.45	
						Borehole terminated at 15.45m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH12-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.4.16** End: **12.4.16**	**6.27**	**E:623008.3 N:135637.0**	**1** of **18**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
0.00-0.16	1	ES	100% recovery							MADE GROUND: Asphalt.	6.11	0.16	
0.16-0.30	1	B								(MADE GROUND)	5.97	0.30	
0.50	1	B								MADE GROUND: Light grey reinforced concrete. Reinforcement is 20mm diameter. (MADE GROUND)		(0.53)	
										MADE GROUND: Dark brownish grey slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular flint, brick and concrete. (MADE GROUND) . . . at 0.30 brick wall structure 0.35m thick on western extent of hand dug inspection pit.	5.44	0.83	
1.00-1.20	2	ES											
1.00	2	B											
1.50	4	B										(1.17)	
1.50	4	D											
										Light bluish grey mottled light brownish orange slightly sandy GRAVEL with a low cobble content. Sand is medium to coarse. Gravel is medium to coarse; gravel and cobbles are well rounded to subrounded flint up to 75mm in diameter. (BEACH DEPOSIT)	4.27	2.00	
2.00	6	B											
2.00	6	D											
2.50	7	B								Medium density light brownish grey mottled light brownish orange GRAVEL. Gravel is well rounded to subrounded medium to coarse flint. (BEACH DEPOSIT) . . . sandy at 2.50m depth.			
2.50	7	D							1				
3.00-3.45	8	SPT(c)	N=19									(2.00)	
3.00	9	B											
3.00	9	D											
3.50	10	B							1				
3.50	10	D											
											2.27	4.00	
4.00-4.38	11	SPT(c)	N=17							Medium dense light bluish grey mottled light brownish orange GRAVEL. Gravel is well rounded to subrounded medium to coarse flint. (BEACH DEPOSIT) . . . sand absent in sample from 4.00m.			
4.00	12	D											
4.00	12	B										(1.00)	
4.50	13	D											
4.50	13	B											
											1.27	5.00	
5.00-5.50	3	ES								Medium dense light brownish orange sandy to very GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded medium to coarse flint. (BEACH DEPOSIT)			
5.00-5.45	14	SPT(c)	N=26										
5.00	15	B											
5.50-6.00	16	D											
5.50	16	B											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
07/04/16	08:00	14.80	13.50	N/R	3.10
07/04/16	17:00	21.20	21.20	N/R	0.30
08/04/16	08:00	21.20	21.20	N/R	3.20
08/04/16	13:00	28.70	28.70	N/R	0.00
11/04/16	10:00	28.70	28.70	N/R	0.90
11/04/16	18:00	34.20	34.20	N/R	5.80
12/04/16	08:00	34.40	34.40	N/R	6.50

Chiselling / Slow Progress

From	To	Duration (hh:mm)
1.20	2.00	00:30

General Remarks

1. Inspection pit dug to 1.20m by hand.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 14.80m depth.
3. Water added to aid drilling between 11.50m and 13.50m depth.
4. Groundwater struck at 3.50m rising to 3.00m

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes + BSaimen**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH12-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.4.16** End: **12.4.16**	**6.27**	**E:623008.3 N:135637.0**	**2** of **18**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
6.00-6.45	17	SPT(c)	N=27							Medium dense light brownish orange sandy to very GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded medium to coarse flint. (BEACH DEPOSIT) *(stratum copied from 5.00m from* previous sheet)			
6.00-6.50	18	D											
6.00	18	B											
6.40	19	D											
6.50	19	B											
7.50-7.83	20	SPT(c)	N=82*									(5.30)	
9.00-9.45	21	SPT(c)	N=9								-4.03	10.30	
10.30	22	B								Dense dark greyish green slightly silty slightly gravelly SAND. Sand is fine to coarse. Gravel is well rounded to subrounded medium to coarse mixed lithologies including sandstone and flint. (SANDGATE FORMATION)			
10.50-10.95	23	SPT(c)	N=33									(0.70)	
10.90	24	B									-4.73	11.00	
11.00	25	B								Dark greyish green silty sandy CLAY. Sand is fine. (SANDGATE FORMATION)			
11.40	27	B										(1.00)	
											-5.73	12.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

depth.
5. Not SPT/CPT tests undertaken at 1.20m and 2.00m depth due to obstructions.
6. Borehole extended to 38.10m depth using rotary wireline coring techniques with SW size equipment and water flush.
7. On completion 50mm diameter standpipe

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes + BSaimen**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH12-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.4.16** End: **12.4.16**	**6.27**	**E:623008.3 N:135637.0**	**3** of **18**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.44	26	SPT(c)	N=53*							Very dense dark greyish green clayey SAND, varying to sandy CLAY. Sand is fine to medium. (SANDGATE FORMATION)			
12.50	27	B										(2.80)	
13.50-13.93	28	SPT(c)	N=55*										
13.70	29	B									-8.53	14.80	
14.80-15.20 (0:02)	30	B		100	100	80				Dark grey silty slightly gravelly SAND with occasional shell fragments. Sand is fine to coarse. Gravel is subangular fine greenish grey medium grained sandstone. (SANDGATE FORMATION)			
14.80-15.20												(0.90)	
15.20-16.70 (0:10)											-9.43	15.70	
15.70-15.97	31	C								Firm dark grey sandy CLAY. Sand is fine to medium. (SANDGATE FORMATION)	-9.70	15.97	
				80	80	47				. . . samples cleave along microfractures when attempting hand penetrometer tests. Readings of 75kPa and 100kPa before failure.		(0.76)	
16.60-16.70	32	D								Dark grey silty SAND with occasional shell fragments. Sand is fine. (SANDGATE FORMATION)	-10.46	16.73	
16.70-18.20 (0:15)	29	SPT	N=51*							. . . at 16.20m very closely spaced discontinuity cross cutting the core at 45°.			
16.70-17.15												(0.57)	
17.03		HP	c_u=60							. . . at 16.45m band of slightly silty coarse sand, 10mm thick.	-11.03	17.30	
17.20-17.50	34	D											
17.30-17.30	33	C		100	100	100				Very stiff thinly laminated greenish brown slightly sandy CLAY with occasional pockets and laminae of greenish brown glauconitic fine to medium sand up to 6mm and rare thin to thick laminae of brown clay stone or fine cemented		(0.43)	
17.33		HP	c_u=125								-11.46	17.73	
17.64		HP	c_u=225										
17.70-18.05	35	B											
17.90		HP	c_u=150										

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

complete with flush protective cover installed to 8.50m depth (response zone - 0.50m to 8.50m depth).

8. SPT hammers AR829-2016 (E_r = 78.81%) , EQU089-2015 (E_r = 59.51%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes + BSaimen**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH12-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.4.16** End: **12.4.16**	**6.27**	**E:623008.3 N:135637.0**	**4** of **18**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
				100	100	100				sandstone. Sand is fine to medium. (SANDGATE FORMATION)			
18.20-19.70 (0:13)	30	SPT(c)	N=52*							Extremely weak destructured dark grey sandy SILTSTONE. (SANDGATE FORMATION)			
18.20-18.64	36	D											
18.40-18.60										. . . from 17.70m to 18.05m clay, containing thick laminae of sand up to 10mm and becomes more sandy.		(1.97)	
18.80		HP	c_u=250							Dense dark grey silty slightly gravelly SAND. Sand is fine to medium. Gravel subangular fine greenish grey medium grained sandstone. (SANDGATE FORMATION)			
19.00-19.20	37	D		7						*(stratum copied from 17.73m from* previous sheet)			
19.10		HP	c_u=175							. . . from 18.00m to 19.00m clay becomes more sandy.	-13.43	19.70	
19.50-19.70	38	D											
19.70-21.20 (0:20)	31	SPT(c)	N=64*							Extremely weak poorly laminated brown silty MUDSTONE with rare very thin laminae of brown cemented silt or fine sand. (SANDGATE FORMATION)			
19.70-20.09	40	C											
19.75-20.05													
20.25-20.55	39	C										(1.25)	
				100	100	100					-14.68	20.95	
20.95-21.05	41	C								Medium strong greenish brown fine to medium SANDSTONE. (SANDGATE FORMATION)	-14.78	21.05	
21.20-22.70 (0:30)	32	SPT(c)	N=70*							Very stiff greenish brown slightly sandy clayey SILT. Sand is fine to medium. Extremely weak thinly laminated greenish brown silty MUDSTONE with frequent very thin laminae of greenish grey glauconitic weathered sandstone or fine to medium sand. Mudstone contains greenish fine to medium sand. Bedding is horizontal. Bedding fractures are horizontal widely spaced undulating rough infilled with greenish grey fine to medium sand. (SANDGATE FORMATION)			
21.20-21.57													
				100	100	100							
22.00-22.40	42	C					600 800 1000						
22.70-24.20 (0:15)										. . . at 21.15m band of medium strong brown fine to medium sandstone. . . . from 21.85m to 22.00m joint is 65° planar rough partly open clean.			
23.10-23.45	43	C											
				100	100	100						(4.65)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes + BSaimen**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH12-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.4.16** End: **12.4.16**	**6.27**	**E:623008.3 N:135637.0**	**5** of **18**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
				100	100	100				Very stiff greenish brown slightly sandy clayey SILT. Sand is fine to medium. Extremely weak thinly laminated greenish brown silty MUDSTONE with frequent very thin laminae of greenish grey glauconitic weathered sandstone or fine to medium sand. Mudstone contains greenish fine to medium sand. Bedding is horizontal. Bedding fractures are horizontal widely spaced undulating rough infilled with greenish grey fine to medium sand. (SANDGATE FORMATION) *(stratum copied from 21.05m from* previous sheet)			
24.20-25.70 (0:15)				100	100	100	600 800 1000				-19.43	25.70	
25.70-27.20 (0:20)	33	SPT(c)	N=81*				220 280 350			. . . from 25.65m to 25.70m silty mud stone weathers and disintegrates in to greenish brown clayey silt.		(0.50)	
25.70-26.04										Extremely weak thinly laminated brown MUDSTONE with very thin laminae of greenish brown fine to medium glauconitic sand. Bedding fractures are horizontal medium spaced undulating rough infilled with greenish grey sand. (SANDGATE FORMATION)	-19.93	26.20	
26.05-26.20	44	C		100	100	100							
26.60-27.35	45	B								Greenish black clayey very silty SAND with rare shell fragments up to 20mm.Sand is fine to medium. (SANDGATE FORMATION)		(2.05)	
27.20-28.70 (0:45)													
27.60-28.25	46	B											
27.97-30.20	101	C		100	100	100					-21.98	28.25	
							60 100 200			Weak greyish brown sandy shelly LIMESTONE. Shells are fine to coarse. Bedding is horizontal. (HYTHE FORMATION)		(0.45)	
28.70-30.20 (0:25)											-22.43	28.70	
				100	81	66	60 200 350			Medium strong light grey coarse grained partially weathered SANDSTONE with rare shells. Fractures are medium spaced undulating striated open infilled with light grey sandy silty clay. (HYTHE FORMATION)			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes + BSaimen**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH12-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.4.16** End: **12.4.16**	**6.27**	**E:623008.3 N:135637.0**	**6** of **18**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
				100	81	66				Medium strong light grey coarse grained partially weathered SANDSTONE with rare shells. Fractures are medium spaced undulating striated open infilled with light grey sandy silty clay. (HYTHE FORMATION) *(stratum copied from 28.70m from* previous sheet)			
30.20-31.70 (0:30)				100	93	87							
31.45-31.62	102	C					60 200 350					(5.60)	
31.70-33.20 (0:30)				100	87	80							
32.61-32.91	103	C								. . . at 32.61m laboratory description of subsample for UCS testing is limestone.			
33.20-33.40 (0:15)				100	100	100							
33.40-34.20 (0:10)				75	22	0				. . . at 33.80m three nodules of pyrite up to 20mm to diameter.			
34.20-35.00 (0:10)	104	C									-28.03	34.30	
34.30-34.54				100	88	81	100 200 300			Medium strong unweathered light grey medium grained SANDSTONE. (HYTHE FORMATION)	-28.27	34.54	
										Weak light grey silty fine grained distinctly weathered LIMESTONE with occasional inclusions of unweathered light grey medium grained SANDSTONE. (HYTHE FORMATION)	-28.68	(0.41) 34.95	
35.00-35.80 (0:13)	105	C									-28.86	35.13	
35.13-35.42				100	94	81				Weak light grey partially weathered LIMESTONE. (HYTHE FORMATION)			
										Description on next sheet			
35.80-37.30				53	50	43							

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes + BSaimen**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH12-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.4.16** End: **12.4.16**	**6.27**	**E:623008.3 N:135637.0**	**7** of **18**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
(0:14) 35.90-36.20	106	C		53	50	43				. . . at 35.90m laboratory description of sample tested is limestone. Weak dark grey partially weathered MUDSTONE. Fractures are medium to widely spaced stepped rough infilled with silty clay and fragments of sandstone. (HYTHE FORMATION) *(stratum copied from 35.13m from* previous sheet) . . . from 36.00m to 36.20m two lenses of medium strong sandstone. . . . at 36.25m second fracture set going vertically through core. Fractures are vertical, undulating rough and tight.		(2.97)	
37.30-38.10 (0:12)				87	57	57					-31.83	38.10	
										Borehole terminated at 38.10m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**RLynes + BSaimen**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH13-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.4.16** End: **6.4.16**	**6.15**	**E:623074.6 N:135668.8**	**1** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Red asphalt.	6.10	0.05	
						(MADE GROUND)	6.00	0.15	
						MADE GROUND: Black asphalt.	5.86	0.29	
0.30-0.40	1	B				(MADE GROUND)			
0.30	2	ES					5.65	0.50	
0.50	2	ES				MADE GROUND: Concrete. (MADE GROUND)			
						Light orangish brown and black slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to rounded fine to medium flint, chert and quartz. (BEACH DEPOSIT)			
1.00-1.45	1	SPT(c)	N=31						
1.00	1	ES							
1.00-2.00	2	B				Very dense light orangish brown and black slightly sandy GRAVEL with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint, chert and quartz. Cobbles are subrounded to rounded flint and chert. (BEACH DEPOSIT)			
1.50	3	ES							
2.00-2.45	2	SPT(c)	N=39						
2.00-2.50	4	B							
2.00	5	ES							
2.50	6	ES				. . . at 2.60m greater proportion of fine gravel.		(4.30)	
3.00-3.45	3	SPT(c)	N=39						
3.00-3.50	7	B							
3.00	8	ES			1.1				
4.00-4.45	4	SPT(c)	N=48						
4.00	10	ES							
4.00-4.50	9	B					1.35	4.80	
						Very dense light orangish brown and black very sandy GRAVEL with medium cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint, chert and quartz. Cobbles are subangular to rounded flint. (BEACH DEPOSIT)			
5.00-5.45	5	SPT(c)	N=50						
5.00-5.50	11	B							
5.00	12	ES							

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
04/04/16	16:00	1.00	1.00	200	Dry
05/04/16	08:00	1.00	1.00	200	Dry
05/04/16	11:00	3.20	3.00	200	3.20
05/04/16	11:20	3.40	3.40	200	3.40
06/04/16	08:00	11.50	11.00	200	4.40
06/04/16	12:00	15.00	14.40	200	4.40

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Inspection pit dug to 0.50m by hand.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 15.00m depth.
3. Groundwater struck at 3.40m.
4. On completion 50mm diameter standpipe complete with flush protective cover installed

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH13-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.4.16**	**6.15**	**E:623074.6 N:135668.8**	**2** of **3**
	End: **6.4.16**			

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.00-6.50	13	B				Very dense light orangish brown and black very sandy GRAVEL with medium cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint, chert and quartz. Cobbles are subangular to rounded flint. (BEACH DEPOSIT)		(3.30)	
6.50-6.94	6	SPT(c)	N=52*			*(stratum copied from 4.80m from previous sheet)*			
8.00-8.38	7	SPT(c)	N=65*				-1.95	8.10	
8.00-8.50	14	B				Very dense light yellowish brown slightly clayey gravelly SAND with occasional shell fragments. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint, sandstone and quartz. (BEACH DEPOSIT) . . . at 8.50m recovered angular cobble of green medium sandstone.		(1.40)	
9.00-9.50	14	B				. . . slightly silty very sandy GRAVEL at 9.00m.	-3.35	9.50	
9.50-9.88	8	SPT(c)	N=67*			Very dense dark greenish brown clayey slightly gravelly SAND. Sand is fine to coarse. Gravel is subrounded medium to coarse green sandstone. (SANDGATE FORMATION)		(1.50)	
11.00-11.45	9	SPT	N=50			Very dense dark greenish brown silty slighty gravelly SAND. Sand is fine to coarse. Gravel is subangular to subrounded medium to coarse sandstone. (SANDGATE FORMATION)	-4.85	11.00	
11.50	17	D				Dark grey clayey SAND. Sand is fine to coarse. (SANDGATE FORMATION)	-5.35	(0.50) 11.50	
								(1.00)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

to 4.00m depth (response zone - 1.00m to 4.00m depth).

5. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH13-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**4.4.16** End: **6.4.16**	**6.15**	**E:623074.6 N:135668.8**	**3** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						Dark grey clayey SAND. Sand is fine to coarse. (SANDGATE FORMATION) *(stratum copied from 11.50m from previous sheet)*	-6.35	12.50	
12.50-12.95	10	SPT	N=48			Dense light brown and black slightly sandy GRAVEL. Sand is coarse. Gravel is rounded fine to coarse flint, chert and quartz. (SANDGATE FORMATION) . . . at 12.60m becoming slightly gravelly. Gravel is rounded fine to coarse of flint.	-6.85	(0.50) 13.00	
13.00	19	B				Very dense dark grey mottled greenish grey silty SAND. Sand is fine. (SANDGATE FORMATION)			
14.00-14.45	11	SPT	N=51*					(2.00)	
							-8.85	15.00	
15.00	21	D				Borehole terminated at 15.00m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16**	**5.97**	**E:623127.2 N:135672.2**	**1** of **3**
	End: **11.4.16**			

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
0.10	1	B				MADE GROUND: Concrete. 50% matrix, 50% clasts of subrounded to subangular fine to coarse flint and gravel. (MADE GROUND)	5.89	0.08	
0.20	2	ES	1xT, 1xH, 1xV				5.62	0.35	
0.35	3	B				MADE GROUND: Dark brown silty sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and quartz. (MADE GROUND)			
0.35-0.40	4	ES	1xT, 1xH, 1xV				5.37	0.60	
0.50	5	B							
1.00-1.45	2	SPT(c)	N=28			MADE GROUND: Dark brown to light grey silty sandy GRAVEL with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint, calcareous siltstone. Cobbles are subangular calcareous siltstone. (MADE GROUND)			
1.00-1.50	6	B							
						Medium dense multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and quartz. (BEACH DEPOSIT)			
2.00-2.45	4	SPT(c)	N=27						
2.00	7	B							
2.00-2.50	8	B						(3.40)	
3.00-3.45	6	SPT(c)	N=28						
3.00-3.50	10	B							
3.00	8	B							
							1.97	4.00	
4.00-4.45	8	SPT(c)	N=23			Medium dense orangish brown and bluish grey slightly clayey sandy GRAVEL. Sand is medium to coarse. Gravel is rounded to subrounded medium mixed lithologies flint and sandstone. (BEACH DEPOSIT)			
4.00-4.50	12	B							
4.00	9	B							
5.00-5.45	10	SPT(c)	N=31						
5.00	10	B						(2.50)	
5.00-5.50	14	B							

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
11/04/16	10:30	4.45	3.90	200	3.80
11/04/16	17:00	8.50	7.90	200	3.80
12/04/16	08:00	8.50	7.90	200	3.80
12/04/16	12:00	12.95	12.40	200	3.80
12/04/16	16:30	15.00	13.90	200	3.80

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Inspection pit hand dug to 1.0m.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 15.00m depth.
3. Groundwater struck at 3.80m depth.
4. On completion borehole backfilled with bentonite pellets to 0.2m then reinstated to

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16**	**5.97**	**E:623127.2 N:135672.2**	**2** of **3**
	End: **11.4.16**			

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						Medium dense orangish brown and bluish grey slightly clayey sandy GRAVEL. Sand is medium to coarse. Gravel is rounded to subrounded medium mixed lithologies flint and sandstone. (BEACH DEPOSIT) *(stratum copied from 4.00m from previous sheet)*	-0.53	6.50	
6.50 6.50-6.95 6.50-7.00	11 12 16	B SPT(c) B	N=36			Dense orangish brown and bluish grey sandy GRAVEL. Sand is medium to coarse. Gravel is rounded to subrounded medium to coarse grained mixed lithologies flint and sandstone. (BEACH DEPOSIT)	-2.03	(1.50) 8.00	
8.00 8.00-8.45 8.00-8.50	12 14 18	B SPT(c) B	N=37			Very dense light brownish orange slightly silty very sandy GRAVEL. Sand is medium to coarse. Gravel is rounded to well rounded coarse mixed lithologies flint and sandstone. (BEACH DEPOSIT)	-3.53	(1.50) 9.50	
9.50 9.50-9.95	13 15	B SPT(c)	N=48			Dense dark greyish brown and dark orangish grey sandy GRAVEL. Sand is fine to coarse. Gravel is well rounded to subangular medium flint, quartz and sandstone. (BEACH DEPOSIT)	-4.23	(0.70) 10.20	
11.00 11.00-11.40	14 16	B SPT(c)	N=60*			Very dense dark greenish grey silty SAND. Sand is fine. (SANDGATE FORMATION)	-5.63	(1.40) 11.60	
11.60-11.65	15	B				Dark greyish green COBBLES. Cobbles are subangular to angular sandstone. (SANDGATE FORMATION)	-5.68	11.65	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

G.L with concrete and asphalt.
5. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16**	**5.97**	**E:623127.2 N:135672.2**	**3** of **3**
	End: **11.4.16**			

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						Dark greenish grey silty slightly sandy to sandy CLAY. Sand is fine. (SANDGATE FORMATION) *(stratum copied from 11.65m from previous sheet)*			
12.50	16	B							
12.50-12.88	17	SPT(c)	N=65*						
								(3.35)	
14.00	17	B							
14.00-14.38	18	SPT(c)	N=67*						
							-9.03	15.00	
15.00	18	B				Borehole terminated at 15.00m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH15-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**15.4.16** End: **22.4.16**	**6.18**	**E:623220.2 N:135698.9**	**1** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
0.00-0.30	1	B									MADE GROUND: Concrete. (MADE GROUND)	5.88	0.30	
											POSSIBLE MADE GROUND: Dark greyish brown slightly sandy very clayey GRAVEL. Sand is fine to coarse. Gravel is subangular to well rounded fine to coarse flint. (MADE GROUND)		(0.40)	
0.50-0.60	1	ES										5.48	0.70	
0.50-0.70	2	B												
0.70-0.90	2	ES												
0.70-1.00	3	B												
1.20-1.65	5	SPT(c)	N=16								Medium dense light orangish brown sandy GRAVEL. Sand is medium to coarse. Gravel is subrounded to well rounded medium flint. (BEACH DEPOSIT)			
2.00-2.20	3	ES											(2.80)	
2.00-2.45	6	SPT(c)	N=18											
2.50-2.70	4	B												
2.50-2.70	6	B								1				
3.00-3.45	8	SPT(c)	N=21								. . . at 3.00m very sandy.			
3.00-3.50	8	B										2.68	3.50	
3.50-3.70	8	B									Medium dense light orangish brown slightly silty sandy GRAVEL. Sand is medium to coarse. Gravel is subrounded to well rounded medium flint. (BEACH DEPOSIT)			
3.60-3.70	4	ES												
4.00-4.45	9	SPT(c)	N=21											
5.00-5.45	10	SPT(c)	N=22											
5.50-5.70	11	B									. . . at 5.50m very sandy.			
5.50-5.60	5	ES											(4.50)	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
15/04/16	09:30	3.45	3.00	200	2.50
19/04/16	08:30	8.50	8.50	200	5.00
15/04/16	16:45	8.20	7.50	200	3.00
19/04/16	12:00	12.45	12.00	200	5.00
19/04/16	17:00	16.45	13.50	200	5.00
20/04/16	11:00	15.40	15.40	150	5.60
20/04/16	17:30	21.40	21.40	150	4.20
21/04/16	09:30	21.40	21.40	150	6.50

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Inspection pit hand dug to 1.20m.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 15.40m depth.
3. Groundwater struck at 3.00m rising to 2.90m depth.
4. Borehole extended to 40.20m depth using

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**BSaimen + OGoddard**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH15-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**15.4.16** End: **22.4.16**	**6.18**	**E:623220.2 N:135698.9**	**2** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
6.00-6.45	12	SPT(c)	N=24								Medium dense light orangish brown slightly silty sandy GRAVEL. Sand is medium to coarse. Gravel is subrounded to well rounded medium flint. (BEACH DEPOSIT) *(stratum copied from 3.50m from* previous sheet)			
7.50-7.83	13	SPT(c)	N=83*									-1.82	8.00	
8.00-8.20	14	B									Very dense light orangish brown slightly silty very sandy GRAVEL, with a medium cobble content. Sand is medium to coarse. Gravel is well rounded to subrounded fine to coarse flint and sandstone. Cobbles are well rounded to rounded up to 100mm diameter sandstone. (BEACH DEPOSIT)	-2.82	(1.00) 9.00	
9.00-9.41	15	SPT(c)	N=57*								Very dense brown silty gravelly SAND. Gravel is subangular to rounded fine to coarse flint. (BEACH DEPOSIT)	-3.32	(0.50) 9.50	
9.00-9.20	16	B									Dark greyish green very gravelly SAND. Sand is medium to coarse. Gravel is rounded to well rounded medium to coarse flint. (BEACH DEPOSIT)	-4.32	(1.00) 10.50	
10.50-10.91	17	SPT(c)	N=59*								Very dense dark brown slightly silty sandy GRAVEL. Gravel is subrounded to rounded fine to coarse flint. (BEACH DEPOSIT)	-5.12	(0.80) 11.30	
10.50-10.70	18	B												
11.30	19	B									Very dense dark grey silty SAND. (SANDGATE FORMATION)			

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
21/04/16	17:00	27.40	27.40	150	4.20
22/04/16	13:00	27.40	27.40	150	5.60
27/04/16	08:00	35.00	35.00	150	6.20
29/04/16	16:30	40.20	40.20	150	6.50
20/04/16	13:00	15.40	15.40	N/R	5.60
20/04/16	17:30	21.40	21.40	N/R	4.20
21/04/16	09:30	21.40	21.40	N/R	6.50
21/04/16	17:00	27.40	27.40	N/R	4.20

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

rotary wireline coring techniques with SW size equipment and water flush.

5. On completion 19mm diameter standpipe installed to 31.00m depth (response zone - 28.00m to 31.00m depth).
6. SPT hammers AR829-2016 (E_r = 78.81%) , EQU089-2015 (E_r = 59.51%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**BSaimen + OGoddard**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH15-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**15.4.16** End: **22.4.16**	**6.18**	**E:623220.2 N:135698.9**	**3** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.39	20	SPT	N=62*								Very dense dark grey silty SAND. (SANDGATE FORMATION) *(stratum copied from 11.30m from* previous sheet)		(2.70)	
13.50-13.88	21	SPT	N=66*											
13.70-13.90	22	B									. . . between 13.70m and 14.00m driller's description is "gravel".	-7.82	14.00	
14.00-14.20	23	B									Dark grey clayey sandy SILT (SANDGATE FORMATION)		(1.40)	
15.40-16.90 (0:05)				87				95% return Water (Grey)			Firm thinly laminated grey silty CLAY with occasional thin laminae of medium to coarse black and greenish grey glauconitic sand. (SANDGATE FORMATION)	-9.22	15.40	
16.00-16.38	24	SPT	N=67*										(1.20)	
16.00-16.60	26	B												
16.25		HP	c_u=63											
16.60-16.90	27	U									Stiff thinly laminated grey silty CLAY with occasional thin laminae of medium to coarse black and greenish grey glauconitic sand. (SANDGATE FORMATION)	-10.42	16.60	
16.60		HP	c_u=80											
16.90-18.40 (0:05)				20				95% return Water (Grey)					(1.70)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
22/04/16	13:00	27.40	27.40	N/R	5.60

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**BSaimen + OGoddard**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH15-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**15.4.16** End: **22.4.16**	**6.18**	**E:623220.2 N:135698.9**	**4** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
18.20-18.40	28	D		20								-12.12	18.30	
18.30		HP	c_u=175								Very stiff thinly laminated grey silty CLAY with occasional thin laminae of medium to coarse black and greenish grey glauconitic sand. (SANDGATE FORMATION)			
18.40-19.90 (0:05)	25	SPT(c)	N=62*										(0.90)	
18.40-18.79												-13.02	19.20	
19.15-19.55	29	C		80	47	47		95% return Water (Grey)			Extremely weak thinly laminated brownish grey silty distinctly weathered MUDSTONE with occasional thin laminae of weathered greenish grey silty sand. Bedding is subhorizontal. (SANDGATE FORMATION)		(0.70)	
19.90-21.40 (0:00)												-13.72	19.90	
											Very stiff thinly laminated greenish grey slighty sandy clayey SILT. (SANDGATE FORMATION)	-14.02	20.20	
20.65-21.05	30	C		87	67	57		95% return Water (Grey)			Extremely weak thinly laminated brownish grey silty distinctly weathered MUDSTONE with occasional thin laminae of weathered greenish grey silty sand and rare thin beds of greenish grey sand and pockets up to 5mm of weathered sandstone/sand. Bedding is subhorizontal. Bedding fractures (formed along weathered sandstone laminae) are subhorizontal very closely to medium spaced undulating rough open infilled with weathered fine sand up to 2mm. (SANDGATE FORMATION)			
21.40-22.90 (0:10)	26	SPT(c)	N=71*											
21.40-21.76														
22.00-22.45	31	C		100	87	87	120 400 600	90% return Water (Grey)					(4.00)	
22.90-24.40 (0:10)														
23.65-24.00	32	C		100	100	87		95% return Water (Grey)			. . . at 23.70m joint is 50° planar rough with smears of clay up to			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**BSaimen + OGoddard**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH15-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**15.4.16** End: **22.4.16**	**6.18**	**E:623220.2 N:135698.9**	**5** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
											2mm.			
24.20-24.40	33	C		100	100	87					. . . at 23.80m joint is 40° planar rough with smears of clay up to 2mm.	-18.02	24.20	
												-18.22	24.40	
24.40-25.90 (0:13) 24.45-24.78	34	C									. . . at 24.00m joint is 55° planar rough with smears of clay up to 2mm.			
											Medium strong thinly laminated greenish black fine grained SANDSTONE (SANDGATE FORMATION)		(1.15)	
							90 250 340							
				100	100	92		90% return Water (Grey)			Very stiff thinly laminated greenish or blackish grey clayey SILT. Extremely weak thinly laminated greenish black silty MUDSTONE. Bedding is subhorizontal. Bedding fractures are subhorizontal very closely to medium spaced undulating rough open infilled with blackish brown sand up to 2mm. (SANDGATE FORMATION)	-19.37	25.55	
												-19.62	25.80	
												-19.72	25.90	
25.90-27.40 (0:15)														
26.10-26.45	35	C											(0.55)	
											Extremely weak thinly laminated brown MUDSTONE with rare thin laminae of weathered siltstone/silt. (SANDGATE FORMATION)	-20.27	26.45	
26.65-27.20	36	B		100	53	53		85% return Water (Grey)						
26.65		HP	c_u=70										(0.75)	
26.80		HP	c_u=50											
27.00		HP	c_u=35								Very stiff greenish black slightly sandy clayey SILT. (SANDGATE FORMATION)	-21.02	27.20	
27.30		HP	c_u=100											
27.40-28.90 (0:13)											Extremely weak thinly laminated brown MUDSTONE with rare thin laminae of green weathered siltstone/silt. (SANDGATE FORMATION)		(0.70)	
												-21.72	27.90	
											Firm becoming soft thinly laminated brown and green silty sandy CLAY with occasional greenish black thin laminae of silt or fine sand. (SANDGATE FORMATION)			
				67	47	37		95% return Water (Grey)						
28.40-28.80	37	C												
							80 250 450				Stiff thinly laminated brown and green silty CLAY with occasional greenish black thin laminae of silt or fine sand. (SANDGATE FORMATION)		(1.60)	
28.90-30.40 (0:15)														
											Very stiff thinly laminated brown and green silty CLAY with occasional greenish black thin laminae of silt or fine sand/extremely weak thinly laminated brown silty MUDSTONE with occasional thin laminae of green fine weathered sandstone/silty sand.	-23.32	29.50	
				100	33	23		90% return Water (Greenish black)						
29.80-30.40	38	B												

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**BSaimen + OGoddard**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH15-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**15.4.16** End: **22.4.16**	**6.18**	**E:623220.2 N:135698.9**	**6** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
				100	33	23					(SANDGATE FORMATION) . . . between 29.25m and 29.33m brown silty mudstone is non-intact and weathered into firm brown silty clay.			
30.40-31.90 (0:14)											Greenish black very clayey fine to coarse SAND with occasional thin laminae of brown clay and fine to coarse compressed shells up to 25mm. Very weak cemented fine to coarse green up to 80mm between 30.40 and 31.40m. Sand is compressed to very dense state between 29.50m and 30.40m.		(2.55)	
				40	5	0		90% return Water (Greenish black)						
31.50-32.05	39	B									(SANDGATE FORMATION) *(stratum copied from 29.50m from* previous sheet) . . . between 30.40m and 31.90m loss of recovery up to 60% in sand.			
31.90-33.40 (0:20)												-25.87	-32.05	
32.05-32.25	40	C												
32.25-32.70	41	C									Weak becoming very weak thinly laminated light brown sandy LIMESTONE with frequent compressed shells and shell fragments. Bedding fractures are subhorizontal very closely to medium spaced undulating rough infilled with fine to medium sand. (HYTHE FORMATION) . . . between 32.90m and 33.10m recovered non-intact extremely week fine to coarse fragments of sandy limestone (distinctly weathered). . . . between 33.17m and 34.05m limestone is weathered and disintegrated into non-intact fragments of limestone.		(2.35)	
				93	60	60	NI 250 400	Water						
33.40-34.40 (0:10)														
33.65-33.88	42	C												
				100	80	65		0% return Water						
											. . . between 34.30m and 34.40m limestone contains fine to coarse dissolution cavities up to 10mm.	-28.22	34.40	
34.40-35.00				100	60	27					Strong partially unweathered light grey LIMESTONE. Fractures are very close undulating rough open to moderately wide with dark grey discolouration up to 5mm away from discontinuity. (HYTHE FORMATION)			
35.00-36.50													(1.70)	
				84	42	42					. . . between 35.48m and 35.57m band of weak pyritic rich sandy siltstone. . . . between 35.71m and 35.79m band of sandy silty clay, possible			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**BSaimen + OGoddard**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH15-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**15.4.16** End: **22.4.16**	**6.18**	**E:623220.2 N:135698.9**	**7** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
											weathered siltstone or infill of fracture.	-29.92	36.10	
				84	42	42					Weak thinly laminated distinctly weathered pyritic SILTSTONE. (HYTHE FORMATION)	-30.10	36.28	
36.50-38.00											Strong predominantly unweathered light grey LIMESTONE. (HYTHE FORMATION) . . . at 36.40m depth recovered as coarse gravel/cobbles.	-30.32	36.50	
				87	67	36					Weak thinly laminated distinctly weathered pyritic SILTSTONE. (HYTHE FORMATION) . . . at 36.90m horizontal fracture which is undulating rough tight containing pyrite grains up to 3mm along discontinuity. . . . between 36.95m and 37.20m unit is interbedded with medium strong limestone.	-30.92	(0.60) 37.10	
38.00-39.50											Medium strong to stong partially unweathered light grey LIMESTONE. Fractures are dipping 0-10° very close to medium spaced undulating striated open with dark grey discolouration up to 30mm away from discontinuity and infilling of dark grey slightly sandy silty clay. (HYTHE FORMATION)	-32.18	(1.26) 38.36	
				100	72	47					Weak to medium strong thinly laminated distinctly weathered pyritic SILTSTONE. Fractures are horizontal close undulating smooth open infilled with limestone gravel and light brownish grey silty sand. (HYTHE FORMATION) . . . between 38.70m and 38.80m nodule of limestone which does not fully encompass a full diameter of core. . . . between 39.20m and 39.25m nodule of limestone. . . . between 39.40m and 39.50m band of strong light grey limestone. . . . at 39.64m lens of limestone.	-33.56	(1.38) 39.74	
39.50-40.20				100	100	94					Strong partially unweathered light grey LIMESTONE. (HYTHE FORMATION) . . . between 39.98m and 40.06m band of dark grey pyritic siltstone.	-34.02	(0.46) 40.20	
											Borehole terminated at 40.20m depth.			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC305**	**Ben Horscroft + Dean Walker**	**BSaimen + OGoddard**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**12.5.16** End: **13.5.16**	**6.32**	**E:623257.5 N:135660.9**	**1** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Concrete. (MADE GROUND)	6.12	0.20	
0.20-0.50	1	B				MADE GROUND: Light greenish yellow clayey sandy GRAVEL with occasional timber fragments. Sand is medium to coarse. Gravel is angular to subrounded fine to medium flint. (MADE GROUND)	5.82	0.50	
0.50-0.80	2	B				Medium dense multicoloured (orangish brown, brown, black, red, white and grey) slightly sandy GRAVEL. Sand is coarse. Gravel is subangular to rounded fine to medium flint, chert and quartz. (BEACH DEPOSIT)			
1.20-1.65	3	SPT(c)	N=13						
1.80-2.00	4	B							
2.00-2.45	5	SPT(c)	N=12						
3.00-3.45	6	SPT(c)	N=20						
3.50-3.80	7	B				. . . at 3.50m recovered as slightly silty with no sand.		(6.50)	
4.00-4.45	8	SPT(c)	N=23						
4.50-4.80	9	B							
5.00-5.41	10	SPT(c)	N=59*			. . . below 5.00m very dense.			

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
12/05/16	08:00	7.50	7.50	200	4.00
12/05/16	13:30	15.00	12.00	200	6.00

Chiselling / Slow Progress

From	To	Duration (hh:mm)
11.00	11.20	10:30

General Remarks

1. Inspection pit hand dug to 1.2m.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 15.45m depth.
3. Groundwater struck at 4.00m depth.
4. On completion borehole backfilled with bentonite pellets to 0.2m then reinstated to

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**12.5.16** End: **13.5.16**	**6.32**	**E:623257.5 N:135660.9**	**2** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.00-6.34	11	SPT(c)	N=79*			Medium dense multicoloured (orangish brown, brown, black, red, white and grey) slightly sandy GRAVEL. Sand is coarse. Gravel is subangular to rounded fine to medium flint, chert and quartz. (BEACH DEPOSIT) *(stratum copied from 0.50m from previous sheet)*			
							-0.68	7.00	
7.00-7.20	12	B				Very dense multicoloured (orangish brown, grey, brown, black, white) slightly silty very sandy GRAVEL. Sand is medium to coarse. Gravel is angular to well rounded fine to coarse. (BEACH DEPOSIT)			
7.50-7.83	13	SPT(c)	N=83*						
								(4.00)	
9.00-9.30	13	SPT(c)	N=100*						
9.50-9.80	14	B							
10.50-10.79	15	SPT(c)	N=111*						
							-4.68	11.00	
11.00-11.20	16	B				POSSIBLE MADE GROUND: Concrete and brick (recovered as coarse gravel/cobbles) - no obvious explanation for the presence of this material. (Driller progressed through this by chiselling and described layer as "black rock, sandstone.") (POSSIBLE MADE GROUND)	-4.88	11.20	
							-5.18	11.50	
11.50-11.80	17	B				. . . between 11.00m and 15.00m several brick fragments located in samples taken by drillers. Dark yellowish brown slightly clayey gravelly SAND. Sand is fine to coarse. Gravel is angular to rounded, flint and chert.		(0.95)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

G.L with concrete and asphalt.
5. SPT hammer AR829-2016 (E_r = 78.81%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**12.5.16** End: **13.5.16**	**6.32**	**E:623257.5 N:135660.9**	**3** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.45	18	SPT	N=46			(BEACH DEPOSIT) Dense dark greenish grey silty slightly gravelly SAND. Sand is fine to medium. Gravel is angular fine flint. (SANDGATE FORMATION)	-6.13	12.45	
						(stratum copied from 11.50m from previous sheet) Very dense dark greenish grey silty SAND with frequent pyrite grains. Sand is fine, including pyrite. (SANDGATE FORMATION)		(2.86)	
13.50-13.88	19	SPT	N=67*						
15.00-15.31	20	SPT	N=94*				-8.99	15.31	
						Borehole terminated at 15.31m depth.			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH17-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**20.4.16** End: **21.4.16**	**6.20**	**E:623262.2 N:135719.6**	**1** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
0.00-0.20	1	B				MADE GROUND: Reinforced CONCRETE. (MADE GROUND)	5.95	0.25	
0.20-0.40	2	B				MADE GROUND: Grey, orange and black very silty slightly sandy GRAVEL. Gravel is subangular fine to coarse flint and concrete. (MADE GROUND)			
0.40	1	ES							
0.90	2	ES						(1.75)	
1.20-1.65	3	SPT(c)	N=8				4.20	2.00	
2.00-2.20	4	B				Medium dense multicoloured (grey, orange and brown) slightly sandy GRAVEL. Gravel is subangular to subrounded fine to coarse flint. (BEACH DEPOSIT)			
3.00-3.45	5	SPT(c)	N=16						
3.50-3.70	6	B						(3.50)	
4.00-4.45	7	SPT(c)	N=19		1				
4.50-4.70	8	B							
5.00-5.45	9	SPT(c)	N=23				0.70	5.50	
5.50-5.70	10	B				*Description on next sheet*			
5.50	3	ES							

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
21/04/16	08:00	8.20	8.20	200	4.50
22/04/16	12:00	15.00	12.00	200	9.50

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

1. Inspection pit hand dug to 1.20m.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 15.45m depth.
3. Groundwater struck at 4.20m.
4. On completion 50mm diameter standpipe complete with flush protective cover installed

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH17-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**20.4.16** End: **21.4.16**	**6.20**	**E:623262.2 N:135719.6**	**2** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.00-6.45	11	SPT(c)	N=24			Medium dense multicoloured (grey, orange and brown) slightly silty very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse flint. (BEACH DEPOSIT) *(stratum copied from 5.50m from previous sheet)*			
6.50-6.70	12	B							
7.50-7.95	13	SPT(c)	N=34			. . . at 7.50m dense.			
8.00-8.20	14	B						(6.00)	
9.00-9.35	15	SPT(c)	N=75*			. . . below 9.00m very dense.			
9.30-9.70	16	B				. . . at 9.30m sandstone cobble.			
10.50-10.85	17	SPT(c)	N=75*				-5.30	11.50	
11.50-11.80	18	B				Very dense dark grey silty SAND. (SANDGATE FORMATION)			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	to 6.00m depth (response zone - 2.00m to 6.00m depth). 5. SPT hammer AR829-2016 (E_r = 78.81%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH17-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**20.4.16** End: **21.4.16**	**6.20**	**E:623262.2 N:135719.6**	**3** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.35	19	SPT(c)	N=77*			Very dense dark grey silty SAND. (SANDGATE FORMATION) *(stratum copied from 11.50m from previous sheet)*			
13.00-13.50	20	B							
13.50-13.82	21	SPT	N=91*					(3.95)	
14.00-14.50	22	B							
15.00-15.31	23	SPT	N=94*				-9.25	15.45	
						Borehole terminated at 15.45m depth.			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH18-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**26.4.16** End: **4.5.16**	**6.01**	**E:623298.2 N:135771.4**	**1** of **5**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
0.10-0.20	1	B									MADE GROUND: Black asphalt. (MADE GROUND)	5.91	0.10	
0.20	1	ES									MADE GROUND: Dark greyish black very sandy GRAVEL. Sand is fine to coarse. Gravel is rounded to very angular fine to coarse flint, brick and concrete. (MADE GROUND)	5.51	(0.40) 0.50	
0.50-0.70	2	B												
0.60	2	ES											(0.50)	
											POSSIBLE MADE GROUND: Light orangish brown mottled orange slightly sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded medium to coarse flint. (MADE GROUND)	5.01	1.00	
1.20-1.65	3	SPT(c)	N=14											
1.80-1.90	4	B									Light orangish brown mottled orange slightly sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded medium to coarse flint. (BEACH DEPOSIT)			
2.00-2.45	5	SPT(c)	N=19											
2.50-2.70	6	B												
3.00-3.45	7	SPT(c)	N=22										(5.50)	
4.00-4.45	8	SPT(c)	N=26											
4.50-4.70	9	B												
5.00-5.45	10	SPT(c)	N=26											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
26/04/16	11:30	5.45	5.00	200	4.80
27/04/16	08:30	7.50	7.50	200	4.00
04/05/16	07:00	9.30	10.50	150	4.80
04/05/16	18:00	21.00	21.00	150	1.35

Chiselling / Slow Progress

From	To	Duration (hh:mm)
10.40	10.40	02:00

General Remarks

1. Inspection pit hand dug to 1.20m.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 10.40m depth.
3. Borehole extended below to 21.00m depth using rotary wireline coring techniques with SW size equipment and water flush.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**Ben Horscroft + Jason Price**	**OGoddard + RLynes**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH18-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**26.4.16** End: **4.5.16**	**6.01**	**E:623298.2 N:135771.4**	**2** of **5**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.00-6.45	11	SPT(c)	N=29									-0.49	6.50	
6.50-6.70	12	B									Very dense brownish orange slightly silty very sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subangular fine to coarse flint. (BEACH DEPOSIT)		(1.50)	
7.50-7.81	13	SPT(c)	N=97*									-1.99	8.00	
8.00-8.50	14	B									Dense light greyish orange light brownish yellow slightly silty SAND and GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded fine to coarse flint and sandstone. (BEACH DEPOSIT)			
9.00-9.45	15	SPT(c)	N=32										(2.50)	
10.00-10.30	16	B						Water (Grey)			. . . core subsample recorded at 10.10m depth (on which point load undertaken) probably actually taken from 10.5m depth (probable transcription error during sub-sampling).	-4.49	10.50	
10.40-10.50 (0:20) 10.50-12.00 (0:18)				16	0	0		Water (Grey)			Strong partially unweathered light grey SANDSTONE with occasional bivalve shells. Grains are subangular to subrounded consisting of quartz, feldspar and a dark green mineral/rock fragments. (SANDGATE FORMATION)		(2.00)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

4. Groundwater struck at 4.00m depth.
5. On completion 50mm diameter standpipe complete with flush protective cover installed to 4.00m depth (response zone - 1.00m to 4.00m depth).
6. SPT hammers AR1240-2016 (E_r = 70.00%) , AR829-2016 (E_r = 78.81%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	Dando 2000 + Comacchio MC300	Ben Horscroft + Jason Price	OGoddard + RLynes	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH18-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**26.4.16** End: **4.5.16**	**6.01**	**E:623298.2 N:135771.4**	**3** of **5**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-13.50 (0:31)	16	SPT(c)	N=18									-6.49	12.50	
12.00-12.45														
				33	0	0		Water (Grey)			Medium dense dark greenish grey silty SAND. Sand is fine to medium including pyrite. (SANDGATE FORMATION)		(1.00)	
13.20		HP	c_u=50									-7.49	13.50	
13.50-15.00 (0:29)				0	0	0		Water (Grey)			No recovery.		(1.50)	ZCL
												-8.99	15.00	
15.00-16.50 (0:31)	17	SPT(c)	N=26								Extremely weak distinctly weathered to destructured thinly bedded sandy SILTSTONE with frequent pyrite grains. (SANDGATE FORMATION)			
15.00-15.45														
				49	20	11		Water (Grey)						
15.80		HP	c_u=125											
16.30		HP	c_u=100										(2.80)	
16.35-16.50	102	D									. . . at 16.35m laboratory PSD test shows bedrock has weathered to a silty sandy clay.			
16.50-18.00 (0:04)														
				11	11	11		Water (Grey)						
												-11.79	17.80	
											Description on next sheet			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**Ben Horscroft + Jason Price**	**OGoddard + RLynes**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH18-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**26.4.16** End: **4.5.16**	**6.01**	**E:623298.2 N:135771.4**	**4** of **5**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
18.00-19.50 (0:22)				31	7	7		Water (Grey)			Weak distinctly weathered thinly laminated sandy SILTSTONE with frequent pyrite grains. (SANDGATE FORMATION) *(stratum copied from 17.80m from* previous sheet)	-12.99	(1.20) 19.00	
19.10-19.50	105	D									Extremely weak destructured sandy SILTSTONE with frequent pyrite grains. (SANDGATE FORMATION) . . . at 19.10m laboratory PSD test shows bedrock has weathered to a silty sandy clay.	-14.39	(1.40) 20.40	
19.30		HP	c_u=50											
19.50-21.00 (0:27)				57	30	30		Water (Grey)						
											Weak distinctly weathered sandy SILTSTONE with frequent pyrite grains. (SANDGATE FORMATION) . . . at 20.95m stepped rough discontinuity with slickensides.	-14.99	(0.60) 21.00	
											Borehole terminated at 21.00m depth.			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**Ben Horscroft + Jason Price**	**OGoddard + RLynes**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH19-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**22.4.16** End: **25.4.16**	**6.42**	**E:623339.2 N:135722.9**	**1** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Reinforced concrete. (MADE GROUND)	6.17	0.25	
0.20-0.50	1	B							
0.30-0.50	1	ES				MADE GROUND: Grey slightly silty sandy GRAVEL. Gravel is multicoloured (grey, orange and brown) subangular to rounded fine to coarse flint. (MADE GROUND)	6.12	0.30	
0.50	1	ES					5.92	0.50	
						Brownish grey and greyish orange silty slightly sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded medium flint. (BEACH DEPOSIT)			
1.20-1.65	2	SPT(c)	N=23			Medium dense multicoloured (orange, brown and grey) slightly sandy GRAVEL. Gravel is subrounded fine to coarse flint. (BEACH DEPOSIT)			
1.20-1.70	3	B							
2.00-2.45	4	SPT(c)	N=20						
2.50-2.80	5	B							
3.00-3.45	6	SPT(c)	N=22						
3.50-3.80	7	B							
								(7.00)	
4.00-4.45	8	SPT(c)	N=23			. . . at 4.0m sandy.			
4.00-4.80	9	B							
5.00-5.45	10	SPT(c)	N=27						
5.50-6.00	11	B							

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
22/04/16	12:00	6.50	6.50	200	6.50
24/04/16	09:00	8.00	8.00	200	6.00
24/04/16	17:00	18.45	13.50	200	6.00

Chiselling / Slow Progress

From	To	Duration (hh:mm)
10.30	11.50	01:05

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 18.45m depth.
3. Groundwater struck at 6.50m depth.
4. On completion 50mm diameter standpipe complete with flush protective cover installed

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH19-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**22.4.16** End: **25.4.16**	**6.42**	**E:623339.2 N:135722.9**	**2** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.00-6.45	12	SPT(c)	N=23			Medium dense multicoloured (orange, brown and grey) slightly sandy GRAVEL. Gravel is subrounded fine to coarse flint. (BEACH DEPOSIT) *(stratum copied from 0.50m from previous sheet)*			
6.00-6.50	13	B			11				
6.50-7.00	14	B					-1.08	7.50	
7.50-7.95	15	SPT(c)	N=19			Medium dense orangish brown to yellowish brown slightly silty very sandy GRAVEL. Sand is medium to coarse. Gravel is rounded to angular medium to coarse flint. (BEACH DEPOSIT)		(0.50)	
7.50-8.00	16	B					-1.58	8.00	
						Medium dense orangish brown to yellowish brown slightly silty very gravelly SAND. Sand is medium to coarse. Gravel is rounded to angular medium to coarse flint. (BEACH DEPOSIT)			
9.00-9.41	17	SPT(c)	N=59*					(2.30)	
10.00-10.30	18	B					-3.88	10.30	
10.30-10.50	19	B				Very dense dark greyish brown to dark brownish yellow slightly gravelly SAND with a medium cobble content. Sand is medium to coarse. Gravel is rounded to angular medium to coarse flint. Cobbles are subangular sandstone. Driller notes presence of "sandstone bands". (SANDGATE FORMATION)			
10.50-10.82	20	SPT(c)	N=91*					(2.70)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

to 8.00m depth (response zone - 1.00m to 8.00m depth).

5. SPT hammer AR829-2016 (E_r = 78.81%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH19-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**22.4.16** End: **25.4.16**	**6.42**	**E:623339.2 N:135722.9**	**3** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.42	21	SPT	N=56*			Very dense dark greyish brown to dark brownish yellow slightly gravelly SAND with a medium cobble content. Sand is medium to coarse. Gravel is rounded to angular medium to coarse flint. Cobbles are subangular sandstone. Driller notes presence of "sandstone bands". (SANDGATE FORMATION) *(stratum copied from 10.30m from previous sheet)*	-6.58	13.00	
13.00-13.20	22	B				Very dense dark greenish grey silty SAND. Sand is fine. (SANDGATE FORMATION)		(1.00)	
13.50-13.88	23	SPT	N=65*				-7.58	14.00	
14.00-14.20	24	B				Very dense dark greenish grey silty SAND. Sand is fine. (SANDGATE FORMATION)		(3.00)	
15.00-15.36	25	SPT	N=71*						
16.00-16.20	26	B							
16.50-16.85	27	SPT	N=75*				-10.58	17.00	
17.00-17.20	28	B				Firm slightly sandy CLAY with thin fine sand laminations. Sand is fine. (SANDGATE FORMATION)		(1.35)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH19-W**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**22.4.16** End: **25.4.16**	**6.42**	**E:623339.2 N:135722.9**	**4** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
18.00-18.35	29	SPT	N=77*			Firm slightly sandy CLAY with thin fine sand laminations. Sand is fine. (SANDGATE FORMATION) *(stratum copied from 17.00m from previous sheet)* Borhole terminated at 18.35m depth.	-11.92	18.35	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH20-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**3.5.16** End: **6.5.16**	**7.09**	**E:623378.5 N:135747.0**	**1** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
0.10	1	ES				MADE GROUND: Brownish grey mottled orange very sandy GRAVEL with a high cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse brick, concrete and flint. Cobbles are angular to subangular concrete and brick. (MADE GROUND)	6.89	0.20	
0.20-0.50	1	B							
0.40	3	ES					6.59	0.50	
0.50-0.70	2	B				MADE GROUND: Brown mottled grey very gravelly SAND. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint, brick and glass. (MADE GROUND)			
0.50		HP	c_u=35/30/25						
1.20-1.65	3	SPT	N=0			MADE GROUND: Soft dark brownish grey mottled white sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse chalk, flint, siltstone and brick. (MADE GROUND)		(2.00)	
1.20	6	ES							
2.00-2.45	4	SPT	N=16				4.59	2.50	
2.50-2.70	5	B				POSSIBLE MADE GROUND: Soft light brown to brownish white silty slightly sandy slightly gravelly CLAY with pockets of soft clayey destructured chalk. Sand is fine to coarse. Gravel is subangular fine to coarse chalk and sandstone. (MADE GROUND)		(0.70)	
2.50		HP	c_u=60/35/40						
3.00-3.45	6	SPT	N=14				3.89	3.20	
3.20-3.50	7	B				Medium dense multicoloured (orange, brown grey and white) slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and quartz. (BEACH DEPOSIT)			
4.00-4.45	8	SPT(c)	N=15						
4.50-4.80	9	B							
5.00-5.45	10	SPT(c)	N=23		11				

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
13/05/16	16:00	5.40	5.40	200	5.40
14/05/16	08:00	6.50	6.50	200	6.50
14/05/16	17:00	17.50	14.00	200	8.00

Chiselling / Slow Progress

From	To	Duration (hh:mm)
17.20	17.50	01:30

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 17.50m depth.
3. Groundwater struck at 7.00m depth.
4. On completion 50mm diameter standpipe installed to 4.00m depth (response zone -

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log COMPOSITE LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH20-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**3.5.16** End: **6.5.16**	**7.09**	**E:623378.5 N:135747.0**	**2** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.00-6.45	11	SPT(c)	N=39			Medium dense multicoloured (orange, brown grey and white) slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and quartz. (BEACH DEPOSIT)			
						(stratum copied from 3.20m from previous sheet)			
6.50-6.70	12	B				. . . dense at 6.00m.		(6.80)	
						. . . from 6.50m becoming sandy gravel.			
7.50-7.82	13	SPT(c)	N=91*			. . . very dense below 7.50m			
8.00-8.50	14	B				. . . very sandy at 8.00m.			
9.00-9.29	15	SPT(c)	N=111*						
							-2.91	10.00	
10.00-10.20	16	B				Very dense dark brown very sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and quartz. (BEACH DEPOSIT)			
10.50-10.90	17	SPT(c)	N=60*					(2.00)	
							-4.91	12.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

1.00m to 4.00m depth).
5. SPT hammer AR829-2016 (E_r = 78.81%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**SOFarrell**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH20-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**3.5.16** End: **6.5.16**	**7.09**	**E:623378.5 N:135747.0**	**3** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.00-12.43	18	SPT(c)	N=54*			Very dense dark greenish brown to greyish brown very gravelly SAND with occasional shells (<4mm in diameter). Sand is fine to medium. Gravel is subrounded flint and quartz. (BEACH DEPOSIT)			
12.00-12.20	19	B						(2.00)	
13.50-13.90	13.5	SPT	N=60*				-6.91	14.00	
14.00-14.20	21	B				Very dense dark grey silty slighty gravelly SAND. Sand is fine. Gravel is subangular fine to medium flint. (SANDGATE FORMATION)			
15.00-15.40	15	SPT	N=61*					(3.00)	
16.00-16.25	16	SPT	N=120*				-9.91	17.00	
17.00-17.20	25	B				Very dense dark grey slightly silty slightly gravelly SAND. Sand is fine to medium. Gravel is subrounded to subangular sandstone. (SANDGATE FORMATION)		(0.73)	
17.50-17.73	17.5	SPT	N=130*				-10.64	17.73	
						Borehole terminated at 17.73m depth at instruction of client.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**Ben Horscroft**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log COMPOSITE LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH21-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**20.4.16**	**6.19**	**E:623509.3 N:135812.7**	**1** of **1**
	End: **20.4.16**			

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Asphalt over plastic membrane. (MADE GROUND)	6.14	0.05	
						MADE GROUND: Reinforced concrete. (MADE GROUND)	5.89	0.30	
						MADE GROUND: Black and dark brown COBBLES with occasional boulders and some silty very sandy GRAVEL. Gravel is flint, asphalt, concrete, brick and sandstone. Cobbles and boulders are up to 250mm across of brick, concrete and sandstone. (MADE GROUND)		(1.10)	
							4.79	1.40	
						Borehole terminated at 1.40m depth due to refusal. Borehole moved by ~3.00m to new location BH21G-2.			

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress

From	To	Duration (hh:mm)
1.20	1.40	02:50

General Remarks

1. Inspection pit dug to 1.20m depth by hand.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 1.40m depth.
3. Borehole terminated on obstruction, moved to position BH21G-2.
4. Backfilled with arisiings and reinstated on completion.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH21-G2**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**20.4.16** End: **21.4.16**	**6.18**	**E:623506.8 N:135820.9**	**1** of **1**

Depth (m)	Samples & Testing: No	Type	Results	Backfill	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Reinforced CONCRETE. (MADE GROUND)	5.78	(0.40) 0.40	
1.00-1.45	1	SPT(c)	N=26			MADE GROUND: Medium dense dark greyish brown slightly silty sandy GRAVEL with low cobble content. Gravel is flint, concrete, brick, glass and asphalt. Cobbles are concrete, asphalt and brick. (MADE GROUND)		(2.00)	
2.00-2.38	2	SPT(c)	N=67*				3.78	2.40	
						Borehole terminated at 2.40m due to refusal.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
21/04/16	11:40	2.40	2.40	N/R	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
1.20	2.40	01:00

General Remarks

1. Inspection pit dug to 1.00m by hand.
2. Terminated on obstruction at 2.40m depth. Moved position to BH21G-3.
3. Borehole backfilled with arisings.
4. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Cable tool rig**	**SE Drilling**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH21-G3**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**20.4.16** End: **29.4.16**	**6.06**	**E:623483.3 N:135811.2**	**1** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Asphalt. (MADE GROUND)	5.96	0.10	
						MADE GROUND: Concrete. (MADE GROUND)	5.66	0.40	
0.50	1	ES				MADE GROUND: Greyish black slightly clayey very sandy GRAVEL. Gravel is rounded to very angular fine to coarse flint, concrete and brick. (BEACH DEPOSIT)	5.06	(0.60)	
1.00-1.45	1	SPT(c)	N=24			Medium dense light orangish brown mottled yellowish brown slightly sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subangular medium to coarse grained flint. (BEACH DEPOSIT)		1.00	
1.00-1.50	1	B							
1.00	2	ES							
2.00-2.45	2	SPT(c)	N=27						
2.00-2.40	2	B							
2.00	3	ES							
3.00-3.45	3	SPT(c)	N=25						
3.00-3.50	3	B							
4.00-4.45	4	SPT(c)	N=29						
4.00-4.50	4	B							
5.00-5.45	5	SPT(c)	N=28						
5.00-5.50	5	B						(8.50)	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
28/04/16	13:20	6.90	6.90	200	6.90
28/04/16	13:40	6.90	6.90	200	6.80
28/04/16	17:00	10.00	10.00	200	8.90
29/04/16	08:00	10.00	10.00	200	4.60
29/04/16	12:00	15.00	12.50	200	4.60

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Location scanned with CAT and Genny.
2. Inspection pit dug to 1.20m depth by hand.
3. Borehole drilled using cable percussion techniques at 200mm diameter to 15.00m depth.
4. Groundwater struck at 6.80m rising to 6.90m depth after 20 minutes.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**???**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH21-G3**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**20.4.16** End: **29.4.16**	**6.06**	**E:623483.3 N:135811.2**	**2** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.50-6.95 6.50-7.00	6 6	SPT(c) B	N=34		1	Medium dense light orangish brown mottled yellowish brown slightly sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subangular medium to coarse grained flint. (BEACH DEPOSIT) *(stratum copied from 1.00m from previous sheet)* . . . below 6.50m dense and sandy.			
8.00-8.45 8.00-8.50	7 7	SPT(c) B	N=37						
9.00-9.45 9.00-9.50	8 8	SPT(c) B	N=38						
							-3.44	9.50	
9.50-10.00	9	B				Light yellowish brown slightly silty very sandy GRAVEL with a low cobble content. Sand is medium to coarse. Gravel is well rounded to subangular medium to coarse grained flint. Cobbles are rounded to angular up to 70.0mm in diameter. (BEACH DEPOSIT)		(1.30)	
							-4.74	10.80	
11.00-11.35 11.00-11.50	9 10	SPT(c) B	N=75*			Very dense dark grey SAND with a high cobble content. Sand is fine to coarse. Cobbles are rounded to angular up to 190mm in diameter. (SANDGATE FORMATION)		(1.50)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

5. On completion 50mm diameter standpipe complete with flush protective cover installed to depth (response zone - 1.00m to 4.00m depth).
6. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**???**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH21-G3**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**20.4.16** End: **29.4.16**	**6.06**	**E:623483.3 N:135811.2**	**3** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
							-6.24	12.30	
12.50-12.78 12.50-13.00	10 11	SPT(c) B	N=115*			Very dense dark grey slightly silty SAND. Sand is fine to medium. (SANDGATE FORMATION)		(2.70)	
14.00-14.31 14.00-14.50	11 12	SPT(c) B	N=94*				-8.94	15.00	
						Borehole terminated at 15.00m depth.			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**???**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH22-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**18.4.16** End: **3.5.16**	**6.31**	**E:623498.5 N:135862.1**	**1** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
											MADE GROUND: Asphalt.	6.26	0.05	
											(MADE GROUND)		(0.35)	
											MADE GROUND: Reinforced concrete.	5.91	0.40	
											(MADE GROUND)			
0.50-1.00	2	B									MADE GROUND: Firm dark grey and brownish red slightly sandy gravelly CLAY with occasional shell fragments. Gravel is subangular to rounded flint and brick fragments. (MADE GROUND)		(1.20)	
0.50	6	ES												
0.70	1	ES												
1.00-1.45	1	SPT(c)	N=14											
1.00-1.50	14	B												
												4.71	1.60	
1.60-2.50	3	B									Medium dense multicoloured grey, orange and brown sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to rounded medium to coarse flint. (BEACH DEPOSIT)			
2.00-2.45	2	SPT(c)	N=24											
2.00-2.50	15	B												
3.00-3.45	3	SPT(c)	N=28								. . . below 3.00m less well sorted.			
3.00-3.50	4	B												
4.00-4.45	4	SPT(c)	N=30										(4.90)	
4.00-4.50	5	B												
5.00-5.45	5	SPT(c)	N=30								. . . recovered slightly sandy at 5.00m.			
5.00-5.50	7	B												

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
18/04/16	09:30	1.50	1.50	200	Dry
18/04/16	15:00	7.50	7.50	200	7.10
18/04/16	15:30	8.50	7.50	200	7.10
18/04/16	15:40	7.10	7.20	200	7.10
19/04/16	08:30	8.50	7.50	200	5.50
28/04/16	08:00	10.50	10.50	200	2.40
28/04/16	17:00	31.50	31.50	150	1.10
29/04/16	07:30	31.50	31.50	150	0.00

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 15.00m depth.
3. Groundwater struck at 7.10m depth.
4. Borehole extended to 40.40m depth using rotary wireline coring techniques with SW size

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**SE Drilling + Jason Price**	**JSimmonds + RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log COMPOSITE LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH22-P**

Contract Ref:	Start: **18.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **3.5.16**	**6.31**	**E:623498.5 N:135862.1**	**2** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
												-0.19	6.50	
6.50-6.95 6.50-7.00	6 8	SPT(c) B	N=33							1.1	Dense multicoloured (grey, orange and brown) slightly sandy GRAVEL. Gravel is subangular to rounded fine to coarse flint. (BEACH DEPOSIT)	-1.69	(1.50) 8.00	
8.00-8.45 8.00-8.50	7 9	SPT(c) B	N=37								Dense multicoloured (grey, orange and brown) slightly silty sandy GRAVEL. Gravel is subangular to rounded fine to coarse flint. (BEACH DEPOSIT)	-3.19	(1.50) 9.50	
9.50-9.65 9.50-10.00 9.50-10.00	8 10 11	SPT(c) B ES	N=200*								Very dense light brown slightly silty very gravelly SAND. Gravel is subangular to rounded fine to coarse flint. (BEACH DEPOSIT)	-5.19	(2.00) 11.50	
11.00-11.23 11.00-11.50	9 12	SPT(c) B	N=200*											
11.50-11.70	13	B									Brown and pale grey COBBLES with much GRAVEL. Gravel is subangular to subrounded fine to coarse flint. Cobbles are coarse	-5.39	11.70	
11.90		HP	c_u=75											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
29/04/16	14:00	37.50	37.50	150	0.00
03/05/16	09:00	37.50	37.50	150	1.10
03/05/16	17:00	40.00	None	150	0.00

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

equipment and water flush.
5. On completion 19mm diameter standpipe installed to 20.00m depth (response zone - 19.50m to 20.00m depth).
6. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**SE Drilling + Jason Price**	**JSimmonds + RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH22-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**18.4.16** End: **3.5.16**	**6.31**	**E:623498.5 N:135862.1**	**3** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Reduced Level	Depth (Thick ness)	Material Graphic Legend
											grained dark grey sandstone with subrounded flint inclusions. (Driller's description for this layer is "hard sandstone".) (BEACH DEPOSIT)	-6.19	(0.80) 12.50	
12.50-12.95	10	SPT	N=37								Stiff greyish black sandy SILT. (SANDGATE FORMATION) *(stratum copied from 11.70m from* previous sheet)			
											Very dense greyish black very silty SAND. (SANDGATE FORMATION)			
13.50	16	D											(2.50)	
14.00-14.38	11	SPT	N=67*											
											. . . at 14.50m large nodular pyrite recovered (approximately 50mm in diameter).	-8.69	15.00	
15.00-18.00 (0:14) 15.00	17	D		0	0	0					No recovery.		(3.00)	ZCL
												-11.69	18.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**SE Drilling + Jason Price**	**JSimmonds + RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log COMPOSITE LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH22-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**18.4.16** End: **3.5.16**	**6.31**	**E:623498.5 N:135862.1**	**4** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
18.00-19.50 (0:19) 18.00-18.31	12	SPT	N=97*								Very dense dark grey silty SAND. Sand is fine to medium. (SANDGATE FORMATION)			
18.50		HP	c_u=50	51										
19.50-21.00 (0:23)											. . . at 19.90m possible discontinuity dipping 50° infilled with silty clay. . . . at 20.20m becoming firmer.		(3.10)	
21.00-22.50 (0:28)				69								-14.79	21.10	
21.30		HP	c_u=125	93							Dark greenish grey very sandy SILT. Sand is fine. (SANDGATE FORMATION)	-15.43	(0.64) 21.74	
											Extremely weak fissured distinctly weathered dark grey sandy SILTSTONE. (SANDGATE FORMATION)	-16.19	(0.76) 22.50	
22.50-24.00 (0:26)											Firm grey black silty CLAY with very closely spaced very thin beds of thinly laminated greenish grey silty fine sand. (SANDGATE FORMATION)			
22.90		HP	c_u=63	100	0	0						-16.99	(0.80) 23.30	
											Greyish black very silty SAND with occasional thin laminae of grey clay. (SANDGATE FORMATION)			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**SE Drilling + Jason Price**	**JSimmonds + RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH22-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**18.4.16** End: **3.5.16**	**6.31**	**E:623498.5 N:135862.1**	**5** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
23.95		HP	c_u=72								Greyish black very silty SAND with occasional thin laminae of grey clay. (SANDGATE FORMATION) *(stratum copied from 23.30m from* previous sheet)		(1.70)	
24.00-25.50 (0:44)		HP	c_u=25											
24.20				100	0	0						-18.69	25.00	
											Stiff grey black silty CLAY with very closely spaced very thin beds of thinly laminae of greenish grey silty fine sand. (SANDGATE FORMATION)	-19.19	(0.50) 25.50	
25.50-27.00 (0:41)											Extremely weak thinly laminated greyish black silty MUDSTONE. Bedding is horizontal. (SANDGATE FORMATION)	-19.54	(0.35) 25.85	
25.90		HP	c_u=125								Greenish brown silty SAND with occasional thin laminae of brown clay. Sand is fine to medium. (SANDGATE FORMATION)	-19.99	(0.45) 26.30	
				100	0	0								
26.40		HP	c_u=125								Firm to stiff brown thinly laminated slightly sandy CLAY with occasional thin laminae of green fine to medium sand. Occasional pyrite nodules up to 10mm. (SANDGATE FORMATION) . . . at 26.35m occasional nodules of pyrtite up to 6mm.	-20.34	26.65	
26.50		HP	c_u=225											
27.00-28.50 (0:40)												-21.14	(0.80) 27.45	
				100	23	23					Extremely weak thinly laminated brown fresh MUDSTONE/Very stiff thinly laminated brown silty CLAY. Bedding is horizontal. (SANDGATE FORMATION)	-21.69	(0.55) 28.00	
28.00		HP	c_u=200								Blackish brown silty SAND with occasional thin laminae of stiff brown clay. (SANDGATE FORMATION)	-22.19	(0.50) 28.50	
28.20		HP	c_u=90											
28.45		HP	c_u=200								Very stiff locally firm thinly laminated brown slightly sandy CLAY with occasional thin laminae or lenses green silty sand. (SANDGATE FORMATION) . . . from 28.00m to 28.20m clay becomes sandy and it contains occasional lenses and thin laminae of brown sand.	-22.44	28.75	
28.50-30.00 (0:46)														
				100	83	83					Very stiff thinly laminated brown clayey SILT with thin laminae of brown silt. (SANDGATE FORMATION)			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**SE Drilling + Jason Price**	**JSimmonds + RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH22-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**18.4.16** End: **3.5.16**	**6.31**	**E:623498.5 N:135862.1**	**6** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
30.00-31.50 (0:44)				100	0	0					Extremely weak thinly laminated brown silty MUDSTONE with rare thin laminae of brown fine sand. Bedding fractures are sub horizontal medium to widely spaced undulating rough infilled with grey silty sand up to 2mm. (SANDGATE FORMATION) *(stratum copied from 28.75m from* previous sheet)	-25.19	(2.75) 31.50	
31.50-33.00 (0:37)											Very stiff thinly laminated grey clayey SILT. (SANDGATE FORMATION)	-25.64	(0.45) 31.95	
31.80		HP	c_u=190											
				100	10	10		Water (Grey)			Extremely weak thinly laminated grey MUDSTONE with pockets of greyish brown silt partings. (SANDGATE FORMATION)	-25.79	32.10	
33.00-34.50 (0:35)				100	0	0		Water (Grey)			Grey thinly laminated very clayey very silty fine SAND with rare pyrite and occasional thin laminae of brown silt (Probably very dense sand) (SANDGATE FORMATION)	-27.69	(1.90) 34.00	
34.30		HP	c_u=130								Stiff thinly laminated grey silty CLAY with occasional thin laminae of brown silt. (SANDGATE FORMATION)			
34.50-36.00 (0:40)				100	0	0	NI 150 350	Water (Grey)				-29.24	(1.55) 35.55	
											Black thinly laminated very clayey fine to medium SAND with occasional fine to coarse pyrite nodules.	-29.59	(0.35) 35.90	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**SE Drilling + Jason Price**	**JSimmonds + RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH22-P**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**18.4.16** End: **3.5.16**	**6.31**	**E:623498.5 N:135862.1**	**7** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
36.00-36.50 (0:30)				300	0	0		Water (Grey)			(SANDGATE FORMATION) Greenish black thinly laminated very clayey fine to coarse SAND with rare shells and pyrite nodules.	-30.09	(0.50) 36.40	
36.50-37.50 (0:40)				150	0	0		Water (Grey)			(SANDGATE FORMATION) *(stratum copied from 35.90m from* previous sheet) Medium strong thinly laminated greenish black fresh fine to medium grained sandy MUDSTONE. (SANDGATE FORMATION)	-30.34 -31.19	36.65 (0.85) 37.50	
37.50-39.00 (0:44)				80	20	9	50 150 300	Water (Grey)			Greenish black thinly laminated very clayey fine to coarse SAND with rare shells and pyrite nodules. (SANDGATE FORMATION) Possible backfill/collapsed material from above: Dark greenish grey clayey gravelly SAND. Sand is fine to coarse. Gravel is angular fine of limestone. (HYTHE FORMATION)	-33.59	(2.40) 39.90	
38.77-38.87	201	C												
38.90-39.00	202	C												
39.00-40.50 (0:47)				37	5	0	NI 200 250	Water (Grey)			Medium strong distinctly weathered light grey LIMESTONE. Fracture set 1: Fractures are dipping 10-20°, very close to closely spaced undulating rough moderately wide aperture infilled with dark grey gravelly CLAY. Gravel is angular fine limestone. Fracture set 2: Fractures are dipping 70-90° spacing not reportable due to vertical nature through core sample, planar rough, tight to partly open aperture, no filling/clean surfaces. (HYTHE FORMATION) Borehole terminated at 40.50m depth.	-34.19	(0.60) 40.50	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio MC300**	**SE Drilling + Jason Price**	**JSimmonds + RLynes**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH23-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**22.4.16** End: **25.4.16**	**6.32**	**E:623402.3 N:135820.8**	**1** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Asphalt.	6.27	0.05	
						(MADE GROUND)	6.12	0.20	
						MADE GROUND: Concrete. (MADE GROUND)		(0.50)	
0.50	1	ES				MADE GROUND: Dark grey and dark brown silty sandy GRAVEL. Gravel is angular to subrounded fine to coarse flint, brick, clinker, charcoal and concrete. (MADE GROUND)	5.62	0.70	
1.00	2	ES				MADE GROUND: Dark grey slightly silty sandy GRAVEL. Gravel is subangular to rounded fine to coarse flint, chalk and shell fragments. (MADE GROUND)	5.32	1.00	
1.00-1.50	3	B							
1.20-1.65	1	SPT(c)	N=19			MADE GROUND: Reworked multicoloured (orange, brown and grey) GRAVEL with localised pockets soft grey clay. Gravel is subrounded fine to coarse flint. (MADE GROUND)		(1.05)	
2.00-2.45	2	SPT(c)	N=29				4.27	2.05	
2.00-2.50	4	B				Medium dense multicoloured (orange, brown and grey) GRAVEL. Gravel is subrounded fine to coarse flint. (BEACH DEPOSIT)			
2.00	7	ES							
3.00-3.45	3	SPT(c)	N=29						
3.00-3.50	5	B							
4.00-4.45	4	SPT(c)	N=28			. . . slightly sandy at 4.00m.			
4.00-4.50	6	B							
5.00-5.45	5	SPT(c)	N=32			. . . below 5.00m dense.		(5.95)	
5.00-5.50	8	B							

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
21/04/16	13:30	1.20	None	N/R	Dry
22/04/16	08:30	1.20	1.20	200	Dry
22/04/16	10:42	4.00	4.00	200	3.90
22/04/16	17:00	12.00	10.90	200	3.90
25/03/16	08:30	12.00	10.90	200	3.30
25/03/16	12:30	15.00	11.80	200	3.30

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 15.00m depth.
3. Groundwater struck at 3.90m depth.
4. On completion 50mm diameter standpipe complete with flush protective cover installed

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH23-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**22.4.16** End: **25.4.16**	**6.32**	**E:623402.3 N:135820.8**	**2** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						Medium dense multicoloured (orange, brown and grey) GRAVEL. Gravel is subrounded fine to coarse flint. (BEACH DEPOSIT) *(stratum copied from 2.05m from previous sheet)*			
6.50-6.95	6	SPT(c)	N=33						
6.50-7.00	9	B							
							-1.68	8.00	
8.00-8.45	7	SPT(c)	N=34			Dense light orangish brown mottled orange very sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded fine to coarse flint. (BEACH DEPOSIT)			
8.00-8.50	10	B							
8.00-8.50	7	B							
9.50-9.95	8	SPT(c)	N=31					(3.00)	
9.50-10.00	11	B							
9.50-10.00	8	B							
							-4.68	11.00	
11.00-11.45	9	SPT(c)	N=47			Very dense brownish grey slightly clayey gravelly SAND with a low cobble content. Sand is fine to coarse. Gravel is subangular to very angular coarse sandstone. Cobbles are subangular to very angular sandstone. (SANDGATE FORMATION)		(0.60)	
11.00-11.50	12	B							
11.00-11.50	9	B							
						. . . driller notes "band of sandstone" between 11.50-11.60m depth.	-5.28	11.60	
						Description on next sheet			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

to 4.00m depth (response zone - 1.00m to 4.00m depth).

5. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**JSimmonds**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log COMPOSITE LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH23-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**22.4.16** End: **25.4.16**	**6.32**	**E:623402.3 N:135820.8**	**3** of **3**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						Very dense dark grey clayey SAND with rare pyritic nodules. Sand is fine to medium. (SANDGATE FORMATION) *(stratum copied from 11.60m from previous sheet)*		(3.40)	
12.50-12.83	10	SPT	N=83*						
12.50-13.00	10	B							
12.50-13.00	13	B							
14.00-14.03	11	SPT	N=536*						
14.00-14.50	11	B							
14.00-14.50	14	B					-8.68	15.00	
						Borehole terminated at 15.00m depth.			

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**JSimmonds**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH24-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**6.5.16** End: **9.5.16**	**6.28**	**E:622928.5 N:135643.6**	**1** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
						MADE GROUND: Asphalt.	6.18	0.10	
						(MADE GROUND)			
0.30	1	ES				MADE GROUND: Brick and concrete. (MADE GROUND)			
0.60	2	ES						(1.20)	
1.00-1.45	1	SPT(c)	N=16						
1.00-1.50	1	B					4.98	1.30	
						Medium dense yellowish brown to brownish orange slightly sandy GRAVEL. Gravel is angular to well rounded medium to coarse flint. (BEACH DEPOSIT)			
2.00-2.45	2	SPT(c)	N=18						
2.00-2.50	2	B							
3.00-3.45	3	SPT(c)	N=19						
3.00-3.50	3	B							
4.00-4.45	4	SPT(c)	N=24		11				
4.00-4.50	4	B							
5.00-5.45	5	SPT(c)	N=26					(7.60)	
5.00-5.50	5	B							

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
06/05/16	13:50	4.20	4.20	200	4.20
09/05/16	08:00	6.50	6.50	200	3.80
09/05/16	17:30	20.50	11.50	200	3.80

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Inspection pit hand dug to 1.2m.
2. Borehole drilled using cable percussion techniques at 200mm diameter to 20.50m depth.
3. Groundwater struck at 4.20m depth.
4. On completion 50mm diameter standpipe complete with flush protective cover installed

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**SOFarrell + OGoddard**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH24-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**6.5.16** End: **9.5.16**	**6.28**	**E:622928.5 N:135643.6**	**2** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
6.50-6.95	6	SPT(c)	N=30			Medium dense yellowish brown to brownish orange slightly sandy GRAVEL. Gravel is angular to well rounded medium to coarse flint. (BEACH DEPOSIT) *(stratum copied from 1.30m from previous sheet)*			
8.00-8.50	6	B				. . . at 8.00m sandy.			
8.00-8.45	7	SPT(c)	N=30				-2.62	8.90	
9.50-10.00	7	B				Dense dark yellowish brown gravelly SAND. Sand is fine to coarse. Gravel is subrounded fine to coarse flint, quartz and sandstone. (BEACH DEPOSIT) . . . driller notes "hard boulders of sandstone 8.9-9.8m"; sample from 9.5m recovered as sandy gravel.			
9.50-9.95	8	SPT(c)	N=39					(2.10)	
11.00-11.50	8	B					-4.72	11.00	
11.00-11.45	9	SPT(c)	N=40			Dark grey to dark greyish grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and sandstone. Cobbles are subangular sandstone. (SANDGATE FORMATION)			
11.00		HP	c_u=60/63/57					(1.00)	
							-5.72	12.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

to 4.00m depth (response zone - 1.00m to 4.00m depth).

5. SPT hammer SEDS4-2015 (E_r = 78.00%) used.

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**SOFarrell + OGoddard**	AML

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH24-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**6.5.16** End: **9.5.16**	**6.28**	**E:622928.5 N:135643.6**	**3** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
12.50-13.00	9	B				Firm to stiff slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse flint and sandstone. (SANDGATE FORMATION)			
12.50-12.87	10	SPT(c)	N=68*					(2.00)	
							-7.72	14.00	
14.00-14.50	10	B				Dark grey silty sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse flint and subangular fine to coarse sandstone. (SANDGATE FORMATION)			
14.00-14.35	11	SPT(c)	N=75*						
15.50-15.87	12	SPT(c)	N=67*					(3.00)	
							-10.72	17.00	
17.00-17.50	12	B				Dark grey slightly gravelly sandy clayey SILT with pockets of sandy clay, varying to very clayey SAND. Sand is fine to medium. Gravel is subrounded fine to coarse flint. (SANDGATE FORMATION)			
17.00-17.28	13	SPT(c)	N=115*						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**SOFarrell + OGoddard**	AML AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**BH24-G**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**6.5.16** End: **9.5.16**	**6.28**	**E:622928.5 N:135643.6**	**4** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Backfill & Instrumentation	Water	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
18.50-19.00	13	B				Dark grey slightly gravelly sandy clayey SILT with pockets of sandy clay, varying to very clayey SAND. Sand is fine to medium. Gravel is subrounded fine to coarse flint. (SANDGATE FORMATION) *(stratum copied from 17.00m from previous sheet)*		(3.50)	
18.50-18.73	14	SPT(c)	N=188*						
20.00-20.50	14	B							
20.00-20.37	15	SPT(c)	N=67*						
							-14.22	20.50	
						Borehole terminated at 20.50m depth.			

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:33**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion	**Dando 2000**	**SE Drilling**	**SOFarrell + OGoddard**	AML

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STRUCTURAL SOILS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**WS01**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**28.4.16**	**8.20**	**E:622760.7 N:135627.1**	**1** of **2**
	End: **28.4.16**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
	0.05-0.20	1	ES				MADE GROUND: Asphalt.	8.16	0.04	
	0.10-0.20	1	B				(MADE GROUND)		(0.30)	
							MADE GROUND: Dark brown slightly silty very gravelly SAND. Sand is fine to medium. Gravel is subrounded to angular flint, brick and concrete.	7.86	0.34	
	0.50-0.90	2	B				(MADE GROUND)			
	0.60-0.90	2	ES				Dark brown slightly gravelly slightly silty SAND. Sand is fine to medium. Gravel is rounded to subrounded medium flint.		(0.56)	
							(BEACH DEPOSIT)	7.30	0.90	
	0.95-1.20	3	B				Loose light yellowish brown SAND with a low cobble content. Sand is medium to coarse. Cobbles are angular to very angular sandstone.			
	1.00-1.20	3	ES				(BEACH DEPOSIT)			
	1.20-1.65	1	SPT(c)	N=5						
	1.40-2.00	4	B						(1.20)	
1.20 - 2.00 (101mm dia) 100% rec	1.50-2.00	4	ES							
	2.00-2.45	2	SPT(c)	N=4				6.10	2.10	
							Loose light yellowish brown slightly gravelly SAND. Sand is fine to coarse. Gravel is angular to very angular fine to coarse quartz. (BEACH DEPOSIT)			
2.00 - 3.00 (87mm dia) 80% rec	2.50-3.00	5	B							
	2.80-3.00	5	ES						(1.70)	
	3.00-3.45	3	SPT(c)	N=2						
	3.00-3.80	6	D							
3.00 - 4.00 (87mm dia) 90% rec								4.40	3.80	
	3.80-4.00	7	D				Very soft dark brown very sandy CLAY. Sand is fine to medium. (BEACH DEPOSIT)			
	4.00-4.45	4	SPT(c)	N=0						
	4.10-4.60	8	D						(0.93)	
4.00 - 5.00 (78mm dia) 70% rec										

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Inspection pit stable throughout.
3. No groundwater encountered.
4. Backfilled and reinstated by SSL on completion.
5. SPT hammer DART225-2015 (E_r = 74.25%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window sampling	**Archway Competitor**	**Chris Dawes**	**SOFarrell**	AML

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STRUCTURAL SOILS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**WS01**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**28.4.16**	**8.20**	**E:622760.7 N:135627.1**	**2** of **2**
	End: **28.4.16**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
4.00 - 5.00 (78mm dia) 70% rec	4.73-5.00	9	D					3.47	4.73	
	5.00-5.45	5	SPT(c)	N=8			Very soft dark brown sandy CLAY. Sand is fine to medium. (BEACH DEPOSIT)		(0.56)	
	5.10-5.50	6	ES					2.91	5.29	
5.00 - 6.00 (78mm dia) 100% rec	5.50-6.00	10	D				Very soft dark brown very sandy CLAY. Sand is fine to medium. (BEACH DEPOSIT)		(1.16)	
	6.00-6.45	6	SPT(c)	N=8				1.75	6.45	
							Window sample terminated at 6.45m.			

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window sampling	**Archway Competitor**	**Chris Dawes**	**SOFarrell**	AML

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STRUCTURAL SOILS

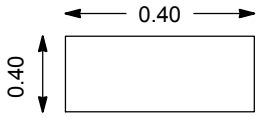
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**WS02**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**29.4.16**	**6.33**	**E:623258.5 N:135736.6**	**1** of **1**
	End: **29.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Concrete. (MADE GROUND)	6.05	(0.28) 0.28	
0.28-0.60	1	B				MADE GROUND: Greyish brown very sandy GRAVEL. Sand is coarse. Gravel is angular to very angular brick and concrete. (MADE GROUND)	5.73	(0.32) 0.60	
0.30-0.50	1	ES							
0.60-0.80	2	ES				POSSIBLE MADE GROUND: Dark orangish brown mottled orange slightly sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded medium to coarse flint. (POSSIBLE MADE GROUND)	5.53	0.80	
0.65-0.80	2	B							

Plan (Not to Scale)



General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Inspection pit stable throughout.
3. No groundwater encountered.
4. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**OGoddard**	AML

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STRUCTURAL SOILS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**WS03**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**22.4.16** End: **22.4.16**	**6.36**	**E:622591.4 N:135660.8**	**1** of **1**

Progress	Samples / Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
							MADE GROUND: Concrete. (MADE GROUND)	6.06	(0.30) 0.30	
	0.30-0.70	1	D				MADE GROUND: Greyish brown very sandy GRAVEL. Sand is fine to coarse. Gravel is angular to very angular brick and concrete. (MADE GROUND)	5.66	(0.40) 0.70	
	0.40-0.50	1	ES							
	0.70-0.80	2	ES				Loose dark yellowish brown SAND. Sand is medium to coarse. (BEACH DEPOSIT)			
	0.70-0.80	2	D							
1.30 - 2.00 (101mm dia) 90% rec	1.30-1.75	1	SPT	N=4					(1.30)	
	1.50-1.80	3	D							
	1.80-2.00	4	D					4.36	2.00	
							Window sample terminated at 2.00m			

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Inspection pit stable throughout.
3. No groundwater encountered.
4. Backfilled and reinstated by SSL on completion.
5. SPT hammer DART225-2015 (E_r = 74.25%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window sampling	**Archway Competitor**	**Chris Dawes**	**OGoddard**	AML

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STRUCTURAL SOILS

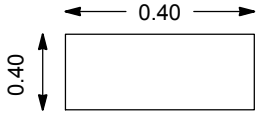
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**WS04**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**19.4.16**	**6.42**	**E:623302.2 N:135824.2**	**1** of **1**
	End: **19.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Concrete.	6.12	(0.30) 0.30	
0.30-0.45	1	D				MADE GROUND: Greyish brown very sandy GRAVEL. Sand is coarse. Gravel is angular to very angular brick & concrete.	5.97	0.45	
0.30-0.40	1	ES							
0.50-0.60	2	D				MADE GROUND: Brownish grey slightly clayey slightly sandy GRAVEL. Sand is coarse. Gravel is angular to very angular flint and sandstone.	5.72	0.70	
0.55-0.60	1	ES							
0.70-0.85	3	D				MADE GROUND: Light greyish white gravelly CLAY. Gravel is subangular to very angular medium to coarse grained chalk.	5.57	0.85	
0.71-0.80	3	ES							
0.90-1.00	4	D				POSSIBLE MADE GROUND: Light orangish brown mottled orange slightly sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded medium to coarse flint.	5.42	1.00	
0.95-1.00	4	ES							
						Trial pit terminated at instruction of Buro Happold Engineers Limited.			

Plan (Not to Scale)



General Remarks

1. Inspection pit hand dug to 1.00m depth.
2. Inspection pit terminated after encountering gravel at the instruction of Buro Happold Engineers Limited.
3. No groundwater encountered.
4. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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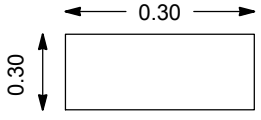
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**WS05**
Contract Ref:	Start: **20.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **20.4.16**	**6.27**	**E:623320.9 N:135778.0**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Asphalt.	6.22	0.05	
						(MADE GROUND)			
						MADE GROUND: Dark brown slightly sandy silty GRAVEL with high ash content and low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse brick, concrete, flint and timber. Cobbles are subangular brick.		(0.45)	
0.30-0.40	1	ES	1zT, 1xJ, 1xV				5.77	0.50	
0.50-0.60	2	B				(MADE GROUND)			
						Multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse flint and quartz.	5.57	0.70	
						(BEACH DEPOSIT)			
						Terminated at 0.70m after encountering gravels at the instruction of Buro Happold Engineers Limited.			

Plan (Not to Scale)



General Remarks

1. Inspection pit hand dug to 0.70m depth.
2. Inspection pit terminated at 0.70m after encountering gravel at the instruction of Buro Happold Engineers Limited.
3. No groundwater encountered.
4. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**SOFarrell**	AML

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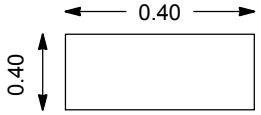
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**WS06**
Contract Ref:	Start: **21.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **21.4.16**	**6.53**	**E:623295.0 N:135671.7**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Concrete. (MADE GROUND)	6.23	(0.30) 0.30	
0.30-0.50	1	D				Light brownish orange slightly sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded medium to coarse flint. (BEACH DEPOSIT)	5.93	(0.30) 0.60	
0.40-0.50	1	ES				Trial pit terminated at 0.60m after encountering gravel at the instructions of Buro Happold Engineers Limited.			

Plan (Not to Scale)



General Remarks

1. Inspection pit hand dug to 0.60m depth.
2. Inspection pit terminated at 0.60m after encountering gravel at the instruction of Buro Happold Engineers Limited.
3. No groundwater encountered.
4. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**OGoddard**	AML

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STRUCTURAL SOILS

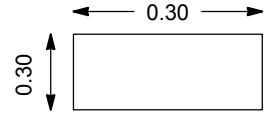
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**WS07**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**19.4.16**	**3.95**	**E:623383.6 N:135854.1**	**1** of **1**
	End: **19.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	3.90	0.05	
						(MADE GROUND)			
						MADE GROUND: Reinforced concrete. Matrix 65% and clasts 35% subangular fine to coarse flint.	3.65	0.30	
						(MADE GROUND)	3.55	0.40	
						MADE GROUND: Light to dark brown silty gravelly SAND with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse brick, flint and concrete. Cobbles are subangular brick.			
						(MADE GROUND)			
						Trial pit terminated at 0.40m depth due to encountering brick structure at base of pit.			

Plan (Not to Scale)



General Remarks

1. Inspection pit hand dug to 0.40m depth.
2. Inspection pit terminated at 0.40m due to encountering a brick structure at the base of pit.
3. Inspection pit stable throughout.
4. No groundwater encountered.
5. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**WS07A**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**19.4.16** End: **19.4.16**	**3.94**	**E:623384.7 N:135855.2**	**1** of **1**

Progress	Samples / Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
							MADE GROUND: Asphalt. (MADE GROUND)	3.89	0.05	
							MADE GROUND: Reinforced concrete. (MADE GROUND)	3.64	0.30	
	0.35	1	ES	1xT,1xJ+1xV			MADE GROUND: Dark brown slightly silty gravelly SAND with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse flint, brick, clinker and chalk. Cobbles are subangular red brick. (MADE GROUND)	3.39	0.55	
	0.55		HP	c_u=70/40/55						
	0.60	2	ES	1xT,1xJ+1xV				3.24	0.70	
	0.65		HP	c_u=70/70/70						
							MADE GROUND: Soft to firm light yellowish brown to orangish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to medium of chalk, flint, brick and sandstone. (MADE GROUND)	2.94	(0.30) 1.00	
	1.00-2.00	1	B				Multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse flint and quartz. (BEACH DEPOSIT)			
							Loose dark to light brown slightly silty very sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and quartz. (BEACH DEPOSIT)		(1.45)	
	2.00-2.45	2	B							
								1.49	2.45	
							Window sample hole terminated at 2.45m depth.			

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)
19/04/16	14:30	2.40	1.00		Dry

General Remarks

1. Inspection pit hand dug to 0.75m depth.
2. Inspection pit unstable throughout.
3. No groundwater encountered.
4. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window sampling	**Archway Competitor**	**Chris Dawes**	**SOFarrell**	AML

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STRUCTURAL SOILS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**WS08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**21.4.16** End: **21.4.16**	**6.32**	**E:623382.3 N:135836.2**	**1** of **1**

Progress	Samples / Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
	0.15-0.20	1	D				MADE GROUND: Asphalt. (MADE GROUND)	6.17	0.15	
	0.20-0.30	1	ES				MADE GROUND: Orangish red very sandy GRAVEL with a medium cobble content. Sand is medium to coarse. Gravel is subangular to angular fine to coarse brick. Cobbles are angular to very angular brick and concrete. (MADE GROUND)	5.94	0.38	
	0.30-0.50	2	D						(0.44)	
	0.50-0.70	2	ES				MADE GROUND: Greyish brown very sandy GRAVEL. Sand is fine to coarse. Gravel is angular to very angular brick and concrete. (MADE GROUND)	5.50	0.82	
	0.80-1.00	3	D				Light brown slightly sandy CLAY. Sand is fine to medium. (SUPERFICIAL DEPOSITS)	5.12	(0.38) 1.20	
	0.90-1.10	3	ES				Medium dense light yellowish brown slightly sandy slightly clayey GRAVEL. Sand is fine to medium. Gravel is well rounded to subangular flint. (BEACH DEPOSIT)		(0.80)	
1.20 - 2.00 (102mm dia) 20% rec	1.20-1.65	1	SPT	N=7				4.32	2.00	
	1.20-1.30	4	ES							
	1.20-1.40	4	D							
	1.30-1.40	4	ES							
							Window sample terminated at 2.00m.			

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. Inspection pit unstable throughout.
3. No groundwater encountered.
4. Backfilled and reinstated by SSL on completion.
5. SPT hammer DART225-2015 (E_r = 74.25%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window sampling	**Dando Terrier**	**Chris Dawes**	**OGoddard**	AML

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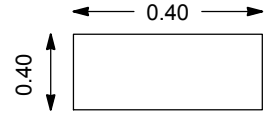
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**WS09**
Contract Ref:	Start: **21.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **21.4.16**	**6.30**	**E:623474.3 N:135858.2**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Asphalt. (MADE GROUND)	6.15	0.15	
0.15-0.25 0.20-0.50	1 1	ES D				MADE GROUND: Greyish brown very sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to angular flint. (MADE GROUND)	5.70	(0.45) 0.60	
						Trial pit terminated at 0.60m upon encountering gravel at instruction of Buro Happold Engineers Limited.			

Plan (Not to Scale)



General Remarks

1. Inspection pit hand dug to 0.60m depth.
2. Inspection pit terminated at 0.60m upon encountering gravel at the instrution of Buro Happold Engineers Limited.
3. No groundwater encountered.
4. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**WS10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**20.4.16**	**6.22**	**E:623498.6 N:135891.1**	**1** of **1**
	End: **20.4.16**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
							MADE GROUND: Asphalt. (MADE GROUND)	6.17	0.05	
	0.30-0.40	1	ES	1xT,1xJ+1xV			MADE GROUND: Reinforced concrete. 60% matrix and 30% clasts of subangular fine to coarse flint. (MADE GROUND)	5.92	0.30	
									(0.30)	
	0.60-1.05	1	SPT(c)	N=7			MADE GROUND: Concrete. 75% matrix and 25% clasts of subangular fine to coarse flint. (MADE GROUND)	5.62	0.60	
0.60 - 1.00 (87mm dia) 10% rec	0.65-1.00	2	ES	1xT,1xJ+1xV				5.57	0.65	
							Multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse flint. (BEACH DEPOSIT)		(0.35)	
	1.00-1.45	2	SPT(c)	N=18				5.22	1.00	
							Light grey slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse flint. (BEACH DEPOSIT)			
1.00 - 2.00 (87mm dia) 40% rec	1.50-2.00	3	ES	1xT,1xJ+1xV			Medium dense multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is rounded to subrounded flint and quartz. (BEACH DEPOSIT)			
	2.00-2.45	3	SPT(c)	N=16			. . . between 2.00m and 3.00m no recovery.		(2.40)	
2.00 - 3.00 (87mm dia) 0% rec										
	3.00-3.30	4	SPT(c)	N=103*			. . . at 3.00m very dense.	2.82	3.40	
							Window sample hole terminated at 3.40m depth.			

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)
20/04/16	10:00	3.00	-	87	Dry

General Remarks

1. Inspection pit hand dug to 0.62m depth.
2. No groundwater encountered.
3. Backfilled and reinstated by SSL on completion.
4. SPT hammer DART225-2015 (E_r = 74.25%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window sampling	**Archway Competitor**	**Chris Dawes**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log WINDOW SAMPLE LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**WS11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**20.4.16** End: **20.4.16**	**6.18**	**E:623494.5 N:135828.6**	**1** of **1**

Progress	Samples / Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results						
							MADE GROUND: Asphalt.	6.13	0.05	
							(MADE GROUND)		(0.30)	
							MADE GROUND: Reinforced concrete.			
							(MADE GROUND)	5.83	0.35	
	0.40	1	ES	1xT,1xJ+1xV			MADE GROUND: Dark brown to light brown very sandy GRAVEL with medium cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse brick, tile, sandstone, concrete, flint and timber.			
	0.40-1.30	4	B				(MADE GROUND)		(0.95)	
	0.80	2	ES	1xT,1xJ+1xV						
	1.20-1.65	1	SPT(c)	N=17				4.88	1.30	
1.20 - 1.60 (102mm dia) 100% rec	1.30-1.60	3	ES	1xT,1xJ+1xV			MADE GROUND: Medium dense dark brown slightly clayey gravely SAND with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse brick, concrete, flint, sandstone and limestone.			
	1.60-1.71	2	SPT(c)	N=3000*			(MADE GROUND)		(0.75)	
								4.13	2.05	
							Window sample hole terminated at 2.05m.			

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)
20/04/16	14:00	1.60	-	87	Dry

General Remarks

1. Inspection pit hand dug to 1.20m depth.
2. No groundwater encountered.
3. Backfilled and reinstated by SSL on completion.
4. SPT hammer DART225-2015 (E_r = 74.25%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Tracked window sampling	**Archway Competitor**	**Chris Dawes**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log WINDOW SAMPLE LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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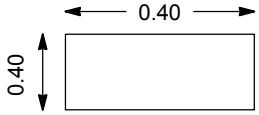
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**WS12**
Contract Ref:	Start: **21.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **21.4.16**	**6.25**	**E:623465.3 N:135785.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Asphalt. (MADE GROUND)	6.10	0.15	
						MADE GROUND: Concrete. (MADE GROUND)	5.93	0.32	
0.40-0.50	1	ES				Light brownish orange very sandy GRAVEL. Sand is fine to coarse. Gravel is well rounded to subrounded medium to coarse flint. (BEACH DEPOSIT)		(0.28)	
0.50-0.70	1	D					5.65	0.60	
						Trial pit terminated at 0.60 upon encountering gravel at the instruction of Buro Happold Engineers Limited.			

Plan (Not to Scale)



General Remarks

1. Inspection pit hand dug to 0.60m depth.
2. No groundwater encountered.
3. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 13:34 | AML1 |

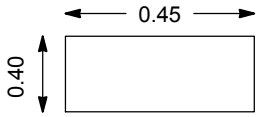
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**WS13**
Contract Ref:	Start: **28.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **28.4.16**	**5.34**	**E:623279.8 N:136006.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Concrete paving stones.	5.31	0.03	
						(MADE GROUND)	5.29	0.05	
						MADE GROUND: SAND. Sand is fine to medium.			
						(MADE GROUND)		(0.53)	
0.40-0.50	1	ES				MADE GROUND: Dark brownish black and brownish red gravelly SAND. Sand is medium to coarse. Gravel is subrounded to subangular flint, brick, concrete and plastic.	4.76	0.58	
						(MADE GROUND)	4.74	0.60	
						Light bluish grey slightly sandy GRAVEL. Sand is fine to coarse. Gravel is well rounded to subangular medium to coarse flint.			
						(BEACH DEPOSIT)			
						Trial pit terminated at 0.60m.			

Plan (Not to Scale)



General Remarks

1. Inspection pit hand dug to 0.60m depth.
2. No groundwater encountered.
3. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 13:34 | AML1 |

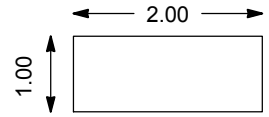
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-B-01**
Contract Ref:	Start: **29.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **29.4.16**	**4.11**	**E:622789.7 N:135554.3**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.90-1.10	1	B				Multicoloured (red, brown, yellow, orange, blue, grey, white) GRAVEL. Gravel is subangular to rounded coarse chert flint and quartz. (BEACH DEPOSIT)	3.01	(1.10) 1.10	
						Trial pit terminated at 1.10m depth due to unstable sides.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. Unexploded Ordinance Survey undertaken throughout excavation.
3. No groundwater encountered.
4. Sides of excavation unstable.
5. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 12:44 | AML1 |

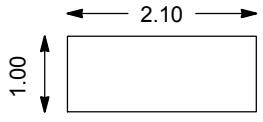
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-B-02**
Contract Ref:	Start: **29.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **29.4.16**	**2.60**	**E:622915.1 N:135557.9**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Multicoloured (red, orange, brown, yellow, red, white, grey and blue) slightly sandy GRAVEL. Sand is coarse. Gravel is subangular to rounded fine to coarse flint, chert and quartz. (BEACH DEPOSIT)	2.40	0.20	
0.25	1	B				Multicoloured (red, orange, brown, yellow, red, white, grey and blue) slightly silty very sandy GRAVEL. Sand is coarse. Gravel is subangular to rounded fine to coarse of flint, chert and quartz. (BEACH DEPOSIT)	2.30	0.30	
0.90-1.20	2	B		≋		Brown and multicoloured (orange, brown, red, yellow, white, grey and blue) slightly silty very sandy GRAVEL. Gravel is subangular to rounded fine to coarse flint, chert and quartz. Sand is coarse. (BEACH DEPOSIT)	1.40	(0.90) 1.20	
						Trial pit terminated at 1.20m depth due to collapse of sides.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. Unexploded Ordinance Survey undertaken throughout excavation.
3. Slight water seepage encountered at 1.0m.
4. Sides of excavation unstable.
5. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 12:44 | AML1 |

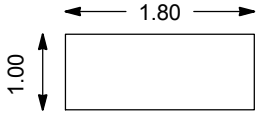
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-B-03**
Contract Ref:	Start: **29.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **29.4.16**	**2.15**	**E:623047.2 N:135568.2**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.10	1	B				Multicoloured (orange, red, brown, yellow, grey, white and blue) GRAVEL. Sand is coarse. Gravel is subangular to rounded fine to coarse of flint, chert and quartz. (BEACH DEPOSIT)	1.95	0.20	
1.00-1.35	2	B				Brown multicoloured (orange, red, brown, yellow, grey, white and blue) slightly silty very sandy GRAVEL. Gravel is subangular to rounded fine to coarse of chert, flint and quartz. Sand is coarse. (BEACH DEPOSIT)	0.80	(1.15) 1.35	
						Trial pit terminated at 1.35m depth due to unstable sides.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. Unexploded Ordinance Survey undertaken throughout excavation.
3. Slight water seepage encountered at 1.0m.
4. Sides of excavation unstable resulting in collapse at 1.35m.
5. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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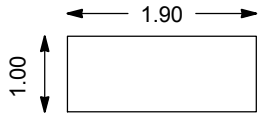
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-B-04**
Contract Ref:	Start: **29.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **29.4.16**	**3.96**	**E:623180.2 N:135595.0**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.50-1.00	1	B				Multicoloured (red, brown, orange, yellow, white, grey and blue) GRAVEL. Gravel is subangular to rounded fine to coarse flint, quartz and chert. (BEACH DEPOSIT)	2.96	(1.00) 1.00	
						Trial pit terminated at 1.00m depth due to unstable sides.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. Unexploded Ordinance Survey undertaken throughout excavation.
3. Slight water seepage encountered at 1.0m.
4. Sides of excavation unstable.
5. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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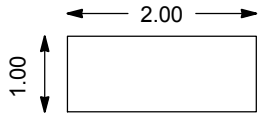
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-B-05**
Contract Ref:	Start: **29.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **29.4.16**	**4.53**	**E:623298.0 N:135626.8**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.70-1.00	1	B				Multicoloured (red, brown, orange, yellow, white, grey and blue) GRAVEL. Gravel is subangular to rounded fine to coarse flint, chert and quartz. (BEACH DEPOSIT)	3.53	(1.00) 1.00	
						Trial pit terminated at 1.00m depth due to unstable sides.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. Unexploded Ordinance Survey undertaken throughout excavation.
3. No groundwater encountered.
4. Sides of excavation unstable.
5. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 12:47 | AML1 |

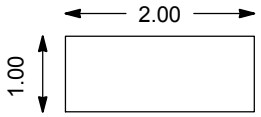
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-B-06**
Contract Ref:	Start: **29.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **29.4.16**	**4.98**	**E:623392.6 N:135656.4**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.50-0.90	1	B				Multicoloured (red, orange, yellow, brown, blue, grey and white) GRAVEL. Gravel is subangular to rounded fine to coarse flint, chert and quartz. (BEACH DEPOSIT)	4.08	(0.90) 0.90	
						Trial pit terminated at 0.90m depth due to unstable sides.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. Unexploded Ordinance Survey undertaken throughout excavation.
3. No groundwater encountered.
4. Sides of excavation unstable.
5. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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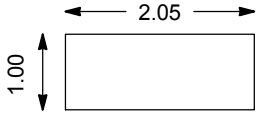
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-B-07**
Contract Ref:	Start: **29.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **29.4.16**	**7.71**	**E:623465.4 N:135706.2**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.50	1	B				Multicoloured (red, yellow, brown and white) GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and quartz. (BEACH DEPOSIT)		(1.10)	
1.00	2	B					6.61	1.10	
						Trial pit terminated at 1.10m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. Unexploded Ordinance Survey undertaken throughout excavation.
3. No groundwater encountered.
4. Sides of excavation unstable.
5. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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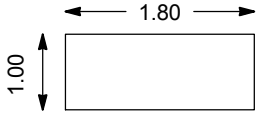
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-H-01**
Contract Ref:	Start: **10.5.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **10.5.16**	**-0.85**	**E:623372.7 N:136006.6**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.10-0.50	1	B				Dark black very silty SAND. Sand is fine to medium with strong organic odour. (BEACH DEPOSIT)	-0.95	0.10	
						Dark black slightly sandy slightly gravelly CLAY, with occasional seaweed. Sand is fine to medium. (BEACH DEPOSIT) . . . note that PSD test on sample from 0.1-0.5m showed sampled material to be slightly silty fine SAND - based on soil descriptions this sample may be from GL-0.1m depth.	-1.75	(0.80) 0.90	
0.90	2	B				Black to brown silty very sandy GRAVEL. Sand is fine to medium. Gravel is angular to very angular fine to coarse concrete, flint and brick. (BEACH DEPOSIT) . . . at about 1m depth concrete surrounding wooden post present.	-2.05	(0.30) 1.20	
1.50	101	ES				Dark greyish black silty SAND and GRAVEL, with low cobble content. Sand is fine to coarse. Gravel is angular to well rounded fine to coarse flint with occasional brick and wood. Cobbles are angular sandstone. (BEACH DEPOSIT)	-2.35	(0.30) 1.50	
1.50	3	B				Trial pit terminated at 1.50m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
3. No groundwater encountered.
4. Sides of excavation unstable below 0.50m.
5. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

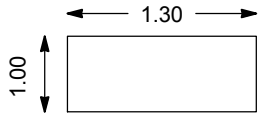
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-H-02**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.5.16** End: **11.5.16**	**-0.66**	**E:623441.4 N:136053.5**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.20-0.50	1	B				Dark greyish black very silty slightly gravelly SAND, with organic material. Sand is fine to medium. (BEACH DEPOSIT)		(0.80)	
0.50	1	ES					-1.46	0.80	
0.80-1.20	2	B				Dark greyish black silty very sandy GRAVEL. Sand is fine to medium. Gravel is subrounded to well rounded medium to coarse flint with a strong hydrocarbon odour. (BEACH DEPOSIT) . . . at 0.80m metal mooring chain.		(0.50)	
1.30-1.40	3	B		≈		Light brownish yellow slightly silty very sandy GRAVEL. Sand is fine to medium. Gravel is subrounded to well rounded medium to coarse flint and quartz. (BEACH DEPOSIT)	-1.96	1.30	
1.50-1.60	4	B				Grey silty gravelly SAND. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse flint. (BEACH DEPOSIT)	-2.16	1.50	
						Trial pit terminated at 1.60m depth due to pit collapse.	-2.26	1.60	

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. Groundwater seepage at 1.50m.
3. Sides of excavation unstable below 0.60m.
4. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**OGoddard**	AML

AGS

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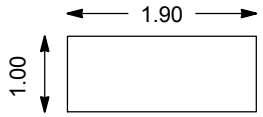
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-H-03**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.5.16** End: **11.5.16**	**0.79**	**E:623507.0 N:136088.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.00-0.60	1	B				Yellowish brown SAND. Sand is fine to medium. (BEACH DEPOSIT)		(0.60)	
0.40-0.60	5	ES					0.19	0.60	
0.60-0.90	2	B				Dark greyish black slightly silty very gravelly SAND. Sand is fine to coarse. Gravel is rounded to subrounded medium to coarse flint. (BEACH DEPOSIT)		(0.30)	
0.70	1	ES					-0.11	0.90	
1.20-2.00	3	B				Dark grey to black slightly silty very sandy GRAVEL, with Strong hydrocarbon odour. Sand is fine to coarse. Gravel is angular to rounded medium to coarse flint and quartz. (BEACH DEPOSIT) . . . at 1.20m wooden sleepers and cobbles of concrete.	-0.51	(0.40) 1.30	
				≈		Dark black sandy GRAVEL with a medium cobble content. Sand is fine to medium. Gravel is rounded to subangular fine to coarse of flint and sandstone. Cobbles are angular to subrounded fine to medium concrete. (BEACH DEPOSIT)	-1.21	(0.70) 2.00	
						Trial pit terminated at 2.00m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. Groundwater seepage at 1.95m.
3. Sides of excavation unstable throughout.
4. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**OGoddard**	AML

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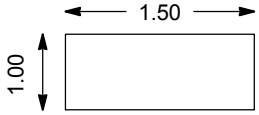
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-H-04**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**10.5.16**	**-0.69**	**E:623422.4 N:136016.1**	**1** of **1**
	End: **10.5.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.10	1	B				Light yellowish brown SAND. Sand is fine to medium. (BEACH DEPOSIT)	-0.74	0.05	
0.40-0.60	2	B				Light grey to black clayey sandy SILT, with moderate organic odour. Sand is fine to medium. (BEACH DEPOSIT)		(0.75)	
0.40-0.60	5	ES					-1.49	0.80	
1.50	1	ES				Dark greyish clayey sandy locally slightly SILT. Sand is fine to medium. Gravel is angular fine to coarse flint and sandstone. (BEACH DEPOSIT)		(1.00)	
1.50	3	B				. . . occasional soft clay pockets (<30mm dia).	-2.49	1.80	
2.00	4	B				Black slightly gravelly SAND. Gravel is angular to subrounded fine to coarse flint, quartz and occasional brick fragments. (BEACH DEPOSIT)	-2.69	2.00	
						Black silty slightly gravelly SAND with a high cobble content. Sand is fine to medium. Gravel is angular to well rounded fine to coarse. Cobbles are angular to subangular sandstone. (BEACH DEPOSIT)	-2.89	2.20	
						Trial pit terminated at 2.20m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
3. Sides of excavation unstable below 1.50m.
4. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**OGoddard**	AML

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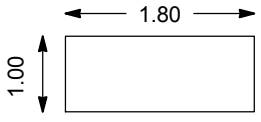
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-H-05**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.5.16**	**0.62**	**E:623498.1 N:136039.5**	**1** of **2**
	End: **11.5.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.00-0.50	1	B				Light yellowish brown slightly silty SAND. Sand is fine to coarse. (BEACH DEPOSIT)	-0.08	(0.70) 0.70	
0.70-1.10	2	B				Dark greyish black silty SAND. Sand is fine to medium. (BEACH DEPOSIT)	-1.28	(1.20) 1.90	
0.80	1	ES							
2.00-2.20	3	B				Dark black clayey very gravelly SAND. Sand is fine medium. Gravel is subangular to well rounded medium to coarse flint and sandstone. (BEACH DEPOSIT)	-1.58	(0.30) 2.20	
						Trial pit terminated at 2.20m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
3. Sides of excavation unstable below 1.60m.
4. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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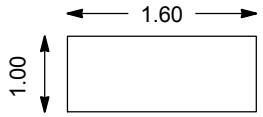
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-H-06**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**10.5.16**	**-0.87**	**E:623392.3 N:135965.5**	**1** of **2**
	End: **10.5.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Light yellowish brown SAND. Sand is fine to medium. (BEACH DEPOSIT)	-0.97	0.10	
0.40	1	B				Light grey to dark black slightly silty slightly gravelly SAND, with moderate organic odour. Sand is fine to medium. (BEACH DEPOSIT)	-1.57	(0.60) 0.70	
0.70	101	ES				Dark grey to black slightly clayey gravelly SAND. Sand is fine to medium. Gravel is subrounded fine to coarse flint and brick. (BEACH DEPOSIT)			
0.70	2	B				. . . at 1.10m moderate organic odour.	-2.27	(0.70) 1.40	
1.40	3	B				Dark greyish black clayey SAND with frequent shell fragments. (BEACH DEPOSIT)	-2.87	(0.60) 2.00	
2.00	4	B				Trial pit terminated at 2.00m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
3. Sides of excavation unstable below 1.40m.
4. Backfilled with arisings upon completion.
5. Coordinates and level estimated from topgraphical survey drawings and adjacent exploratory positions which had been surveyed using GPS equipment.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**OGoddard**	AML

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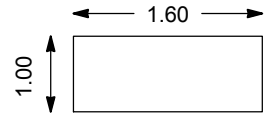
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-H-07**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**10.5.16**	**-0.70**	**E:623453.5 N:135978.1**	**1** of **2**
	End: **10.5.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.00-0.30	1	B				Light yellowish brown slightly silty slightly gravelly SAND. Sand is fine to medium. Gravel is subrounded to subangular flint and quartz. (BEACH DEPOSIT)	-0.80	0.10	
0.30	4	ES				Light grey slightly gravelly SAND. Sand is fine to medium. Gravel is subrounded to subangular fine to medium flint and quartz. (BEACH DEPOSIT)		(0.90)	
0.50	101	ES							
0.50	2	B				. . . at 0.90m moderate organic odour.	-1.70	1.00	
1.00	3	B				Dark greyish black clayey sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subrounded to subangular fine to medium flint and sandstone. (BEACH DEPOSIT)		(0.50)	
							-2.20	1.50	
1.60	4	B				Dark greyish grey clayey sandy SILT, with a strong organic odour. (BEACH DEPOSIT)	-2.40	1.70	
						Dark greyish black very clayey SAND. Sand is fine to medium. (BEACH DEPOSIT) Trial pit terminated at 1.70m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
3. Sides of excavation unstable below 0.60m.
4. Backfilled with arisings upon completion.
5. Coordinates and level estimated from topgraphical survey drawings and adjacent exploratory positions which had been surveyed using GPS equipment.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**OGoddard**	AML

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-H-08**
Contract Ref:	Start: **10.5.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **10.5.16**	**0.55**	**E:623508.9 N:135999.2**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Light yellowish brown SAND. With occasional brick fragments. (BEACH DEPOSIT)		(0.90)	
0.30	1	B					-0.35	0.90	
0.90	1	ES				Light grey to dark black slightly silty locally slightly gravelly SAND. Sand is fine to medium. With abundant pockets of rich organic sands moderate organic odour. (BEACH DEPOSIT)		(0.90)	
0.90	2	B							
1.20	3	B				. . . at 1.20m loosely compacted sandstone.	-1.25	1.80	
1.80	4	B				Dark black very sandy GRAVEL. Sand is medium to coarse. Gravel is rounded to angular medium to coarse flint conglomerate. Frequent very sandy clay pockets with frequent pockets of clay. (BEACH DEPOSIT) Trial pit terminated at 1.80m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
3. Sides of excavation unstable below 1.00m.
4. Backfilled with arisings upon completion.
5. Coordinates and level estimated from topgraphical survey drawings and adjacent exploratory positions which had been surveyed using GPS equipment.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**OGoddard**	AML

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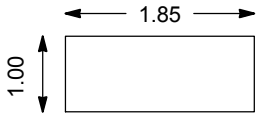
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-H-09**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**10.5.16**	**-0.89**	**E:623439.2 N:135936.9**	**1** of **1**
	End: **10.5.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Yellowish brown SAND. Sand is fine to medium. (BEACH DEPOSIT)	-0.99	0.10	
0.50	1	B				Light grey clayey slightly gravelly SAND. Sand is fine to medium. Gravel is angular to subangular fine to medium. (BEACH DEPOSIT)			
0.80	1	ES							
0.80	2	B						(1.70)	
0.90	1	ES							
1.50-2.00	3	B					-2.69	1.80	
						Dark greyish black slightly clayey slightly gravelly SAND. Sand is fine to medium. Gravel is angular to subangular fine to coarse. (BEACH DEPOSIT)	-2.89	2.00	
						. . . at 2.00m timber fragments. Trial pit terminated at 2.00m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
3. Sides of excavation unstable below 1.00m.
4. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**OGoddard**	AML

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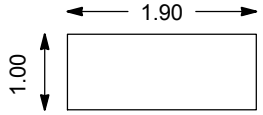
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-H-10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**9.5.16** End: **9.5.16**	**-1.10**	**E:623492.9 N:135929.6**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.00-0.10	1	B				Light yellowish brown slightly silty SAND. With occasional flint gravel fine to medium subrounded to subangular flint and sandstone. (BEACH DEPOSIT)	-1.20	0.10	
0.50-0.70	2	B				Light greyish blue slightly silty slightly gravelly SAND. Sand is fine to medium. Gravel is subangular to subrounded medium flint and sandstone. With rare brick fragments and grains of coal. (BEACH DEPOSIT)	-2.10	(0.90) 1.00	
1.00	101	ES				Dark greyish black slightly silty slightly gravelly SAND. Sand is fine and coarse. Gravel is subrounded to subangular fine to medium flint and sandstone. With frequent shell fragments. Possible organic rich layer. (BEACH DEPOSIT)	-2.40	(0.30) 1.30	
1.60-1.80	3	B				Dark greyish black silty slightly gravelly SAND. Sand is fine and coarse. Gravel is subrounded to subangular fine to medium flint and sandstone. With occasional shell fragments pockets of clay. (BEACH DEPOSIT) . . . at 1.40m rubber tyre.	-2.70	(0.30) 1.60	
						Dark black silty SAND and GRAVEL. Sand is medium to coarse. Gravel is rounded to angular medium to coarse flint conglomerate. With frequent pockets of dark greyish black clay. (BEACH DEPOSIT)	-3.10	(0.40) 2.00	
						Trial pit terminated at 2.00m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
3. Sides of excavation unstable below 0.40m.
4. Backfilled with arisings upon completion.
5. Coordinates and level estimated from topgraphical survey drawings and adjacent exploratory positions which had been surveyed using GPS equipment.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**OGoddard**	AML

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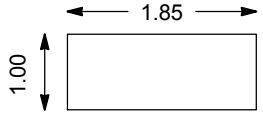
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-H-11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**9.5.16**	**-1.11**	**E:623551.3 N:135945.5**	**1** of **1**
	End: **9.5.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.00-0.30	1	B				Dark yellowish brown SAND. Sand is fine to medium. (BEACH DEPOSIT)	-1.41	(0.30) 0.30	
						Light greyish blue slightly silty SAND. Sand is fine to medium. With rare shell fragments mottled organic pockets <100mm. (BEACH DEPOSIT)	-1.61	0.50	
0.50	2	B				Light greyish blue slightly gravelly SAND. Sand is fine to medium. Gravel is subangular to subrounded medium flint and sandstone. With rare shell fragments mottled organic pockets <100mm. (BEACH DEPOSIT)	-2.31	(0.70) 1.20	
0.85	3	B							
1.20	1	ES				Light greyish blue mottled white slightly gravelly SAND. Sand is medium to coarse. Gravel is subangular to subrounded medium to coarse grained flint and weathered sandstone. With rare shell fragments mottled organic pockets <100mm. Possible hydrocarbon odour. (BEACH DEPOSIT)	-2.61	(0.30) 1.50	
1.20	4	B				Trial pit terminated at 1.50m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
3. Sides of excavation unstable below 0.30m.
4. Backfilled with arisings upon completion.
5. Coordinates and level estimated from topgraphical survey drawings and adjacent exploratory positions which had been surveyed using GPS equipment.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**OGoddard**	AML

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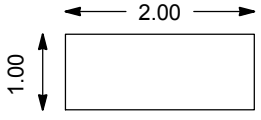
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-L-01**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**26.4.16**	**6.19**	**E:622850.6 N:135618.3**	**1** of **2**
	End: **26.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: CONCRETE (thin floor slab).	6.14	0.05	
						(MADE GROUND)	5.99	0.20	
						MADE GROUND: Reinforced CONCRETE (MADE GROUND)			
0.80	1	B				POSSIBLE MADE GROUND: Multicoloured (black, brown, orangish brown and grey) sandy GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse glass, brick, concrete, wood, flint, quartz and chert. Cobbles are rounded brick. (POSSIBLE MADE GROUND) . . . at 0.80m collection of bricks.		(1.30)	
							4.69	1.50	
						Trial pit terminated at 1.50m depth due to unstable pit walls.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

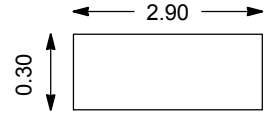
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-L-02**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**26.4.16**	**6.27**	**E:622866.9 N:135651.1**	**1** of **2**
	End: **26.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT (black).	6.17	0.10	
						(MADE GROUND)	6.07	0.20	
						MADE GROUND: ASPHALT (red).			
0.30-0.70	1	B				(MADE GROUND)			
0.30-0.40	3	ES	1xT,1xJ+1xV			MADE GROUND: Dark greyish green slightly clayey gravelly SAND. Sand is fine to coarse. Gravel is angular to rounded fine to medium brick and flint.	5.82	0.45	
						(MADE GROUND)			
0.70	2	B				Multicoloured (brown, black, orangish brown and grey) slightly sandy GRAVEL. Sand is fine to coarse. Gravel is angular to rounded fine to coarse flint, chert and quartz.		(0.75)	
						(BEACH DEPOSIT)	5.07	1.20	
						Trial pit terminated at 1.20m depth due to unstable pit walls.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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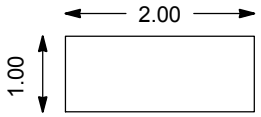
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-L-03**
Contract Ref:	Start: **26.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **26.4.16**	**5.94**	**E:622915.5 N:135608.6**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	5.84	0.10	
						(MADE GROUND) MADE GROUND: Dark brown sandy GRAVEL with frequent fragments of wood. Sand is medium to coarse. Gravel is angular to subrounded fine to coarse brick, mortar, tile and metal.		(0.70)	
0.50	1	B				(MADE GROUND)			
0.50	3	ES	1xT,1xJ+1xV			. . . on northen face of pit concrete wall to 0.80m supported by blocks of concrete 0.5cm apart.	5.14	0.80	
1.00	2	B				Multicoloured (brown, black, orangish brown and grey) slightly sandy GRAVEL. Sand is fine to coarse. Gravel is rounded fine to coarse flint, quartz and chert. (BEACH DEPOSIT) . . . at 0.80m to 1.00m clay pipe coming from underneath wall which terminates 0.4cm away from wall.		(0.60)	
							4.54	1.40	
						Trial pit terminated at 1.40m depth due to unstable pit walls.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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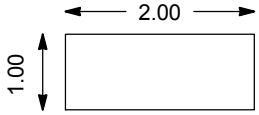
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-L-04**
Contract Ref:	Start: **26.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **26.4.16**	**6.17**	**E:622931.5 N:135669.1**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	6.12	0.05	
						(MADE GROUND)			
						MADE GROUND: Dark brown slightly clayey gravelly SAND with high cobble content. Sand is fine to coarse. Gravel is angular to subrounded brick, slate and flint. Boulders are angular blocks of concrete.		(0.45)	
0.40	1	B					5.67	0.50	
0.40	4	ES	1xT,1xJ+1xV			(MADE GROUND)	5.57	0.60	
0.60	2	B				MADE GROUND: Dark orangish brown sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular fine to medium brick and flint.		(0.30)	
0.60	5	ES	1xT,1xJ+1xV						
0.65		HP	c_u=50			(MADE GROUND)	5.27	0.90	
						MADE GROUND: Light greyish green clayey gravelly SAND. Sand is fine to coarse. Gravel is angular to subangular flint and brick.	5.17	1.00	
1.00	3	B				(MADE GROUND)			
						Multicoloured (brown, orangish brown, black and grey) slightly silty very gravelly SAND. Sand is fine to coarse. Gravel is angular to subangular fine to medium flint, chert and quartz. (BEACH DEPOSIT)			
						Trial pit terminated at 1.00m depth due to three major collapses of side walls and asphalt.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**RLynes**	AML

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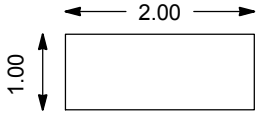
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-L-05**
Contract Ref:	Start: **26.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **26.4.16**	**6.35**	**E:622962.1 N:135654.9**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Dark grey sandy GRAVEL, with frequent grass clumps and roots. Sand is fine to coarse. Gravel is rounded to angular fine to medium asphalt fragments, concrete, brick, flint and plastic sheeting/bags.	6.30	0.05	
0.20	1	B						(0.45)	
0.20	3	ES	1xT,1xJ+1xV			MADE GROUND: Light yellowish grey clayey sandy GRAVEL with high cobbles and boulders content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse brick, concrete, flint, slate and plastic. Cobbles and boulders are angular concrete and brick.	5.85	0.50	
0.70		HP	c_u=75			POSSIBLE MADE GROUND: Dark greyish green mottled black very clayey gravelly SAND with a medium cobble content.		(0.70)	
1.00	2	B					5.15	1.20	
						Trial pit terminated at 1.20m due to instability.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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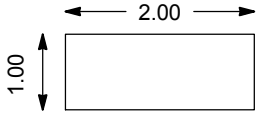
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-L-06**
Contract Ref:	Start: **28.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **28.4.16**	**6.03**	**E:622976.5 N:135621.8**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: TARMAC.	5.95	0.08	
0.15	1	B				MADE GROUND: Dark brown gravelly SAND. Sand is coarse. Gravel is angular to subrounded fine to coarse of flint and chert.	5.73	0.30	
0.15	4	ES	1xT,1xJ+1xV						
0.40	2	B				MADE GROUND: Light brown and yellow gravelly SAND. Sand is coarse. Gravel is angular to subrounded fine to coarse chert, brick, concrete and steel. . . . at 0.50m concrete slab (building footprints). . . . at 0.60m old pipe east to west and plastic lining.		(0.60)	
0.40	5	ES	1xT,1xJ+1xV				5.13	0.90	
1.10-1.40	3	B				Multicoloured (orange, brown, grey, white and blue) slightly silty slightly sandy GRAVEL. Sand is coarse. Gravel is subangular to rounded fine to coarse flint, chert and quartz. (BEACH DEPOSIT)		(0.50)	
							4.63	1.40	
						Trial pit terminated at 1.40m depth due to unstable pit walls.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**ADavidson**	AML

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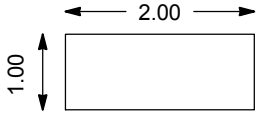
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-L-07**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**26.4.16**	**5.92**	**E:623013.3 N:135700.2**	**1** of **3**
	End: **26.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Multicoloured (brown, orangish brown, black, grey and white) GRAVEL. Gravel is rounded medium to coarse.		(0.30)	
						(MADE GROUND)	5.62	0.30	
						POSSIBLE MADE GROUND: Soft dark brown mottled orangish brown sandy CLAY. Sand is fine to medium.			
0.50	1	B				(POSSIBLE MADE GROUND)		(0.50)	
0.50	101	ES	1xT,1xJ+1xV			. . . at 0.30m membrane.			
							5.12	0.80	
0.80	102	ES	1xT,1xJ+1xV			POSSIBLE MADE GROUND: Dark greyish green COBBLES with much very clayey very gravelly SAND. Sand is fine to coarse. Gravel is angular medium to coarse green sandstone.			
0.80		HP	c_u=25			(POSSIBLE MADE GROUND)	4.92	1.00	
0.90	2	B				Multicoloured (brown, orangish brown, black and grey) slightly sandy GRAVEL. Sand is medium to coarse. Gravel is angular to subrounded fine to medium flint, chert and quartz.			
1.00	3	B				(BEACH DEPOSIT)	4.82	1.10	
						Trial pit terminated at 1.10m depth due to unstable pit walls.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**RLynes**	AML

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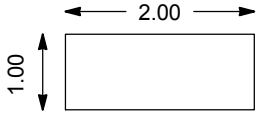
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-L-08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**26.4.16**	**6.18**	**E:623042.1 N:135649.3**	**1** of **2**
	End: **26.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT (pink/red).	6.13	0.05	
						(MADE GROUND)			
						MADE GROUND: Multicoloured (dark grey, brown, orangish brown, grey and black) slightly clayey sandy GRAVEL, with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse flint, chert, quartz,brick, glass and tile. Cobbles are angular brick.			
0.40	1	B							
0.50	2	ES	1xT					(0.95)	
						(MADE GROUND)			
						. . . in southwest corner of pit rusted metal vertical support beam with horizontal beam running east to west.	5.18	1.00	
						Trial pit terminated at 1.00m depth due to unstable pit walls (asphalt overhanging and cracking).			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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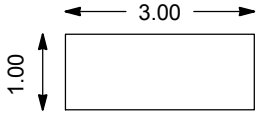
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-L-09**
Contract Ref:	Start: **26.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **26.4.16**	**5.97**	**E:623103.2 N:135731.7**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Multicoloured (brown, orangish brown, black and grey) GRAVEL. Gravel is rounded medium to coarse flint, chert and quartz. (MADE GROUND)	5.72	0.25	
0.40	1	B				POSSIBLE MADE GROUND: Stiff orangish brown slightly sandy CLAY, with occasional roots. Sand is fine to medium. (POSSIBLE MADE GROUND)		(0.35)	
0.40	3	ES	1xT,1xJ+1xV				5.37	0.60	
0.40		HP	c_u=100			. . . at 0.25m layer of textile membrane.			
0.70	2	B				Multicoloured (brown, orangish brown, black and grey) slightly silty slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint, quartz and chert. (BEACH DEPOSIT)		(0.40)	
							4.97	1.00	
						Trial pit terminated at 1.00m due to instability of pit walls.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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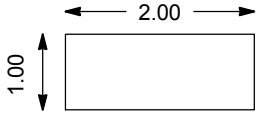
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-L-10**
Contract Ref:	Start: **27.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **27.4.16**	**6.27**	**E:623085.2 N:135685.5**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.75 0.75	1 3	B ES	1xT,1xJ+1xV			MADE GROUND: Light grey sandy GRAVEL with medium cobble content. Sand is coarse. Gravel is angular to rounded fine to coarse brick, concrete, wood, flint, chert and quartz. (MADE GROUND) . . . at 0.80m block of concrete 1.0m x 0.3m across which required breaking.	5.27	(1.00) 1.00	
1.70	2	B				Multicoloured (orangish brown, black and grey) sandy GRAVEL. Sand is fine to coarse. Gravel is angular to rounded fine to medium flint, chert and quartz. (BEACH DEPOSIT)	4.47	(0.80) 1.80	
						Trial pit terminated at 1.80m depth due to unstable pit walls.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 12:57 | AML1 |

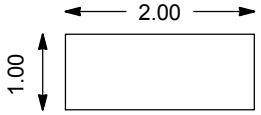
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-L-11**
Contract Ref:	Start: **28.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **28.4.16**	**5.91**	**E:623094.5 N:135641.8**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	5.88	0.03	
						(MADE GROUND)	5.71	0.20	
						MADE GROUND: Dark brown and orange gravelly SAND with low cobble content. Gravel is angular to subrounded fine to coarse flint, occasional brick and concrete. (MADE GROUND)		(0.50)	
0.50	1	B							
0.50	3	ES	1xT,1xJ+1xV			MADE GROUND: Light brown very gravelly SAND with moderate cobble content. Gravel is angular to rounded fine to coarse flint, chert, brick and concrete. (MADE GROUND)	5.21	0.70	
0.90-1.18	2	B				Multicoloured (orange, red, brown, grey , blue, yellow and white) slightly sandy GRAVEL. Sand is coarse. Gravel is subrounded to rounded fine to coarse flint, chert and quartz. (BEACH DEPOSIT)		(0.48)	
							4.73	1.18	
						Trial pit terminated at 1.18m depth due to unstable pit walls.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**ADavidson**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

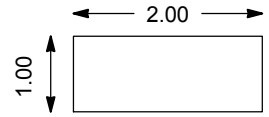
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-L-12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**27.4.16**	**6.41**	**E:623158.0 N:135694.3**	**1** of **3**
	End: **27.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Reinforced concrete. (MADE GROUND)	6.16	0.25	
0.35	1	B				MADE GROUND: Greyish green gravelly SAND with pockets of clay and low cobble content. Sand is coarse. Gravel is subangular to rounded fine to coarse flint, chert and quartz. (MADE GROUND)	6.01	0.40	
0.35	5	ES	1xT,1xJ+1xV						
0.65	2	B				MADE GROUND: Black asphalt. (MADE GROUND)		(0.40)	
0.65	6	ES	1xT,1xJ+1xV				5.61	0.80	
0.90	3	B				MADE GROUND: Dark brown very sandy GRAVEL. Sand is coarse. Gravel is angular to subrounded fine to coarse of brick, flint and chert. (MADE GROUND)	5.36	1.05	
0.90	7	ES	1xT,1xJ+1xV						
1.50-1.80	4	B				Multicoloured (orange, red, grey, brown and blue) slightly sandy GRAVEL. Sand is coarse. Gravel is subrounded to rounded fine to coarse flint, chert and quartz. (BEACH DEPOSIT)		(0.75)	
							4.61	1.80	
						Trial pit terminated at 1.80m depth due to unstable pit walls.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**ADavidson**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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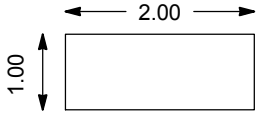
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-L-13**
Contract Ref:	Start: **28.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **28.4.16**	**5.85**	**E:623156.1 N:135648.7**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Tarmac.	5.81	0.04	
						(MADE GROUND)			
						MADE GROUND: Dark brown gravelly SAND. Gravel is angular to subrounded fine to coarse of flint, chert, brick and concrete. Sand is coarse. Low cobble content.		(0.41)	
0.40	1	B				(MADE GROUND)	5.40	0.45	
0.40	2	ES				Multicoloured (grey, blue, red, orange, brown and white) slightly sandy GRAVEL. Gravel is subrounded to rounded fine to coarse of flint, chert and quartz.		(0.65)	
0.80-1.10	3	B				(BEACH DEPOSIT)	4.75	1.10	
						Trial pit terminated at 1.10m depth.			

Plan (Not to Scale)



General Remarks

1. GPR, CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
3. Sides unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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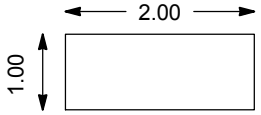
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**TP-L-14**
Contract Ref:	Start: **27.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **27.4.16**	**6.26**	**E:623216.3 N:135717.1**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Reinforced concrete. (MADE GROUND)	6.11	0.15	
0.35	1	B				MADE GROUND: Dark brown very gravelly SAND with low cobble content. Sand is coarse. Gravel is angular to subrounded fine to coarse of chert, flint and occasional brick. (MADE GROUND)	5.81	(0.30) 0.45	
0.35	4	ES	1xT,1xJ+1xV						
0.60	2	B				Brown and multicoloured (orange, brown, red, blue, grey and yellow) slightly silty sandy GRAVEL with low cobble content. Sand is coarse. Gravel is subangular to rounded fine to coarse flint, chert and quartz. (BEACH DEPOSIT)	5.46	(0.35) 0.80	
0.60	5	ES	1xT,1xJ+1xV						
1.20-1.40	3	B				Multicoloured (red, orange, brick, blue, grey and yellow) slightly sandy GRAVEL. Sand is coarse. Gravel is subangular to rounded fine to coarse flint, chert and quartz. (BEACH DEPOSIT)	4.86	(0.60) 1.40	
						Trial pit terminated at 1.50m depth due to unstable pit walls and concrete overhanging and falling in.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**ADavidson**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

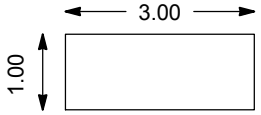
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-L-15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**27.4.16**	**6.96**	**E:623378.4 N:135730.5**	**1** of **3**
	End: **27.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.15	1	B				MADE GROUND: Tarmac and black asphalt. (MADE GROUND)	6.76	0.20	
						MADE GROUND; Greyish green gravelly SAND with occasional pockets of clay. Sand is coarse. Gravel is angular to subrounded fine to coarse flint, chert and quartz. (MADE GROUND)	6.73	0.23	
0.80-1.10	2	B				Multicoloured (orange, brown, red, yellow, grey and blue) slightly sandy GRAVEL. Sand is coarse. Gravel is subangular to rounded fine to coarse quartz, chert and flint. (BEACH DEPOSIT)		(0.87)	
						Trial pit terminated at 1.10m depth due to unstable pit walls and overhanging greensand and tarmac.	5.86	1.10	

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**ADavidson**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

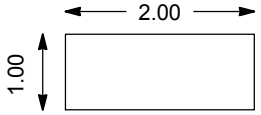
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**TP-L-16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**27.4.16**	**7.09**	**E:623386.6 N:135718.8**	**1** of **2**
	End: **27.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Tarmac and black asphalt with a few metal rods. (MADE GROUND)	7.06	0.03	
0.20	1	B					6.84	0.25	
0.20-0.40	3	ES	1xT,1xJ+1xV			MADE GROUND: Greyish green gravelly SAND with occasional pockets of clay and low cobble content. Sand is coarse. Gravel is subangular to subrounded fine to coarse flint, chert and quartz. (MADE GROUND)		(0.55)	
0.60-0.80	2	B							
0.60-0.80	4	ES	1xT,1xJ+1xV			Multicoloured (orange, brown, yellow, grey and blue) slightly silty slightly sandy GRAVEL. Sand is coarse. Gravel is subangular to rounded fine to coarse flint, chert and quartz. (BEACH DEPOSIT)	6.29	0.80	
						Trial pit terminated at 0.80m depth due to unstable pit walls and overhanging tarmac.			

Plan (Not to Scale)



General Remarks

1. Cleared with GPR, CAT and Genny.
2. No groundwater encountered.
3. Trial pit walls unstable.
4. Backfilled with arisings and compacted upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**ADavidson**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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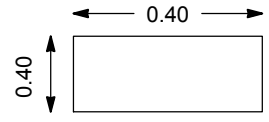
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**Inner-Harbour-1**
Contract Ref:	Start: **11.5.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **11.5.16**	**---**	**---**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Yellowish grey to light grey slightly sandy slightly gravelly SILT. Sand is fine to medium. Gravel is rounded fine flint. (BEACH DEPOSIT)		0.25	
0.30	1	ES	1xT, 1xJ, 1xV			. . . Light bown to yellowish brown silty SAND. Sand is fine to medium.			
						Dark grey to black slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded of flint, sandstone and brick. (BEACH DEPOSIT)		0.50	
						Trial pit terminated at 0.50m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
4. Sides of excavation stable.
5. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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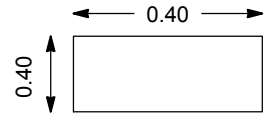
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**Inner-Harbour-2**
Contract Ref:	Start: **11.5.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **11.5.16**	**---**	**---**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Yellow slightly sandy SILT. Sand is fine. (BEACH DEPOSIT)		0.05	
						Light to dark grey slightly sandy silty CLAY. Sand is fine. (BEACH DEPOSIT)		(0.35)	
0.35	1	ES	1xT, 1xJ, 1xV					0.40	
						Trial pit terminated at 0.40m depth.			

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
3. No groundwater encountered.
4. Sides of excavation stable.
5. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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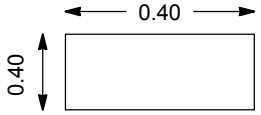
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**Inner-Harbour-3**
Contract Ref:	Start: **11.5.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **11.5.16**	**---**	**---**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Yellow slightly sandy SILT. (BEACH DEPOSIT)		0.06	
						Very soft light to dark grey slightly gravelly slightly sandy organic silty CLAY, with frequent roots and partially decomposed organic material. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and brick. (BEACH DEPOSIT)		(0.44)	
0.50	1	ES	1xT, 1xJ, 1xV			Trial pit terminated at 0.50m depth.		0.50	

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
3. Sides of excavation stable.
4. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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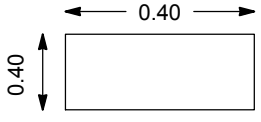
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**Inner-Harbour-4**
Contract Ref:	Start: **11.5.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **11.5.16**	**---**	**---**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Yellow slightly sandy SILT. Sand is fine. (BEACH DEPOSIT)		0.05	
						Very soft light to dark grey slightly sandy slightly gravelly clayey SILT, with occasional timber fragments. Sand is fine to coarse. Gravel is subrounded to subangular brick, plastic and flint. (BEACH DEPOSIT)		(0.55)	
0.60	1	ES	1xT, 1xJ, 1xV			Trial pit terminated at 0.60m depth.		0.60	

Plan (Not to Scale)



General Remarks

1. CAT and Genny scanned prior to commencement.
2. No groundwater encountered.
3. Sides of excavation stable.
4. Backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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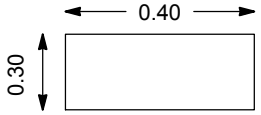
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP01**
Contract Ref:	Start: **4.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **4.4.16**	**8.49**	**E:622741.8 N:135621.6**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT. (MADE GROUND)	8.29	0.20	
						MADE GROUND: CONCRETE. 30% clasts (flint, brick). 70% matrix. (MADE GROUND)	8.19	0.30	
0.30	1	B				POSSIBLE MADE GROUND: Dark to light brown slightly gravelly SAND. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint, sandstone and occasional shells fragments. (POSSIBLE MADE GROUND)		(0.90)	
0.30	101	ES							
0.40-1.20	2	B							
0.50	102	ES					7.29	1.20	
						Trial pit terminated at 1.20m depth.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 1.20m depth.
4. No groundwater encountered.
5. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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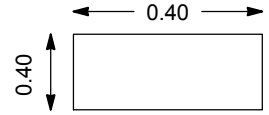
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP02**
Contract Ref:	Start: **5.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **5.4.16**	**6.10**	**E:622774.5 N:135606.3**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT. (MADE GROUND)	5.87	0.23	
0.40 0.45-0.60	1 2	ES B				MADE GROUND: Light brownish green slightly clayey gravelly SAND. Sand is fine to coarse. Gravel is angular to rounded fine to coarse flint, chert, quartz and coal. (MADE GROUND) . . . at 0.40m large cobble of concrete. . . . at 0.70m rusted metal pipe or tube end. . . . at 1.10m recovered broken brick.	4.90	(0.97) 1.20	
						Inspection pit terminated at 1.20m depth.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 1.20m depth.
4. No groundwater encountered.
5. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**RLynes**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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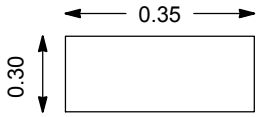
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP03**
Contract Ref:	Start: **5.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **5.4.16**	**7.86**	**E:622786.8 N:135634.5**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	7.78	0.08	
						(MADE GROUND)			
						MADE GROUND: ASPHALT and CONCRETE. Concrete consists of: 40% clasts of brick and flint, 60% matrix.	7.51	0.35	
0.30	1	ES				(MADE GROUND)			
0.30-0.50	1	B							
0.50-0.80	2	B				MADE GROUND: Dark yellowish brown gravelly SAND. Sand is fine to coarse. Gravel is subangular fine to coarse brick, flint, quartz, porcelain and glass. (MADE GROUND)		(0.85)	
							6.66	1.20	
						Trial pit terminated at 1.20m depth.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 1.20m depth.
4. No groundwater encountered.
5. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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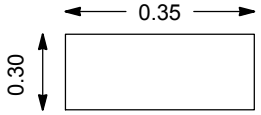
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP04**
Contract Ref:	Start: **5.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **5.4.16**	**5.89**	**E:622809.9 N:135604.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	5.84	0.05	
						(MADE GROUND)			
						MADE GROUND: Asphalt and concrete. Matrix 60%, clasts 40% of brick, flint and sandstone.	5.64	0.25	
0.30-0.70	1	B				(MADE GROUND)			
						MADE GROUND: Dark brown slightly clayey very gravelly SAND. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint, brick, quartz, timber and sandstone.		(0.45)	
						(MADE GROUND)	5.19	0.70	
						Trial pit terminated at 0.70m depth due to concrete obstruction. Unable to excavate further, relocated pit.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.70m depth.
4. No groundwater encountered.
5. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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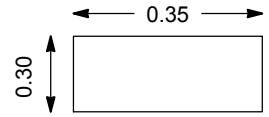
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP04A**
Contract Ref:	Start: **5.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **5.4.16**	**6.06**	**E:622810.9 N:135606.6**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.00	1	ES				MADE GROUND: ASPHALT. (MADE GROUND)	6.01	0.05	
						MADE GROUND: Concrete and asphalt. Concrete is 40% clasts (flint, brick and slate). Matrix is 60%. (MADE GROUND)	5.81	0.25	
0.25	1	B				Light yellowish green slightly gravelly SAND. Sand is fine to coarse. Gravel is subangular fine to coarse flint. (BEACH DEPOSIT)	5.76	0.30	
						Trial pit terminated at 0.30m depth.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.30m.
4. No groundwater encountered.
5. Inspection pit terminated at 0.30m due to concrete obstruction.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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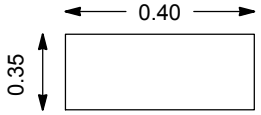
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP04C**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**6.4.16**	**6.10**	**E:622812.0 N:135607.6**	**1** of **1**
	End: **6.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	6.02	0.08	
						(MADE GROUND)			
						MADE GROUND: Concrete. 40% clasts of brick, flint and sandstone. 60% matrix.	5.80	0.30	
0.30	1	B				(MADE GROUND)			
						. . . at 0.15m rebar.			
						MADE GROUND: Dark brownish black COBBLES with much sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse brick, timber and concrete. Cobbles are brick and concrete.		(0.60)	
0.80	2	B				(MADE GROUND)	5.20	0.90	
						. . . at 0.35m concrete 20mm thick, clasts of flint.			
						Trial pit terminated at 0.90m depth due to concrete obstruction.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.90m depth.
4. No groundwater encountered.
5. Backfilled and reinstated by SSL on completion.
6. Coordinates and level estimated from topgraphical survey drawings and adjacent exploratory positions which had been surveyed using GPS equipment.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

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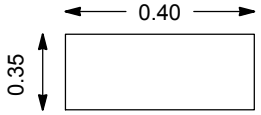
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP05**
Contract Ref:	Start: **6.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **6.4.16**	**7.01**	**E:622821.3 N:135639.8**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	6.95	0.06	
						(MADE GROUND)			
						MADE GROUND: Concrete. 70% matrix. 30% clasts of flint and brick.	6.71	0.30	
						(MADE GROUND)			
0.35	1	B				Dark yellowish brown slightly silty slightly gravelly SAND. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and quartz.		(0.90)	
0.80-1.20	2	B				(BEACH DEPOSIT)			
							5.81	1.20	
						Trial pit terminated at 1.20m depth.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 1.20m depth.
4. No groundwater encountered.
5. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

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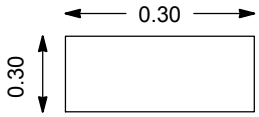
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP06**
Contract Ref:	Start: **6.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **6.4.16**	**6.13**	**E:622856.9 N:135617.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: 50mm of asphalt over reinforced concrete. Concrete composed of approximately 70% matrix and 30% clasts of flint. (MADE GROUND)	5.83	(0.30) 0.30	
						Possible MADE GROUND: Dark brown slightly silty sandy GRAVEL. Gravel is subrounded to subangular fine to coarse flint and quartz. (POSSIBLE MADE GROUND)	5.23	(0.60) 0.90	
						Pit terminated at 0.90m depth due to instability.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.90m depth.
4. Inspection pit very unstable below 0.90m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

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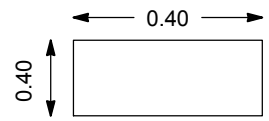
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP07**
Contract Ref:	Start: **6.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **6.4.16**	**5.88**	**E:622882.2 N:135602.8**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT. (MADE GROUND)	5.73	0.15	
						MADE GROUND: CONCRETE. 65% matrix, 35% clasts of subangular flint. (MADE GROUND)	5.53	0.35	
0.35	1	B				Dark greenish brown sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse flint. (BEACH DEPOSIT)	5.38	0.50	
						Trial pit terminated at 0.50m depth. GPR survey undertaken.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.50m depth.
4. Inspection pit very unstable below 0.50m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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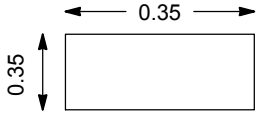
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP08**
Contract Ref:	Start: **7.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **7.4.16**	**6.34**	**E:622890.1 N:135630.6**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Asphalt.	6.29	0.05	
						(MADE GROUND)			
0.20-0.30	3	B				MADE GROUND: Concrete. 60% clasts, 40% matrix. Clasts are subangular fine to coarse brick and flint. Matrix is silty sand.		(0.33)	
0.30	1	ES	1xT, 1xJ, 1xV				5.96	0.38	
						(MADE GROUND)			
0.50	2	ES	1xT, 1xJ, 1xV			MADE GROUND: Firm to stiff dark orangish brown mottled white slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse brick, sandstone and limestone.			
0.60-1.00	4	B							
0.60		HP	c_u=80/85/90					(0.82)	
0.80		HP	c_u=95/125/130			(MADE GROUND)			
						. . . from 0.80m becoming stiff.			
							5.14	1.20	
						Trial pit terminated at 1.20m depth.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 1.20m depth.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

AGS

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

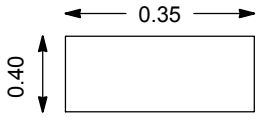
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP09**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**7.4.16**	**6.14**	**E:622902.6 N:135662.4**	**1** of **1**
	End: **7.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	6.09	0.05	
						(MADE GROUND)		(0.30)	
						MADE GROUND: Concrete: 70% matrix, 30% clasts of subangular fine to coarse flint.	5.79	0.35	
						(MADE GROUND)	5.73	0.41	
						Dark brown sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded flint and quartz. (BEACH DEPOSIT)			
						Trial pit terminated at 0.41m depth due to orange ducting.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.41m depth.
4. Inspection pit terminated at 0.41m due to plastic orange service ducting in base of excavation.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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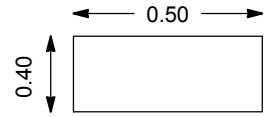
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP09A**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**7.4.16**	**6.15**	**E:622900.6 N:135666.5**	**1** of **1**
	End: **7.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.05-0.25	1	D				MADE GROUND: ASPHALT.	6.10	0.05	
						(MADE GROUND)			
0.25-0.50	2	D				MADE GROUND. Dark grey slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse flint, brick and asphalt.	5.90	0.25	
						(MADE GROUND)			
						Dark brown slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular flint, quartz and sandstone.		(0.55)	
						(BEACH DEPOSIT)	5.35	0.80	
						. . . at 0.26m slight water seepage.			
						Trial pit terminated at 0.80m depth due to pit collapse.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.80m depth.
4. Inspection pit very unstable below 0.80m.
5. Groundwater seepage encountered at 0.26m.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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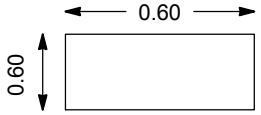
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP10**
Contract Ref:	Start: **7.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **7.4.16**	**6.07**	**E:622973.4 N:135683.8**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Yellowish brown GRAVEL.Gravel is subrounded fine to coarse flint. (MADE GROUND)	5.82	0.25	
0.30	1	ES				MADE GROUND: Dark brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and brick. (MADE GROUND)	5.67	0.40	
						Trial pit terminated at 0.40m depth due to 10mm diameter black cable and signal on CAT.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.40m depth.
4. Inspection pit terminated at 0.40m due to (~10mm dia) black pipe in base of excavation.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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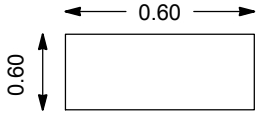
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP10A**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**7.4.16**	**6.20**	**E:622974.5 N:135681.9**	**1** of **1**
	End: **7.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Multicoloured (yellow, brown, white, orange) GRAVEL. Gravel is subrounded fine to coarse flint.		(0.30)	
							5.90	0.30	
0.30	1	B				Dark brown to dark greenish brown slightly gravelly very clayey SAND. Sand is fine to coarse. Gravel is subrounded to subangular flint. (BEACH DEPOSIT)			
0.40	3	ES	1xT, 1xJ, 1xV			. . . at 0.31m textile wrap.		(0.80)	
0.80	2	B				. . . from 0.80m becoming slightly clayey.			
							5.10	1.10	
						Dark to light brown slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse flint and quartz. (BEACH DEPOSIT)	5.00	1.20	
						Trial pit terminated at 1.20m depth.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 1.20m depth.
4. No groundwater encountered.
5. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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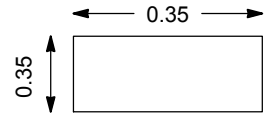
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP11**
Contract Ref:	Start: **7.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **7.4.16**	**6.19**	**E:622988.4 N:135630.8**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	6.09	0.10	
						(MADE GROUND)			
						MADE GROUND: Concrete, 60% matrix, 40% clasts of flint.	5.89	0.30	
						(MADE GROUND)			
0.35	1	ES				Multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and quartz.		(0.40)	
						(BEACH DEPOSIT)	5.49	0.70	
						. . . loose chrysotile asbestos fibres detected by laboratory in sample at 0.35m depth.			
						Trial pit terminated at 0.70m depth due to pit instability, unable to advance.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.70m depth.
4. Inspection pit very unstable below 0.70m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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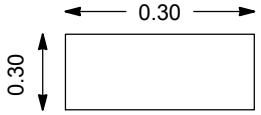
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP12**
Contract Ref:	Start: **8.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **8.4.16**	**6.11**	**E:623029.0 N:135674.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Asphalt.	6.06	0.05	
						(MADE GROUND)			
						MADE GROUND: Light grey to black slightly silty slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse brick and crushed aggregates of mixed lithologies.	5.79	0.32	
0.35	1	B				(MADE GROUND)		(0.48)	
						Multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse flint and quartz.			
						(BEACH DEPOSIT)	5.31	0.80	
						Trial pit terminated at 0.80m depth as pit was unstable, can't progress hole.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.80m depth.
4. Inspection pit very unstable below 0.80m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

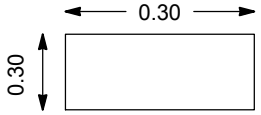
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**8.4.16**	**6.03**	**E:623051.0 N:135698.6**	**1** of **1**
	End: **8.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Asphalt. (MADE GROUND)	5.98	0.05	
						MADE GROUND: Reinforced Concrete . (MADE GROUND)	5.73	0.30	
						MADE GROUND: Dark brown sandy GRAVEL with low cobble content and low ash content. Sand is fine to coarse. Gravel is subangular fine to coarse flint, brick, bitumen and clinker. Cobbles are subangular brick. (MADE GROUND)	5.55	0.48	
						Trial pit terminated at 0.48m depth due to brick and concrete obstruction.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.48m depth.
4. Inspection pit terminated at 0.48m due to brick and concrete instructions.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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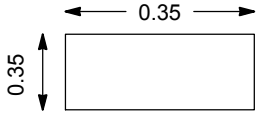
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP13B**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**8.4.16**	**6.06**	**E:623050.7 N:135699.7**	**1** of **1**
	End: **8.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Asphalt. (MADE GROUND)	6.01	0.05	
						MADE GROUND: Reinforced Concrete (MADE GROUND)	5.81	0.25	
0.30	1	ES	1xT, 1xJ, 1xV			MADE GROUND: Dark brown sandy gravelly COBBLES. Sand is fine to coarse. Gravel is subangular fine to coarse brick, bitumen, flint and crushed aggregates of mixed lithologies. Cobbles are subangular bricks. (MADE GROUND) . . . at 0.45m 20mm thick tiles.	5.56	0.50	
						Trial pit terminated at 0.50m depth due to concrete obstruction.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.50m depth.
4. Inspection pit terminated at 0.50m due to concrete obstruction.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

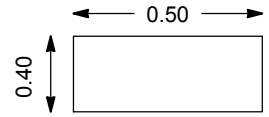
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP13C**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**8.4.16**	**5.99**	**E:623055.0 N:135695.8**	**1** of **1**
	End: **8.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	5.94	0.05	
						(MADE GROUND)			
						MADE GROUND: Crushed sedimentary aggregates of mixed lithologies.	5.69	0.30	
0.30	1	ES				(MADE GROUND)			
0.30-0.45	2	B					5.54	0.45	
0.45-0.70	3	B				Light yellowish brown slightly gravelly SAND. Sand is fine to coarse. Gravel is subrounded fine to coarse flint and quartz. (BEACH DEPOSIT)	5.29	0.70	
						Multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and quartz. (BEACH DEPOSIT)			
						Trial pit terminated at 0.70m depth due to instability of pit.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.70m depth.
4. Inspection pit very unstable below 0.70m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 13:36 | AML1 |

STRUCTURAL SOILS

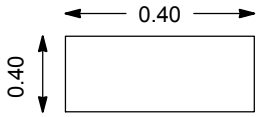
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16**	**5.90**	**E:623076.6 N:135642.4**	**1** of **1**
	End: **11.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	5.82	0.08	
						(MADE GROUND)			
						MADE GROUND: Concrete. 60% Matrix. 40% Clasts, subangular fine to coarse of flint and brick gravel.	5.55	0.35	
0.35	1	ES	1xT, 1xG, 1xV			(MADE GROUND)	5.45	0.45	
0.35-0.45	2	B				MADE GROUND: Dark brown COBBLES with a little sand . Sand is fine to coarse. Cobbles are subangular red brick and concrete.	5.20	0.70	
						(MADE GROUND)			
						Dark brown to greyish brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and quartz.			
						(BEACH DEPOSIT)			
						Trial pit terminated at 0.70m depth due to instability of pit, unable to progress hole.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.70m depth.
4. Inspection pit very unstable below 0.50m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

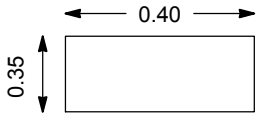
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**11.4.16**	**6.33**	**E:623097.4 N:135665.8**	**1** of **1**
	End: **11.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.00	1	ES	1xT, 1xJ, 1xV			MADE GROUND: Dark greyish brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint, brick and bitumen. (MADE GROUND)	6.23	0.10	
0.10	2	ES	1xT, 1xJ, 1xV			MADE GROUND: Light greyish brown silty sandy GRAVEL with low cobble content. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse concrete, brick and flint. Cobbles are subangular concrete and limestone. (MADE GROUND)	5.83	(0.40) 0.50	
						Light to dark brown slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and quartz. (BEACH DEPOSIT)	5.63	0.70	
						Trial pit terminated at 0.70m depth due to instability of pit, unable to progress hole.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.70m depth.
4. Inspection pit very unstable below 0.70m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

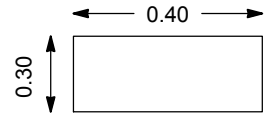
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP17**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**12.4.16**	**6.02**	**E:623121.4 N:135689.8**	**1** of **1**
	End: **12.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT. (MADE GROUND)	5.97	0.05	
							5.82	0.20	
0.20-0.35	1	ES				MADE GROUND: CONCRETE. (MADE GROUND)	5.67	0.35	
						MADE GROUND: Light grey to dark grey slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint, brick and bitumen. (MADE GROUND)	5.37	(0.30) 0.65	
						Multicoloured slightly silty slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and quartz. (BEACH DEPOSIT)			
						Trial pit terminated at 0.65m depth. Unable to progress through gravel (very unstable).			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.65m depth.
4. Inspection pit very unstable below 0.30m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

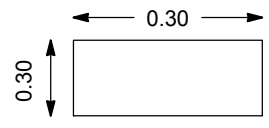
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP19**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**12.4.16**	**6.05**	**E:623131.7 N:135724.7**	**1** of **1**
	End: **12.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.00-0.20	1	B				MADE GROUND: ASPHALT.			
0.00-0.20	1	ES				(MADE GROUND)	5.82	0.23	
0.10-0.20	1	B				Possible MADE GROUND: Light brownish grey mottled light brownish orange slightly sandy very clayey GRAVEL. Sand is fine to coarse. Gravel is well rounded to subrounded medium to coarse flint.		(0.33)	
0.50-0.66	2	B				(POSSIBLE MADE GROUND)	5.49	0.56	
0.50-0.60	2	ES				Light bluish grey mottled light brownish orange slightly sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded medium to coarse flint.	5.39	0.66	
						(BEACH DEPOSIT)			
						Borehole terminated at 0.66m.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.66m depth.
4. Inspection pit very unstable below 0.45m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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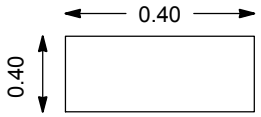
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP21**
Contract Ref:	Start: **12.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **12.4.16**	**6.17**	**E:623185.0 N:135685.9**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: CONCRETE.		(0.30)	
						(MADE GROUND)	5.87	0.30	
0.30-0.50	1	ES				MADE GROUND: Dark brown slightly clayey slightly gravelly SAND with pockets of soft to firm sandy clay. Sand is fine to coarse. Gravel is subangular fine to coarse brick, flint and limestone.			
0.30-0.50	2	B				(MADE GROUND)		(0.90)	
						. . . at 0.80m cobbles of rounded brick.			
							4.97	1.20	
						Trial pit terminated at 1.20m depth.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 1.20m depth.
4. Inspection pit very unstable below 0.90m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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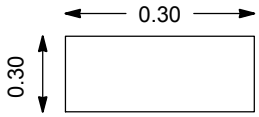
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP22**
Contract Ref:	Start: **18.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **18.4.16**	**6.32**	**E:623263.3 N:135676.0**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Concrete. (MADE GROUND)	6.02	(0.30) 0.30	
0.30-0.50 0.40-0.50	1 1	B ES				Dark brownish black mottled light orange slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to rounded coarse flint. (BEACH DEPOSIT)	5.82	0.50	
						Trial pit terminated at 0.50m			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.50m depth.
4. Inspection pit very unstable below 0.30m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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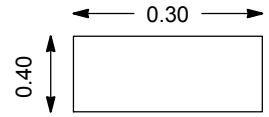
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP23**
Contract Ref:	Start: **13.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **13.4.16**	**6.56**	**E:623325.0 N:135683.8**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: CONCRETE. (MADE GROUND)	6.30	0.26	
0.28-0.30	1	ES				Light brownish orange slightly sandy GRAVEL. Sand is medium to coarse. Gravel is well rounded to subrounded medium to coarse flint. (BEACH DEPOSIT)	6.16	0.40	
0.30-0.40	1	B				Inspection pit terminated at 0.40m.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.40m depth.
4. Inspection pit very unstable below 0.26m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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STRUCTURAL SOILS

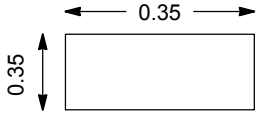
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP24**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16**	**6.16**	**E:623309.4 N:135738.4**	**1** of **1**
	End: **13.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: CONCRETE. (MADE GROUND)	5.86	(0.30) 0.30	
0.30-0.60	10	B				Dark brownish black mottled light orange slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse flint. (BEACH DEPOSIT)	5.56	(0.30) 0.60	
0.40-0.50	1	ES				Trial pit terminated at 0.60m.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.60m depth.
4. Inspection pit very unstable below 0.30m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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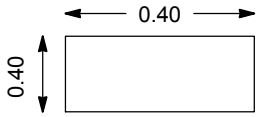
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP25**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**13.4.16**	**6.32**	**E:623256.5 N:135787.0**	**1** of **1**
	End: **13.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.00-0.20	1	B				MADE GROUND: ASPHALT.	6.22	0.10	
0.10-0.20	1	ES				(MADE GROUND)	6.10	0.22	
0.10-0.20	1	B				MADE GROUND: Light greyish black very sandy GRAVEL. Sand is coarse. Gravel is angular to subangular coarse flint and brick. (MADE GROUND)	5.77	(0.33) 0.55	
0.30-0.50	2	B							
0.50-0.55	2	ES				MADE GROUND: CONCRETE. (MADE GROUND)			
0.70-1.20	3	B				Dark brown slightly clayey SAND. Sand is fine to coarse. (BEACH DEPOSIT)	5.12	(0.65) 1.20	
1.00-1.20	3	ES							
						Borehole terminated at 1.20m depth.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 1.20m depth.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**OGoddard**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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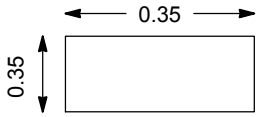
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP26**
Contract Ref:	Start: **14.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **14.4.16**	**6.15**	**E:623323.6 N:135753.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT. (MADE GROUND)	5.80	(0.35) 0.35	
0.40	1	ES	1xT, 1xJ, 1xV			MADE GROUND: Dark brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse bitumen, flint and quartz. (MADE GROUND)	5.55	0.60	
						Dark brown slightly sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse flint and quartz. (BEACH DEPOSIT)	5.50	0.65	
						Trial pit terminated at 0.65m depth due to instability of pit.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.65m depth.
4. Inspection pit very unstable below 0.65m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 13:37 | AML1 |

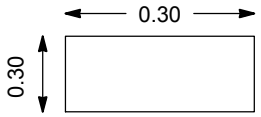
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP27**
Contract Ref:	Start: **14.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **14.4.16**	**6.59**	**E:623343.1 N:135779.5**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT. (MADE GROUND)	6.31	(0.28) 0.28	
0.30 0.30	1 2	B ES	1xT, 1xJ, 1xV			MADE GROUND: Dark brown to light grey silty gravelly SAND. Sand is fine to coarse. Gravel is subangular fine to coarse brick, limestone, timber, flint and glass. (MADE GROUND)	6.09	0.50	
						Trial pit terminated at 0.50m depth due to concrete obstruction.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.50m depth.
4. Inspection pit very unstable below 0.50m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 13:37 | AML1 |

STRUCTURAL SOILS

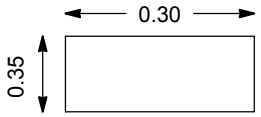
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP28**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**14.4.16** End: **14.4.16**	**6.43**	**E:623292.3 N:135822.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	6.38	0.05	
						(MADE GROUND)		(0.33)	
0.25	1	B				MADE GROUND: Dark brown to black silty gravelly SAND with high ash content. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse bitumen, brick, limestone, and crushed aggregates of mixed lithologies.	6.05	0.38	
0.30	2	ES				(MADE GROUND)			
0.45	3	ES				MADE GROUND: Dark grey to light grey silty slighty gravelly SAND with high ash content and frequent pockets of soft clayey chalk. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse flint and quartz.	5.63	(0.42) 0.80	
0.45-0.50	4	B				(MADE GROUND)	5.53	0.90	
						Multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse flint and quartz. (BEACH DEPOSIT)			
						Trial pit terminated at 0.90m depth. Unable to continue, ground collapsing.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.90m depth.
4. Inspection pit very unstable below 0.80m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
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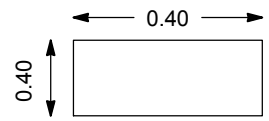
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP29**
Contract Ref:	Start: **14.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **14.4.16**	**6.65**	**E:623356.2 N:135693.0**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: Reinforced concrete. 60% matrix, 40% clasts of flint. (MADE GROUND)	6.27	(0.38) 0.38	
0.45	2	ES				Multicoloured slightly sandy GRAVEL. Sand is fine to coarse. Gravel subrounded to subangular fine to coarse quartz and flint. (BEACH DEPOSIT)	6.20	0.45	
						Terminated at 0.45m depth.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.45m depth.
4. Inspection pit very unstable below 0.35m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 13:37 | AML1 |

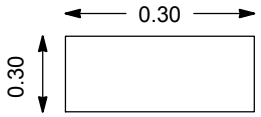
STRUCTURAL SOILS

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
Folkestone Harbour Development		**Folkestone Harbour (GP) Ltd**		**DP30**
Contract Ref:	Start: **15.4.16**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	End: **15.4.16**	**7.21**	**E:623413.3 N:135722.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
0.10	1	ES	1xT, 1xJ, 1xV			MADE GROUND: Dark yellowish brown slightly clayey gravelly SAND with layers of asphalt (<0.05m). Sand is fine to coarse. Gravel is subangular fine to coarse brick, bitumen, flint, quartz and sandstone. (MADE GROUND)	6.76	(0.45) 0.45	
0.50	2	ES	1xT, 1xJ, 1xV			Dark brown slightly sandy GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse flint and quartz. (BEACH DEPOSIT)	6.61	0.60	
						Trial pit terminated at 0.60m depth. Can't progress through gravel due to pit collapse.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.60m depth.
4. Inspection pit very unstable below 0.35m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Inspection pit + Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 13:37 | AML1 |

STRUCTURAL SOILS

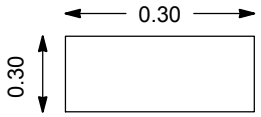
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP31**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**14.4.16**	**6.05**	**E:623480.8 N:135817.2**	**1** of **1**
	End: **14.4.16**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	5.97	0.08	
						(MADE GROUND)			
						MADE GROUND: REINFORCED CONCRETE.	5.77	0.28	
0.30	1	ES	1xT, 1xJ, 1xV			(MADE GROUND) . . . at 0.10m rebar.			
						Dark brown to black silty gravelly SAND with high ash content and low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse flint, brick, concrete and clinker. Cobbles are subangular of sandstone.	5.35	(0.42) 0.70	
						(BEACH DEPOSIT)			
						Trial pit terminated at 0.70m depth, unable to progress due to pit collapse.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 0.70m depth.
4. Inspection pit very unstable below 0.28m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**SOFarrell**	AML

GINT_LIBRARY_V8_06.GLB LibVersion: v8_06_012 PrjVersion: v8_06 - Core+Full Bristol SI - Dev 046 | Log TRIAL PIT LOG - A4P | 731404_FOLKESTONE_HARBOUR_DEVELOPMENT.GPJ - v8_06.
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/7/16 - 13:37 | AML1 |

STRUCTURAL SOILS

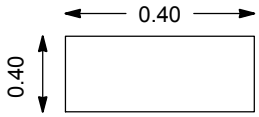
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
Folkestone Harbour Development	**Folkestone Harbour (GP) Ltd**	**DP32**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
731404	**15.4.16** End: **15.4.16**	**6.22**	**E:623484.2 N:135888.2**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						MADE GROUND: ASPHALT.	6.14	0.08	
						(MADE GROUND)	6.08	0.14	
						MADE GROUND: CONCRETE. (MADE GROUND)			
0.30-0.50	1	B						(0.46)	
0.40-0.60	1	ES				MADE GROUND: Dark brownish orange mottled brownish grey sandy GRAVEL with a low cobble content. Sand is medium to coarse. Gravel is angular to very angular coarse mixed lithologies including, brick, flint, concrete and granite. Cobbles are angular to very angular.	5.62	0.60	
0.60-0.80	2	B							
0.60-0.80	2	ES				(MADE GROUND)	5.42	0.80	
0.80-1.00	3	B							
0.85-1.00	3	ES				MADE GROUND: Red COBBLES with some sandy GRAVEL. Gravel is subangular to angular medium to coarse brick. Cobbles are angular to very angular cubic to elongate. (MADE GROUND)	5.22	1.00	
						Light greyish white slightly gravelly CLAY. Gravel is rounded to well rounded coarse flint. (SUPERFICIAL DEPOSITS)			
						Trial pit terminated at 1.0m depth.			

Plan (Not to Scale)



General Remarks

1. Location CAT and Genny scanned by SSL prior to excavation.
2. Hardstanding excavated using hydraulic breaker.
3. Inspection pit hand dug to 1.00m depth.
4. Inspection pit very unstable below 1.00m.
5. No groundwater encountered.
6. Backfilled and reinstated by SSL on completion.

All dimensions in metres | Scale: **1:25**

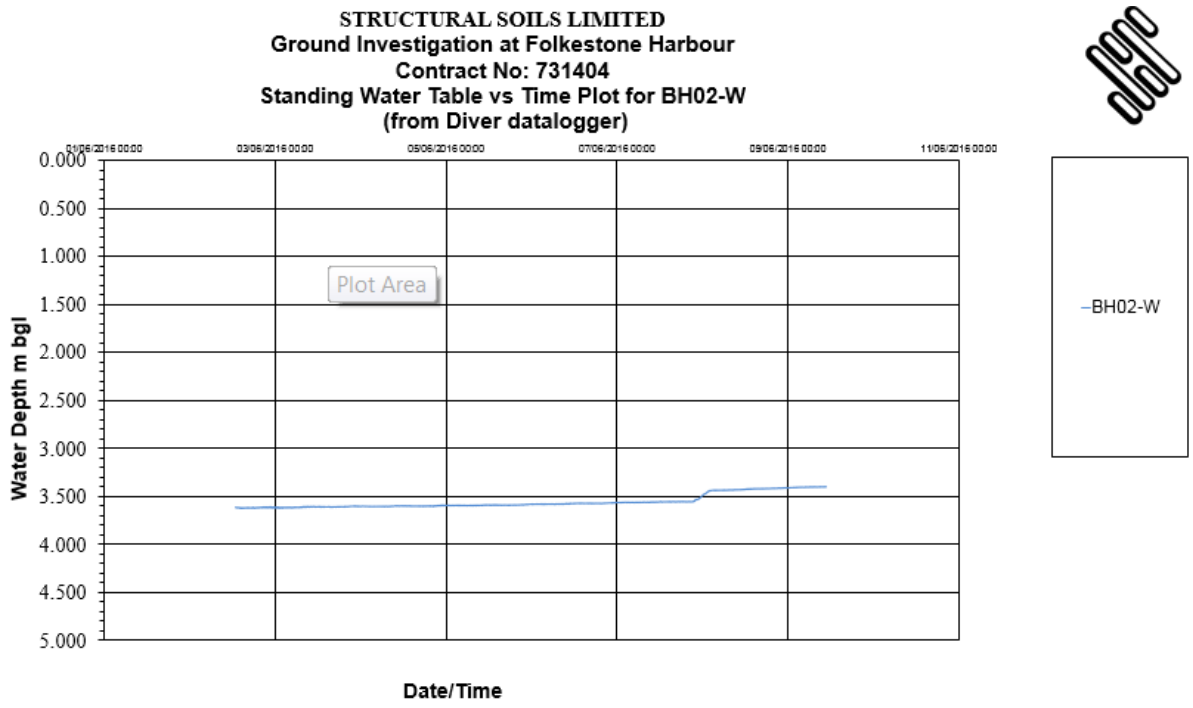
Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**OGoddard**	AML

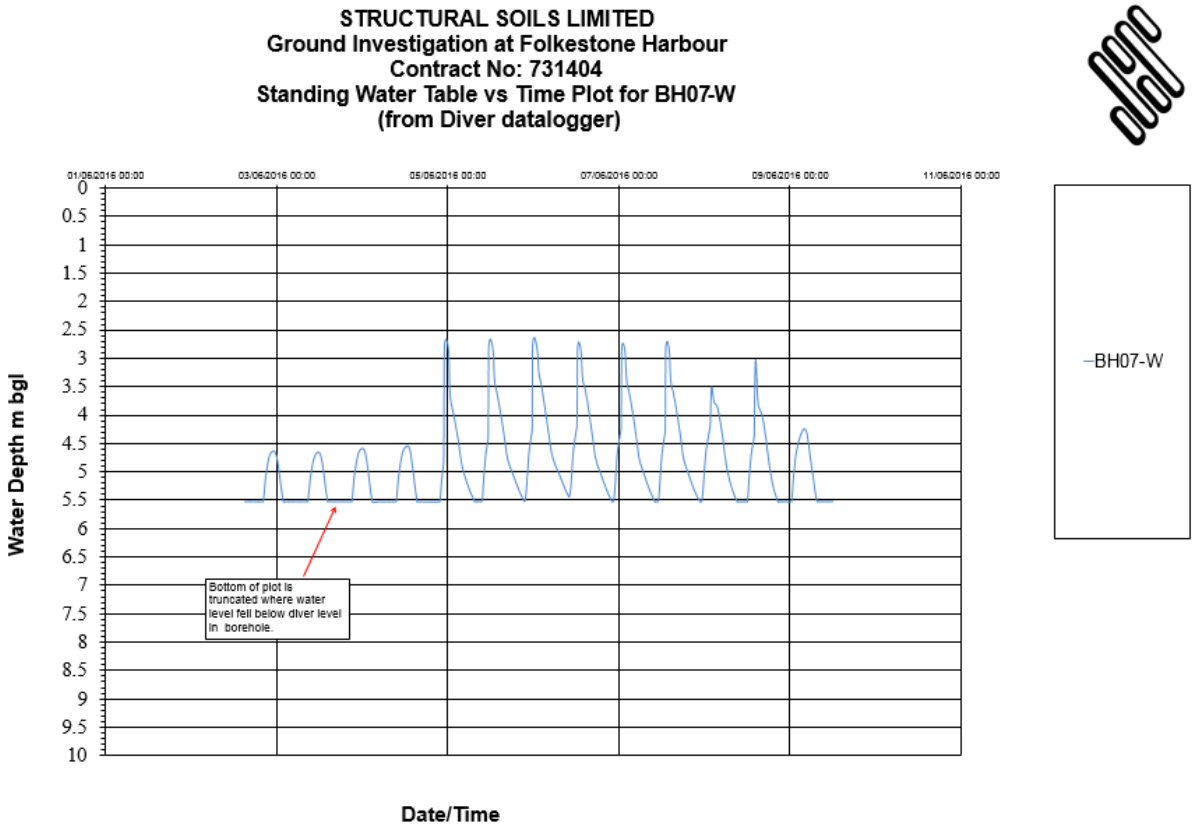
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Appendix H Data Logger Data

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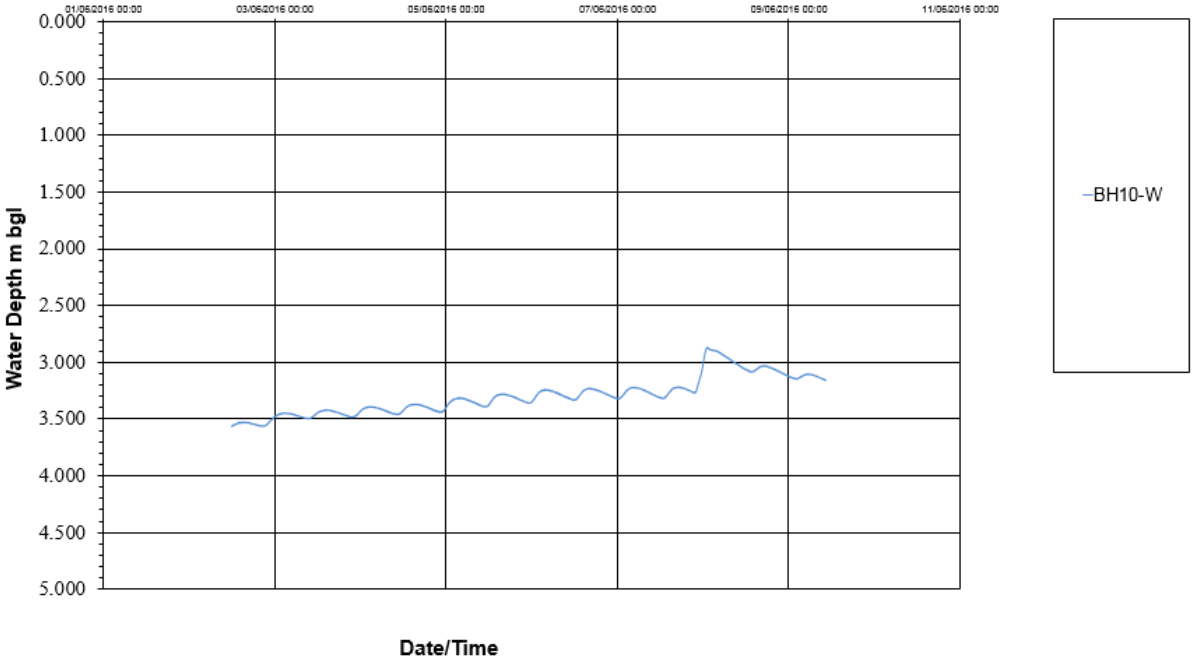
APPENDIX H – Datalogger Data





APPENDIX H – Datalogger Data

STRUCTURAL SOILS LIMITED
Ground Investigation at Folkestone Harbour
Contract No: 731404
Standing Water Table vs Time Plot for BH10-W
(from Diver datalogger)



STRUCTURAL SOILS LIMITED
Ground Investigation at Folkestone Harbour
Contract No: 731404
Standing Water Table vs Time Plot for BH17-W
(from Diver datalogger)



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