



Report on a **PHASE 4 VALIDATION REPORT**

For the site at:

Ref: 26/41515 | Date: May 2026

**Seacon Terminals
Lower Road
Northfleet
Kent DA1 9BD**



Prepared for

Gill Aggregates Limited

DOCUMENT CONTROL

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1.0 INTRODUCTION

At the request of Gill Aggregates Limited, a Phase 4 Validation Report has been prepared for the subject site located on the Seacon Teminals at Lower Road, Northfleet, Kent DA1 9BD following the construction works conducted at the site.

1.1 Report Objectives

The purpose of this report is to provide documented evidence of the works undertaken at the site to reduce the identified risks associated with the site. It also highlights any deviations or outstanding items of works required to be carried out. The report seeks to show that the remedial actions recommended for the site have been satisfactorily carried out and that the subject area is suitable for its intended use. The information contained in this report also seeks to support the application to discharge any the land contamination condition associated with the development.

Planning permission granted by councils for development of Brownfield land often have conditions attached which require the following site investigation to be undertaken and submitted to the local authority for approval:

1. Phase 1 - Preliminary Risk Assessment
2. Phase 2 - Intrusive Investigation
3. Phase 3 - Remediation Strategy
4. Phase 4 - Validation Report

A Phase 1 – Desk Study and Phase 2 - Intrusive Investigation have previously been commissioned as part of this investigation.

This report must be read in conjunction with the following reports:

- Phase 1 Preliminary Risk Assessment undertaken by Site Analytical Services Limited, Document Reference: 22/35405, dated June 2022.
- Phase 2 Site Investigation undertaken by Site Analytical Services Limited, Document Reference: 22/35405-1, dated July 2022.

1.2 Scope of Works

The scope of the works was agreed with the Client and comprised:

- An overview of the investigations undertaken at the site
- A summary of the remediation completed at the site
- Collation of verification information for each remediation action
- An assessment of whether each component of remediation has achieved the objectives
- Evidence of appropriate waste management and duty of care
- A statement of completion identifying whether the site is considered suitable for use

The site works were performed in accordance with the methods given in BS 5930:2015 and BS EN ISO 22476-2&3:2005. The work was carried out in accordance the current UK guidance, primarily the LCRM (Environment Agency (2019). Land Contamination: Risk Management)

1.3 Report Limitations

The recommendations and comments given in this report are based on the ground conditions encountered in the exploratory holes made during the investigation and the results of the tests made in the field and the laboratory, within the time constraints applied by the project. It must be noted that there may be special conditions prevailing at the site remote from the exploratory hole locations which have not been disclosed by the investigation and which have not been taken into account in the report. No liability can be accepted for any such conditions.

The validation report relies on a combination of investigation and remedial measures which, when considered in the context of the development, can verify that the final development is suitable for the proposed use.

1.4 Confidentiality, Copyright and Reproduction

This document has been prepared by Site Analytical Services Limited in connection with a contract to supply goods and/or services and is submitted only on the basis of strict confidentiality. The contents must not be disclosed to third parties other than in accordance with the terms of the contract.

Site Analytical Services Limited accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.

2.0 SUMMARY OF THE CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

2.1 Introduction

This section outlines the Conceptual Site Model developed for the site in the Phase 1 and Phase 2 environmental reports. Where redevelopment of a site is proposed, land contamination is a material planning consideration in the context of new National Planning Policy Framework (NPPF)⁽¹⁾.

In line with current UK Government guidance, risks are assessed using a “Source-Pathway-Receptor” approach. Such an approach recognises that risks from site-based contaminants can only exist where all three components are present (constituting a complete contaminant linkage). For a liability to exist a ‘contaminant linkage’ which presents unacceptable risk to humans, to the environment or to controlled waters must exist.

The risks associated with contaminated land are generally assessed by means of this methodology, where the following definitions apply:

- **Source:** nature and magnitude of contamination;
- **Pathway:** means by which contamination can reach and impact upon a receptor; and
- **Receptor:** that which may be adversely affected by the presence of contamination.

2.2 Site Location and Site Setting

The site is located on the eastern side of an unnamed access road off Lower Road – 0.2 miles to the north-east of the A226 Stonebridge Road. The site is located in Northfleet, Gravesend, Kent, at approximate postcode DA11 9BD. The application site forms the north-west part of the wider Seacon Terminals and is thus immediately surrounded by warehouses associated with a corrugated packaging company (W.E. Roberts) to the east and an open storage yard to the south. Additional warehouses associated with a building materials supplier (Discount Builders Merchants) and a ventilating equipment manufacturer (Lindlab) are immediately bounded to the west and bounded to the south are open yards associated with a ready-mix concrete supplier (CPI Mortars).

The site is roughly square in shape and covers an approximate area of 2.47 Hectares with the general area being under the authority of the Gravesham Borough Council.

The site is at National Grid Reference: TQ 614 752. The site location map is presented below in Figure 1:

¹ DCLG, ‘National Planning Policy Framework’, 2012.



Figure 1 - Site Location Plan

The site is currently in use as an industrial property. In the central region, a main rectangular building (metal-cladded warehouse, approximately 0.86 ha) used for paper and metal sheeting storage is situated alongside an adjoining square building (0.17 ha) which is located adjacent to the south. A relatively smaller rectangular warehouse (0.21 ha) is located in the north-west corner. Hard landscaped yard areas/loading bays are located across the remainder of the site, particularly in the south.

The site surrounding areas are predominantly industrial in all directions within 250m. The site is located approximately 39m to the west of the River Thames and 45m to the south-east of a large nature reserve (Botany Marshes).

2.3 Site Development

The site development proposal was to demolish the existing warehouse and construct a new manufacturing facility with its ancillary structures. Details of the proposed development are provided in Appendix A of this report.

2.4 Published Geology and Encountered Ground Conditions

The Geological Survey of Great Britain (England and Wales) covering the area indicates the site to be underlain by Alluvium, then the Taplow Gravel Member with the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated) at depth.

The boreholes and trial pits of the historic Ground Investigation (July 2022) revealed ground conditions that were generally consistent with the geological records and known history of the area and comprised Made Ground of up to 4.00m in thickness underlain by Alluvium, then the Taplow Gravel Member with the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated) at depth.

The Made Ground comprised an initial concrete (reinforced) / crushed concrete layer over clayey sandy silt containing concrete, brick, chalk, metal fragments. This was described as being occasionally pungent. Visual observations of the Made Ground soils indicated localised staining and pungent odours (at BH1 in particular) and significant proportions of peaty soil (in BH4 in particular).

The Alluvium deposit was encountered between 1.30m and 4.00m below ground level and was described as soft clayey silty sandy amorphous PEAT. The Taplow Gravel Member was encountered beneath the Alluvium deposit between 11.70m and 13.70m below ground level and was described as Dense to very dense sandy GRAVEL or SAND and GRAVEL or clayey sandy GRAVEL. This was underlain by the Chalk Formation at between 23.70m and 25.30m below ground level and was not proven at the full depth of the excavation at 30.00m below ground level.

2.5 Site Hydrogeology and Hydrology

The Superficial Geology (namely, the Alluvium deposit) underlying the site has been classified as Secondary Undifferentiated Aquifer. This designation is given where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value.

The Bedrock Geology (namely, the Chalk Formation) underlying the site has been classified as Principal Aquifer. This provides significant quantities of drinking water and water for business needs. They may also support rivers, lakes and wetlands.

The River Thames is located approximately 39m to the south-east of the site.

The site is known to be in a low to high risk of flooding in the north, central region and south of the site, particularly in between the footprints of the existing buildings. Areas of low to medium risk of flooding are located adjacent to the south of the site and an area of medium risk of flooding is located adjacent to the north-east, north-west and south-west of the site.

2.6 Contamination Testing and Analysis

As part of the ground investigation nine (9No.) soil samples and three (3No.) groundwater samples were selected for chemical analysis. The results compared to generic chemical concentration levels, in the context of Commercial Land Use. The results showed that based on the proposed Commercial Land Use, the presence of asbestos in 4No. of the 9No. samples analysed had the potential to pose a risk of harm to future users of the site. The groundwater results did not exhibit significant concentrations of contaminants to pose a serious concern.

Ground gas monitoring over a 4 week period exhibited significant levels of methane (most likely from the Made Ground and Alluvial layers), which was of concern.

2.7 Summary of Conceptual Site Model and risk assessment

The following table provides a summary of the conceptual site model, using data from the intrusive investigations and showing the relevant contaminant linkages for the site in its pre-construction phase.

Contaminants / Source	Pathway	Receptor	Site specific settings	Action Required
ASBESTOS	Inhalation, ingestion and dermal contact.	Human Health - Commercial site users	Commercial Use	Further action required – Soil Remediation recommended within BH2, BH5 and BH6 locations on-site
ASBESTOS	Inhalation, ingestion and dermal contact.	Human Health - Construction Workers	The contractor should follow regulation on health and safety during development (HSE, 1991)	Further action required – Groundworkers should also adopt a good standard of site hygiene and ensure hands and faces are washed prior to eating, drinking or smoking.
TPH	Permeation through pipes	Human Health Site Users	Water Supply	Further action required – Barrier pipes recommended.
Ground Gases METHANE	Permeation through fissures, voids and shafts, and by Inhalation by humans; Explosive risk	Human Health	Elevated ground gases encountered	Further action required – ground gas protections measures recommended on-site

Table A

2.7.1 Risk Assessment Conclusion

The Phase 2 ground investigation identified that there were viable risks that required further action, as follows:

- There is a risk to end-users of the site from Asbestos encountered in the BH2, BH5 and BH6 locations on-site. Remediation should be undertaken on-site to negate these risks.
- There is a risk to the construction workforce on-site from Asbestos encountered in the BH2, BH5 and BH6 locations on-site. Normal PPE and following health and safety regulations would negate this risk.
- There is a risk to end-users of the site from the concentrations of Ground gases encountered at the site. Gas protection measures should be undertaken on-site to negate this risk.
- There is a risk to water pipe on-site from the concentrations of TPH encountered. WATER UK HBF guide recommendations barrier pipe which would negate this risk.

3.0 SUMMARY OF REMEDIATION WORKS CONDUCTED

3.1 Proposed Remediation Strategy

Following the contamination assessment and the assessment of risk to end users, the following key remediation activities were recommended in the Phase 2 Ground Investigation Report, to mitigate the risks identified with encountered ground conditions.

- The adoption of good Health and Safety protocols during the construction works and any future maintenance activities.
- Ground gas protection system, to incorporate a resistant gas protection system within the footprint of the buildings in the most impacted areas.
- Protective Measures for underground services and subsurface structures.
- A verification and monitoring plan for the remediation activities.
- Watching brief and discovery strategy.

3.2 Project Directory

The following outlines the companies associated with the project at the site.

Project Directory	
Owner	Gill Aggregates Limited
Developer	Gill Aggregates Limited
Contractor	Gill Aggregates Limited

3.3 Responsibilities

The key components of the remediation works were conducted by following companies presented below.

Remediation Activity	Designated Contractor
Site Preparation Works	Gill Aggregates Limited
Installation of gas protection system	Gill Aggregates Limited
Materials management of arisings	Gill Aggregates Limited
Watching brief and discovery strategy.	Gill Aggregates Limited
Implementation of environmental controls and health and safety procedures	Gill Aggregates Limited
<u>Validation and Verification Works</u> Collation of information relating the remediation works and preparation of validation report	SAS Limited

3.4 Remediation Works

3.4.1 Soil Excavation and Disposal

SAS Limited have been informed the slab was constructed over an existing crushed sub-base from the previous demolition works. Excavation was also minimal due to piled foundations.

3.4.2 Site Formation

As indicated above the site preparatory works involved the placing of site-won crushed concrete to create the development platform for the site. Photographs of the site formation works are presented in Appendix B.

SAS understands that the only other imported material to site was associated with the drainage shingle.

Certification reports of the site won crushed concrete and the imported drainage shingle are presented in Appendix C.

3.4.3 Concrete Slab Construction and Ground Gas Barrier

Another component of the risk mitigation works involved the installation of ground gas protection measures. The proposed substructure details can be seen in Appendix A. The gas protection measures depicted in the substructure detail drawing to include:

- Structural raft slab.
- Gas Proof membrane.

Correspondence received from the client confirms that the installation of the gas proof membrane was in accordance with the manufacturer's guidance. Photographic evidence of the installation of the gas proof membrane and the structural slab construction is presented in Appendix D.

3.4.4 Hard Landscaped Areas

It is considered that the hard landscaping of this area of the site effectively eliminates exposure to any potential residual contaminated soils.

3.4.5 Watching brief

During the course of the development, it was the responsibility of the on-site manager to ensure watching briefs were kept. A watching brief consisted of a record of:

- Any observations of contamination made during the course of development by any member of site staff, contractor or visitor
- A photographic record of the key stages of development and key occurrences, including any contamination found during the course of the development, the formation levels of excavations, any reduced level dig/mass excavation, formation of landscaped or garden areas, etc.

SAS Limited received confirmation that no additional contamination was encountered during the course of the development (please see Appendix E).

4.0 SUMMARY AND CONCLUSIONS

4.1 Summary of Works Undertaken

As discussed, the site works associated with mitigating the identified risk posed by the site, involved the construction of protection barriers during the as part of the construction activities. The works were carried out taking full account of the proposed development.

4.2 Impact of the Remediation Activities

Based upon the works conducted at Seacon Terminals, Lower Road, Northfleet, Kent DA1 9BD, all of the contaminant linkages associated with the site have been broken following the construction activities. This assertion can be made for the following reasons:

- 1) Provision of barrier layers by the construction of a piling mat as part of the formation works.
- 2) Provision of a barrier layer by installation of gas proof membrane and construction of a robust structural concrete slab.

The receptors identified within the subject area will not be at risk from the site conditions at the site. Long term human exposure to the underlying soils will not exist.

4.3 Conclusions

From the evidence of the site works conducted, it is viewed that the remediation works relating to Seacon Terminals, Lower Road, Northfleet, Kent DA1 9BD, have been satisfactorily undertaken, by the creation of protective capping layer, hard cover, the installation of protection barriers incorporated within the construction.

The associated risks posed by any contamination areas within this portion of the site have therefore been effectively mitigated and no significant risks to the site and off-site receptors remain.

5.0 LIST OF APPENDICES

Appendix A – Development Details

Appendix B – Photographs of Site Formation

Appendix C – Chemical Test Certificates of Imported Material

Appendix D – Photographs of Gas Membrane and Concrete Slab

Appendix E – Letter from Groundwork Contractor

6.0 REFERENCES

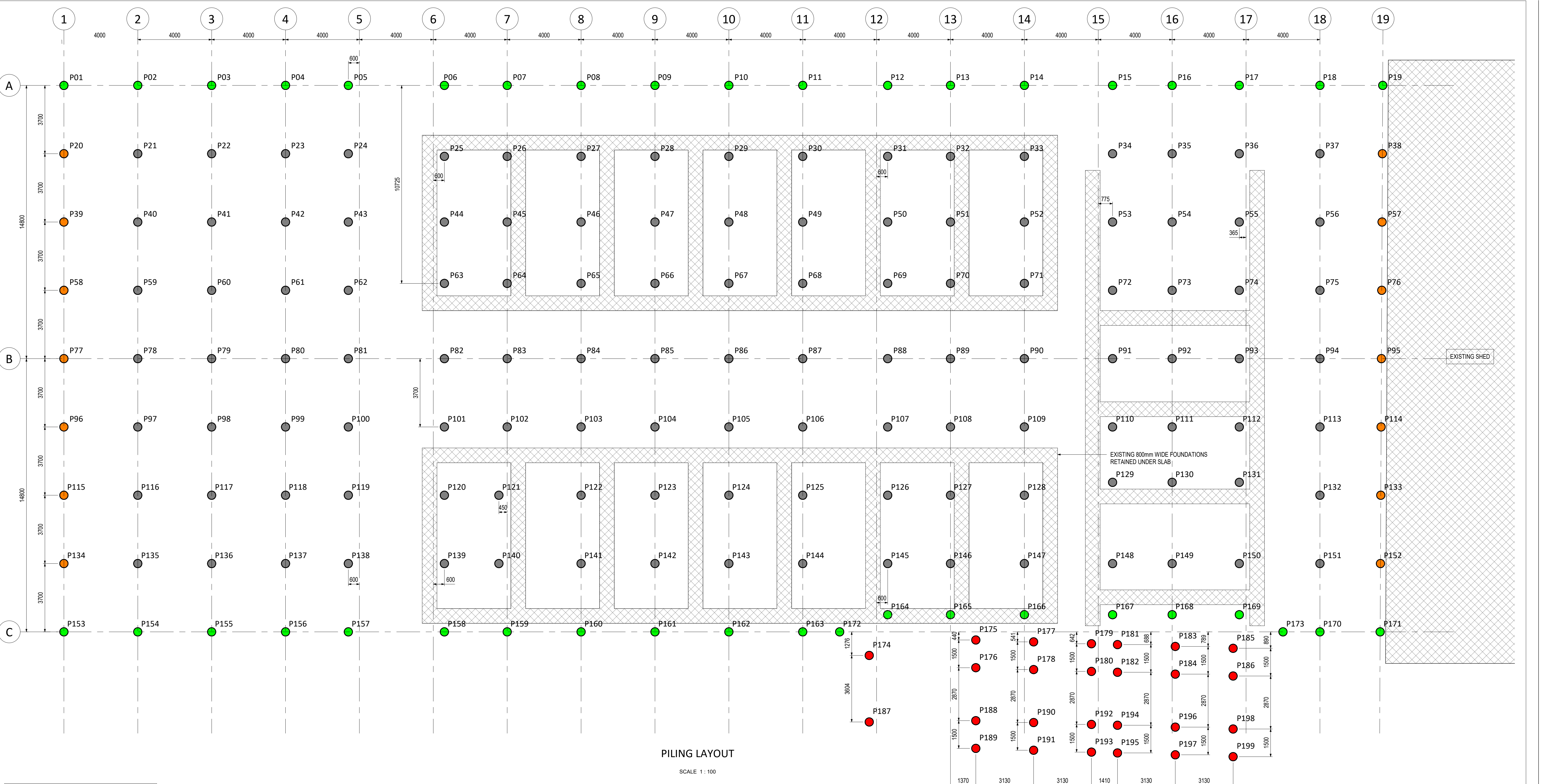
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APPENDIX A

Development Details



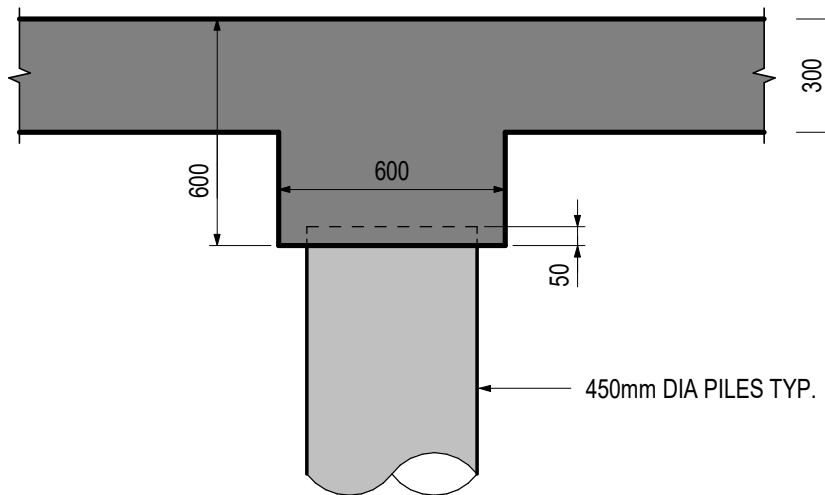
NOTES:

- ALL PILES TO BE 450 DIA. WITH 75mm EMBEDMENT UNO
- ALL CONCRETE 35N STRENGTH

PILES

- PILES SHALL BE ACCURATELY INSTALLED IN THE CORRECT POSITION. A MAXIMUM TOLERANCE OF 75mm ON POSITION OF PILES SHALL BE ACCEPTED AT THE DISCRETION OF THE ENGINEER. THE MAXIMUM TOLERANCE TO THE PERPENDICULAR OF VERTICAL PILES SHALL BE 40mm VARIANCE IN 3m PROVIDED THAT MOMENTS OR FORCES CREATED BY INACCURATE DRIVING ARE TAKEN DIRECTLY BY THE PILES WITHIN THE ACCEPTED FACTOR OF SAFETY.
- THE SETTING OUT OF GRID LINES SHALL BE DONE BY THE CONTRACTOR WHO SHALL PROVIDE THE PERMANENT DATUM LEVEL AND BACK MARK FOR THE PURPOSE OF ESTABLISHING CUT OFF LEVELS. SETTING OUT OF INDIVIDUAL PILES SHALL ALSO BE CARRIED OUT BY THE CONTRACTOR.
- THE CONTRACTOR SHALL ACCURATELY LOG EACH DAY TOTAL PILING LENGTH, EMPTY BORING LENGTH, DELAY TIME, OBSTRUCTION TIME ETC. CROSS REFERENCE NUMBER.
- PILES SHALL BE CONCRETED UP TO A LEVEL 300mm ABOVE THE REQUIRED CUT OFF LEVEL. EACH PILE SHALL HAVE AT LEAST FOUR BARS OF 12mm DIAMETER EACH PROJECTING 450mm ABOVE THE REQUIRED CUT OFF LEVEL FOR TYING INTO THE GROUND BEAMS.
- ALL PILES TO BE DESIGNED WITH A FOS = 3 AND OF SUFFICIENT SIZE AND STRENGTH AND DURABILITY TO TRANSMIT THE WORKING LOADS.
- ALL PILES TO BE INTEGRITY TESTED FOLLOWING INSTALLATION.
- ALL PILES TO BE DESIGNED BY PILING SUBCONTRACTOR TO SUPPORT THE LOADS.
- CONCRETE IN PILES TO BE 35N STRENGTH. DS-3 ACEC CLASS AC-3.
- PRIOR TO PILING ALL PILE LOCATIONS TO BE CHECKED FOR OBSTRUCTIONS, EXISTING SERVICES ETC.
- PILES ARE RESTRAINED AT THE TOP IN TWO DIRECTIONS.
- PILES DIA TO BE DESIGNED BY CONTRACTOR.

PILING SLS LOADS	
	DL: 180 KN LL: 1200 KN
	DL: 140 KN LL: 750 KN
	DL: 140 KN LL: 600 KN
	DL: 100 KN LL: 1100 KN



TYPICAL PILE DETAIL

SCALE 1 : 20

GENERAL NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
- DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- FOR GENERAL NOTES REFER TO DRAWING.

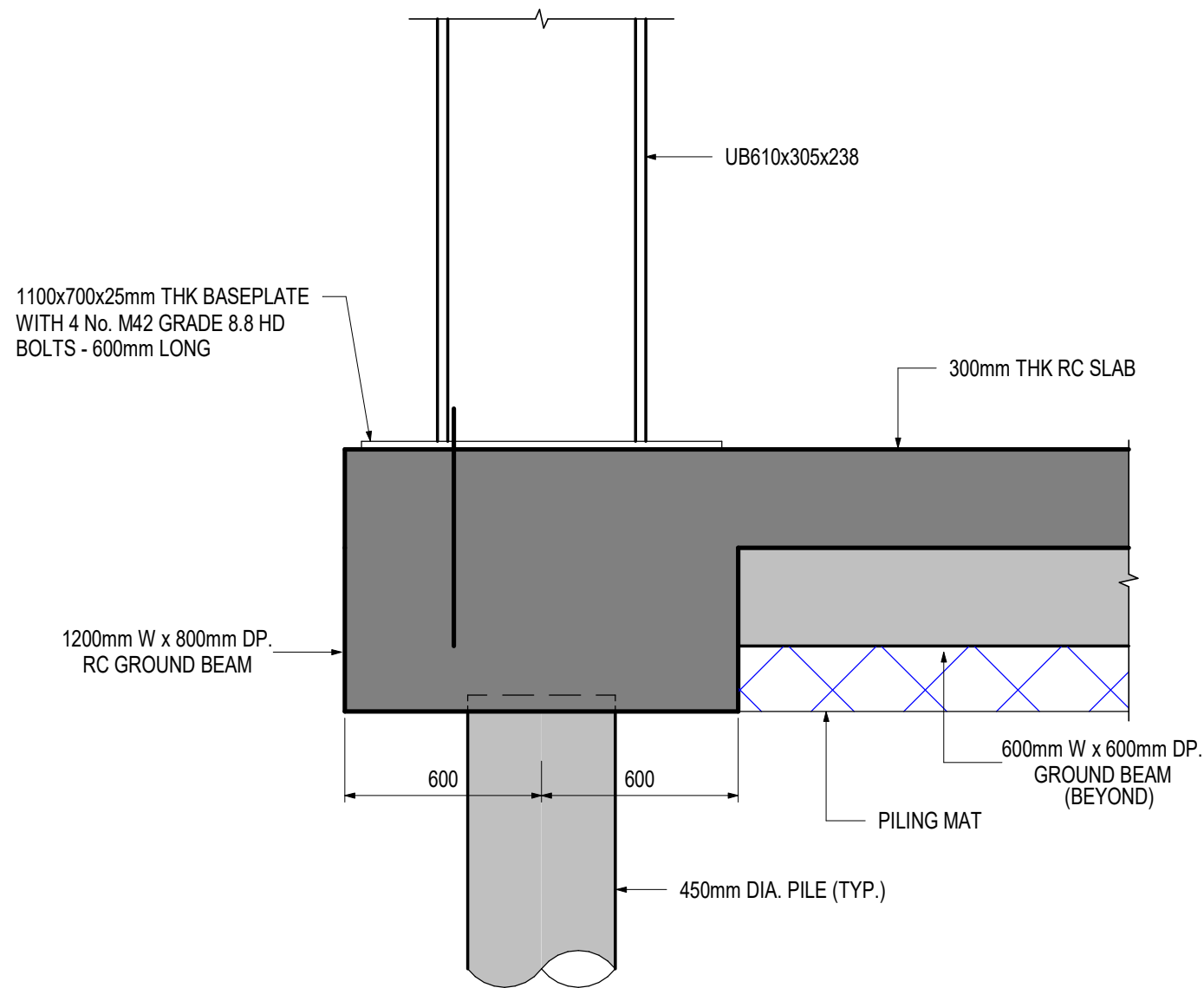
Drawn by
MI

Checked by
SK

No.	Description	Date
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C2	ISSUED FOR CONSTRUCTION	30.09.24
C3	ISSUED FOR CONSTRUCTION	06.11.2024

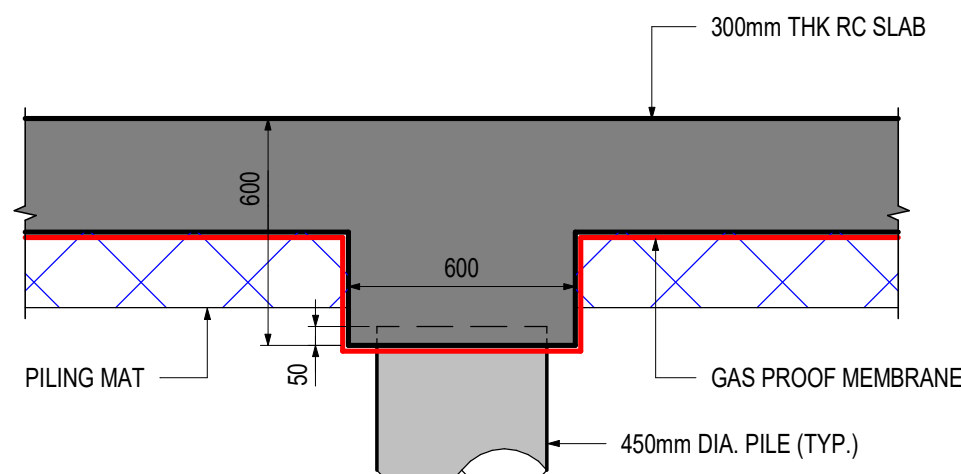
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CLIENT	DRAWING REF: 2500-SK-FN-00-DR-S-0001	REV C3	Scale (@ A1) As indicated
			Date OCT'23

S&SK
CONSULTING
S and SK consulting
53 Milner Road
Gillingham Kent ME7 1RB



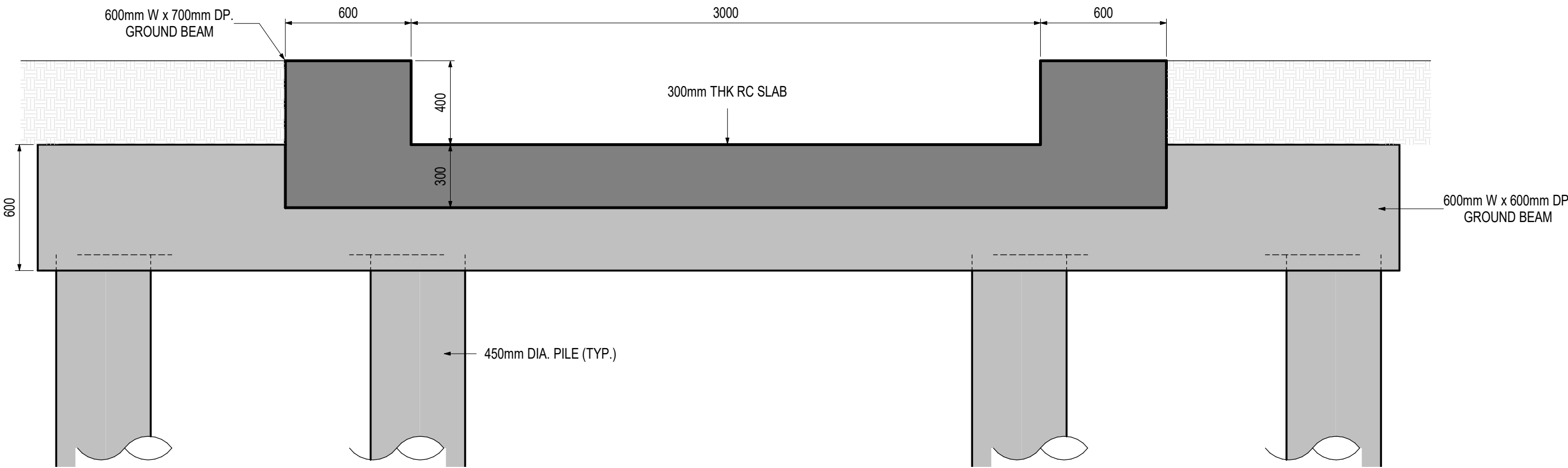
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SCALE 1 : 20



SECTION A-A

SCALE 1 : 20



SECTION B-B

SCALE 1 : 20

GENERAL NOTES:

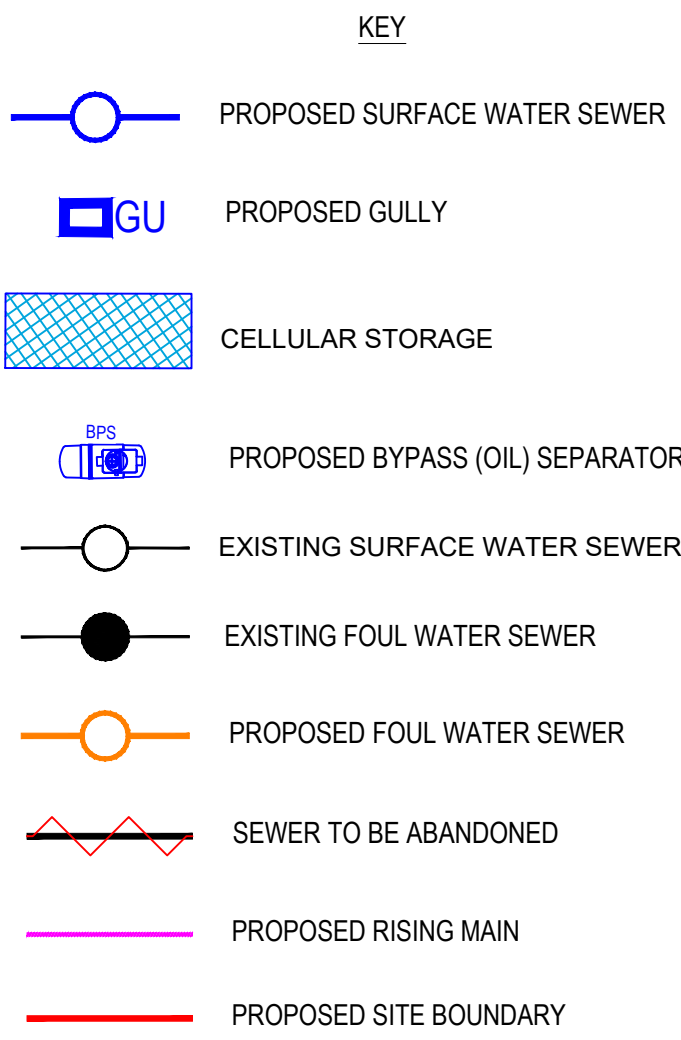
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.

Drawn by
MI

Checked
by
SK

No.	Description	Date
C1	ISSUED FOR CONSTRUCTION	06.11.2024

PROJECT	TOWER WHARF	SUBSTRUCTURE DETAILS	Project Ref:	2500
CLIENT		DRAWING REF:	REV	Scale (@ A1)
		2500-SK-XX-XX-DR-S-0100	C1	1 : 20
			Date	OCT'23



MH	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Link	IL (m)	Dia (mm)
RE10	561439.342	175109.446	4.250	1.088	1200	1.000	3.162	300
S20	561462.288	175131.465	4.220	1.270	1200	1.000 1.001	2.950 2.950	300 300
Ex. SMH2	561450.371	175145.479	4.160	1.350	1200	1.001 1.002	2.810 2.810	300 300
S30	561433.359	175172.739	4.190	1.648	1200	1.002 1.003	2.542 2.542	300 300
Ex. SMH3	561419.765	175187.146	4.100	1.723	1200	2.001 1.003 1.004	2.531 2.377 2.377	300 300 300
RE20	561424.983	175119.913	4.160	0.871	1200	2.000	3.289	300
S70	561388.743	175160.529	4.160	1.389	1200	2.000 2.001	2.771 2.771	300 300
Ex. SMH4	561388.496	175224.698	4.100	2.626	1200	1.004 1.005	1.474 1.474	300 300
FCC-Pump	561379.366	175229.945	4.100	2.724	1500	1.005	1.426	300
Rising Main						1.006	2.500	80
Ex. SW Outfall Break MH	561476.223	175313.076	3.500	2.810	1200	1.006	0.690	

- NOTES:
- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS AND ARCHITECT'S DETAILS. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT BRITISH STANDARDS AND ALL APPLICABLE BUILDING REGULATIONS AND WITH SEWERS FOR ADOPTION 6TH EDITION GUIDANCE.
 - PIPE POSITION, DEPTH, LEVEL, SIZE AND USE OF EXISTING SEWERS TO BE CONFIRMED ON SITE. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.
 - ALL UNCOVERED AND SHALLOW PIPEWORK TO BE PROTECTED AGAINST CONSTRUCTION TRAFFIC AS PART OF THE CURRENT BRITISH STANDARDS AND ALL APPLICABLE BUILDING REGULATIONS. COVER LEVELS SHOWN ARE APPROXIMATE ONLY. SUBJECT TO THE ARCHITECT'S EXTERNAL WORKS AND LANDSCAPING SCHEMES.
 - ALL CONNECTIONS TO ROAD GULLIES AND CHANNELS SHALL BE 150MM NOMINAL BORE PIPEWORK. CONNECTIONS TO EXISTING 150MM AND 225MM BORE MAINS SHALL BE SUBJECT TO CONFIRMATION OF RWP SIZES AND/OR DESIGN FLOW. NO PIPE WORK TO BE DOWNSIZED IN THE DIRECTION OF FLOW.
 - ALL CONNECTIONS TO 750MM BORE MAINS SHALL BE 150MM NOMINAL BORE PIPEWORK SUBJECT TO CONFIRMATION OF ABOVE GROUND PIPE DIAMETERS AND/OR DESIGN FLOW.
 - NO PIPE WORK TO BE DOWNSIZED IN THE DIRECTION OF FLOW.
 - ALL PIPEWORK TO BE VITRIFIED CLAY UNLESS OTHERWISE STATED.
 - ALL PIPES CONNECTING TO ADOPTED MANHOLES UP TO AND INCLUDING 300MM DIA. TO BE VITRIFIED CLAY.
 - ALL MANHOLE CONNECTIONS TO 150MM AND 225MM DIA. MANHOLES GREATER THAN 300MM DIA. TO BE CONCRETE.
 - ALL PIPEWORK ENTERING AND EXITING MANHOLES TO BE CONNECTED WITH 90° ELBOWS. ALL MANHOLES TO BE SHARED.
 - PRE-FORMED CHANNELS TO BE USED AT ALL MANHOLES. HIGH STRENGTH CONCRETE BENCHING TO BE STEEL.
 - ALL PIPES WITHIN A DRAINAGE AREA TO BE SHARED AND FINISHED TO ALL BRANCH CONNECTIONS AND LAID IN ACCORDANCE WITH THE SPECIFICATION.
 - ALL PIPES TO BE Laid TO A DRAINAGE CONNECTION OF FLOW.
 - ALL MANHOLE COVERS AND FRAMES TO BE DUCTILE IRON HEAVY DUTY GRADE D400 DOUBLE TRIANGULAR TO BS EN 12420 UNLESS OTHERWISE STATED. COVERS TO BE LABELLED 'T'LY AND 'SW' AS APPROPRIATE.
 - GULLY TOPS AND MANHOLE COVERS TO BE PROVIDED IN ACCORDANCE WITH THE SPECIFICATION.
 - ALL MANHOLE COVERS LOCATED INTERNALLY, TO BE RECESSED, DOUBLE SEAL, AIRTIGHT TYPE, ALUMINIUM OR STEEL. DEPTH TO ARCHITECT'S REQUIREMENTS TO SUIT FINISHES ETC.
 - ALL NEW DRAINAGE TO BE CONSTRUCTED ADJACENT NEW AND EXISTING TRENCHES TO BE CONSTRUCTED TO RESIST ROOT ACTIVITY USING ROOT PROTECTANT, ROOT BARRIER MATERIAL BY GREEN-TECH. ALL IN ACCORDANCE WITH THE ENGINEERS REQUIREMENTS.
 - FIRST FLEXIBLE, COT IN PIPES, SUBJECT TO A MANHOLE SHALL BE 600MM MAX. FROM INSIDE FACE OF MANHOLE. CONNECTIONS TO ROCKERS FOR PIPE DIAMETERS 150MM AND 225MM. ROCKERS FOR PIPE LENGTHS 150MM, 225MM, 300MM AND FOR PIPE DIAMETERS 450MM - 675MM THE ROCKER PIPE LENGTH SHALL BE 750MM - 1000MM.
 - ALL PIPES WITHIN 600MM OR GREATER THAN 600MM DIA. SHALL BE FITTED WITH GUARD BARS, SAFETY CHAINS OR OTHER APPROVED SAFETY DEVICES.
 - ALL EXISTING FORMER DRAINAGE WHICH IS ABOVE OR ORIGINAL GROUND LEVEL, LEVELS ARE TO BE MADE UP WITH COMPACTED DTP TYPE 2 MATERIAL OR BETTER.
 - PRIVATE DRIVEWAYS TO BE PROVIDED IN PUBLIC AREA HIGHWAY AND EXCEED TWO PARKING BAYS IN AREA ARE TO BE PROVIDED WITH A SUITABLE GULLY OR DRAINAGE CHAIN TO PROVIDE ADEQUATE DRAINAGE TO THE HIGHWAY.
 - ALL BURIED CONCRETE MUST CATER FOR CLASS 2 WITH CRACKED CONDITIONS IN ACCORDANCE WITH TABLE 1 OF BRE DESIGN 363.
 - CONCRETE PROTECTION SHALL BE PROVIDED TO ALL PIPES WITHIN 300MM COVER IN PEDESTRIAN AREAS, TO ALL PIPES WITH LESS THAN 600MM COVER IN PRIVATE DRIVEWAYS NOT USED BY COMMERCIAL VEHICLES, AND TO ALL PIPES WITH LESS THAN 600MM COVER IN PUBLIC OR PRIVATE DRIVEWAYS USED BY COMMERCIAL VEHICLES.
 - WHERE CONCRETE SURROUND IS SPECIFIED FLEXIBILITY OF BURE BE MAINTAINED. ALL CONCRETE TO BE COMPRESSED BITUMEN IMPREGNATED FIBREBOARD AT EACH POINT.

P04	PUMP LEVELS UPDATED	28.05.25	RL
P03	UPDATED TO AS-BUILT AND EXISTING MANHOLE INVERT LEVELS. PUMP ADDED	24.05.25	RL
P02	UPDATED TO CLIENT COMMENTS	14.02.25	RL
P01	INITIAL ISSUE	13.02.25	RL
Rev.	Amendments	Date	By

Revisions



Client:



Project:
SEACON TERMINALS, TOWER WHARF
NORTHFLEET, KENT, DA11 9BD

Title: DRAINAGE STRATEGY PLAN

At original size A1

Status: PRELIMINARY	Drawn By: RDL	Date: 13.02.2025	Scale: 1:300
Drawing No.: M25100-XX-D-XX-0500			Rev: P04

Care to be taken while constructing the highway and drainage, not to damage any existing boundary/retaining wall. Wall will need to be assessed prior to any construction works.

NOTE
Design is based on information provided by the client, including site topographical survey and FFL that has been set on site.
Scheme is subject to obtaining S106 connection approval from the public Sewerage Undertaker.

A P P E N D I X B

Photographs of Site Formation



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



APPENDIX C

Chemical Test Certificates of Imported Materials

Site Analytical Services Ltd.



Site Investigations, Analytical & Environmental Chemists, Laboratory Testing Services.

Units 14 + 15, River Road Business Park,
33 River Road, Barking, Essex IG11 0EA

Directors: J. S. Warren, M.R.S.C., P. C. Warren, J. I. Pattinson, BSc (Hons), MSc
Consultants: G. Evans, BSc., M.Sc., P.G. Dip., FGS., MEnvSc. A. J. Kingston, BSc C.Eng. MIMM
F. J. Gibbs, F.I.B.M.S. F.I.F.S.T., F.R.S.H. K. J. Blanchette

Tel: 0208 594 8134

Fax: 0208 594 8072

E-Mail: services@siteanalytical.co.uk

Your Ref:

ORDER NO. AWAITED
NICK TOLHURST

Our Ref:

24/38619-2
JSW/LB

SAMPLE OF 'CRUSHED CONCRETE'

SUBMITTED BY RAW LIMITED

RECEIVED ON 3rd JULY 2024

INTRODUCTION

A sample of the above material was received into the laboratory for determination of particle size distribution for compliance with the grading requirements of the Department for Transport Specification for Highway Works. Volume 1. Series 600. Table 6/5. Class 6F5 Material.

RESULTS

The results obtained are presented on Table 1 and graphically attached.

COMMENTS

From the results obtained, it can be seen that the sample as submitted does comply with the grading requirements for Class 6F5 Material.

p.p. SITE ANALYTICAL SERVICES LIMITED

12th JULY 2024

J S Warren M.R.S.C.
DIRECTOR



Reg. Office: Units 14 +15, River Road Business Park,
33 River Road, Barking, Essex IG11 0EA
Business Reg. No. 2255616





TABLE 1
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

B.S. TEST SIEVE		% BY MASS PASSING	SPECIFICATION REQUIREMENTS CLASS 6F5
125	mm	100	100
90	mm	100	
80	mm	94	75 - 99
75	mm	89	
63	mm	83	
50	mm	63	
40	mm	58	50 - 90
37.5	mm	58	
31.5	mm	54	
28	mm	52	
20	mm	52	30 - 75
16	mm	44	
14	mm	40	
10	mm	38	15 - 60
8.0	mm	34	
6.3	mm	33	
5.00	mm	30	
4.00	mm	28	
3.35	mm	28	
2.80	mm	26	
2.00	mm	25	0 - 35
1.18	mm	23	
1.00	mm	21	
600	micron	18	
500	micron	17	
425	micron	16	
300	micron	12	
250	micron	10	
212	micron	9	
150	micron	7	
125	micron	7	
75	micron	6.0	
63	micron	6.0	0 - 12

Moisture Content 6.0 % Dry Weight

Total Weight of Sample 84 kg

Client : RAW LIMITED

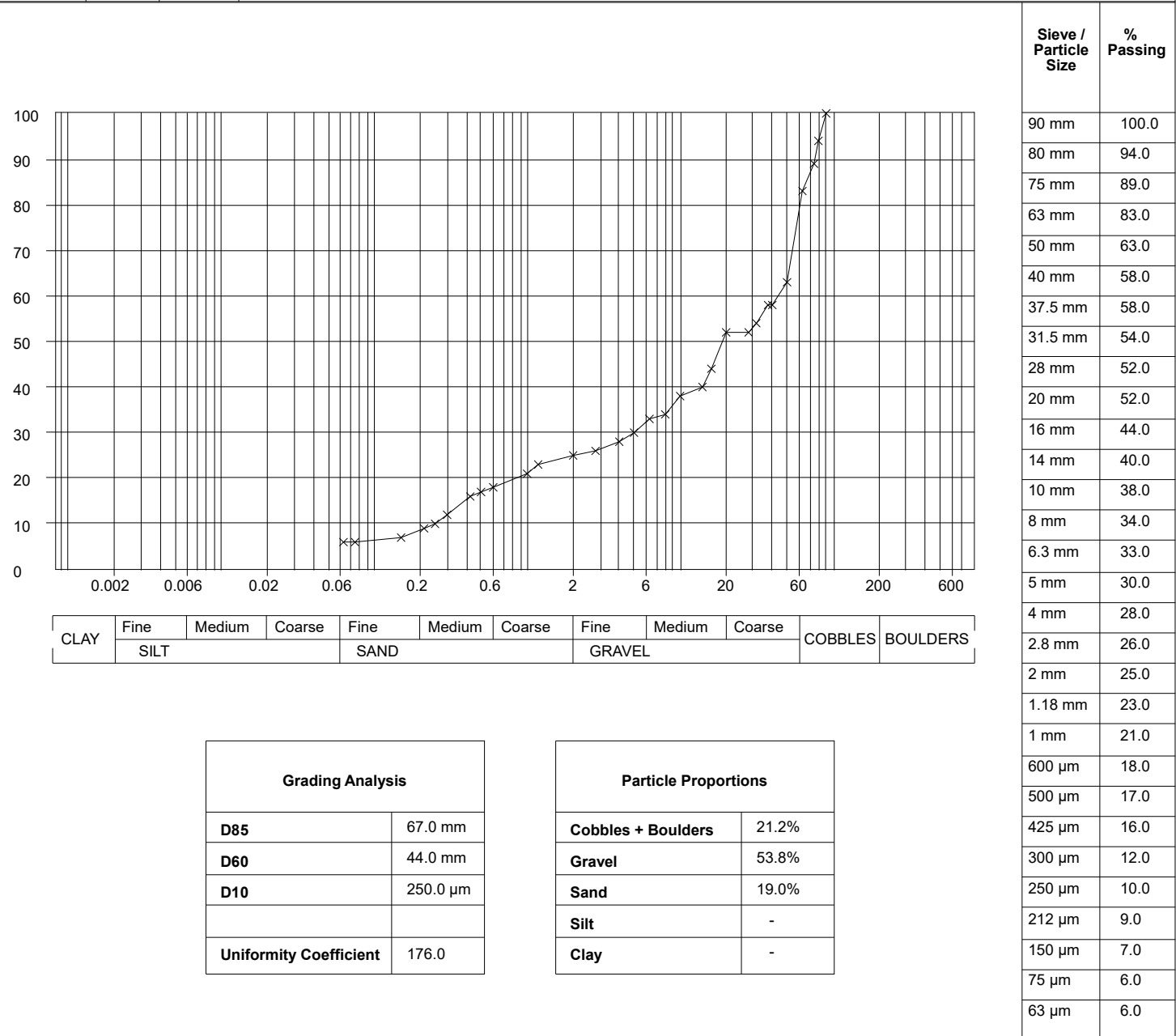
Engineer: DW

Job Number
2438619-2

Sheet
1/1

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
NA	0.00	6F5	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Client: KKB Group
Address: Alpha House, Culpeper Close
 Medway City Estate
 Rochester
Client Contact: Mr Craig Hore
Site: **Northfleet Selcon 2**

Report No: 1709/02
Your Ref: N/A
Report Date: 06/12/2024

Test Requested: Particle Size Distribution
Test Method: BS EN ISO 17892-4 (2016)

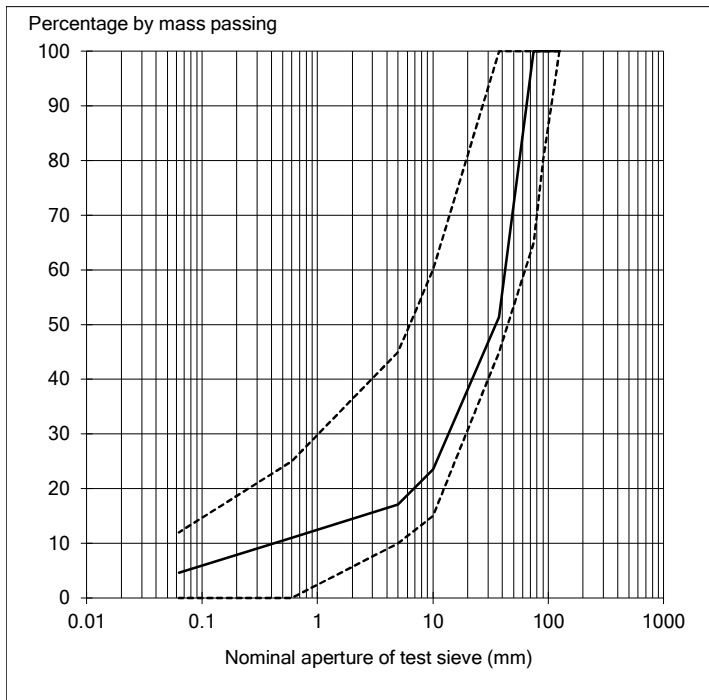
Sample Details: Sampled & submitted Client
 Client Ref: B1
 Laboratory Ref: 1709/02
 Date Sampled: 14/11/2024
 Date Received: 14/11/2024

Date Tested: 03/12/2024
Sample Mass (kg): 30
Sample Type: Bulk
Sampling Certificate: N/K
Sample source: N/K

Moisture Content: 5.6%
Material Type: 6F2
Material Specification: Specification for Highway Works, Series 600 (Table 6/2 Feb 2016)

Visual Description: Crushed CONCRETE

Decision Rule **PASS:** When the percentage passing a given sieve size is between the upper and lower limits given in the Materials Specification and listed in columns 3 and 4 below.
FAIL- Otherwise



BS Sieve (mm)	Passing (%)	Material Specification (%)	
90	100	80	100
75	100	65	100
63	76		
50	64		
37.5	51	45	100
28	41		
20	34		
14	28		
10	24	15	60
6.3	19		
5	17	10	45
3.35	16		
2	14		
1.18	13		
0.600	11	0	25
0.425	10		
0.300	8		
0.212	7		
0.150	6		
0.063	5	0	12

Approved K Baah, Laboratory Manager
 Approved P Baxter Quality Manager
 for and on behalf of Peter Baxter Associates Laboratories



A P P E N D I X D

Photographs of Gas Membrane and Concrete Slab

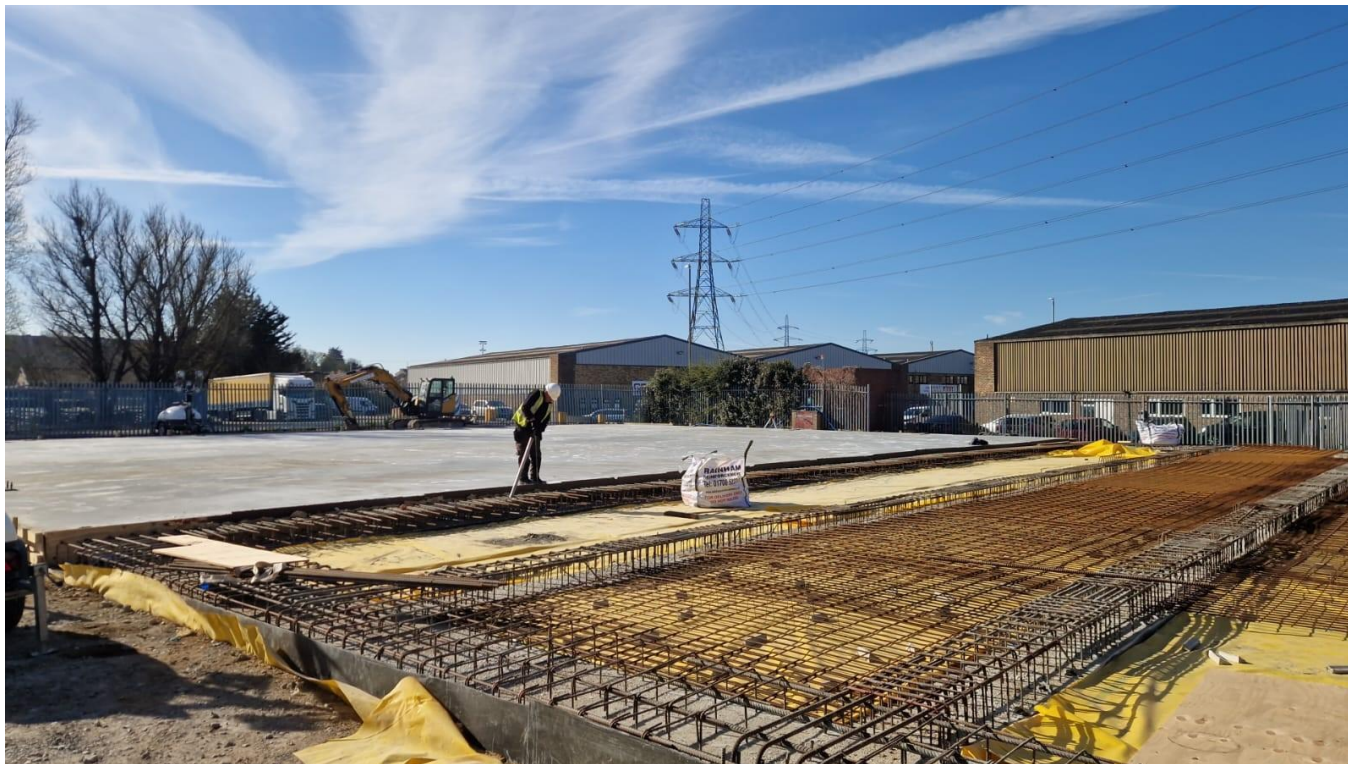


Photo 1



Photo 2



Photo 3



Photo 4

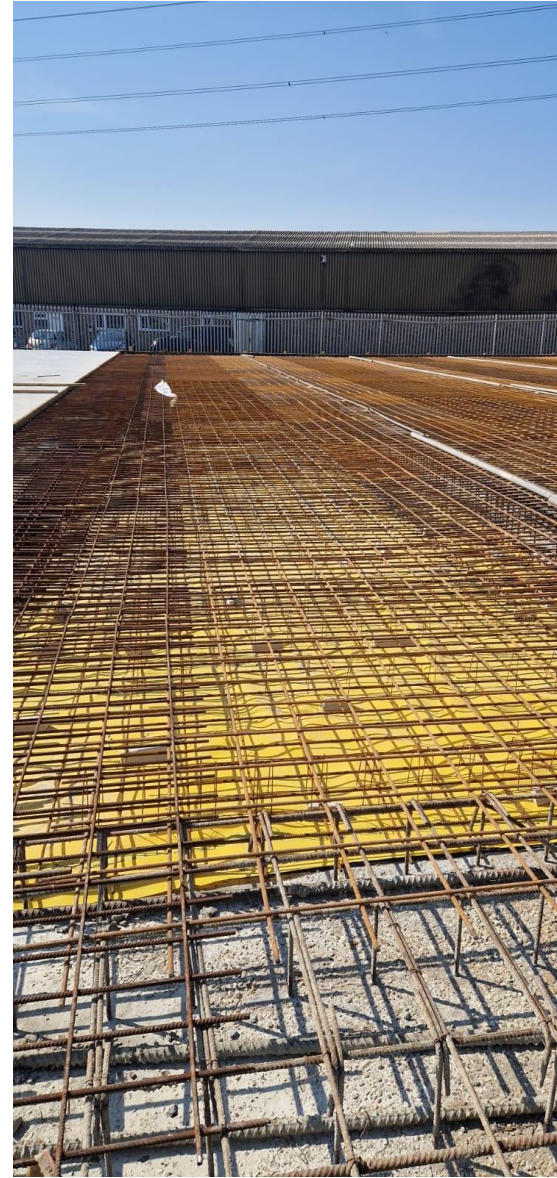


Photo 5



Photo 6

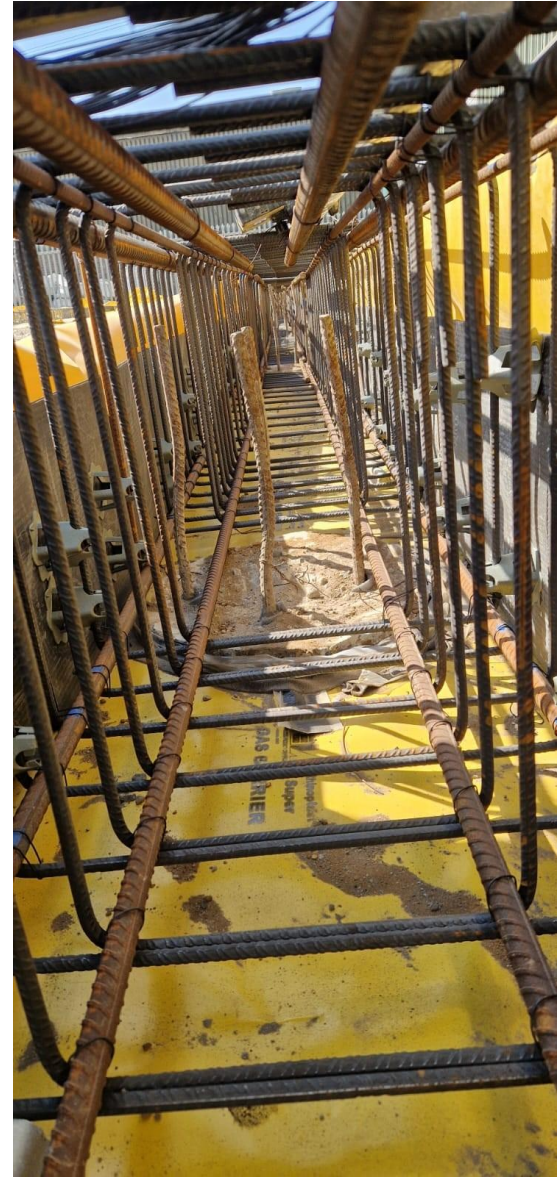


Photo 7



Photo 8



APPENDIX E

Letter from Groundwork Contractor



K5 Construction Limited

Innovation Centre, Maidstone Road, Chatham, Kent ME5 9FD
Tel: 01634 849398 | Email: info@theklairgroup.com

27th April 2026

Confirmation of Construction & Remediation-Related Information – Seacon Terminal, Northfleet

Dear Tom (Site Analytical)

Further to your email, please see below our formal confirmation of the construction-related information requested in support of the remediation strategy for the above site.

1. Watching Brief

We confirm that no formal watching brief was undertaken during the works. The slab was constructed over an existing crushed subbase derived from previous demolition activities. Excavation works were minimal due to the piled foundation design, and all slab formation works were monitored by the contractor to ensure compliance with the project's structural requirements.

2. Discovery Strategy / Further Investigation Works

We confirm that no contamination, unusual ground conditions, or unforeseen materials were encountered during the course of the works. Existing drainage runs within the working area were inspected and confirmed to be intact, and no further investigation works were considered necessary.

3. Site Stripping & Waste Management

We confirm that the slab formation was predominantly constructed using on-site crushed demolition material. Imported materials were limited to drainage shingle only. Photographic records of the formation and construction process have been maintained and will be issued separately for your review.

4. Ground Gas Protection System

A gas-resistant membrane has been installed beneath the slab as a precautionary measure to mitigate any potential ground gas risk. Product details, installation information, and pictures will be provided. Installation was carried out in accordance with manufacturer's guidance and project specifications, with photographic evidence available to support verification. Relevant architectural and structural drawings for the slab are also available.

5. Imported Materials

Certification relating to the on-site crushed material is available. Relevant certificates and/or datasheets for imported materials, including drainage shingle, will be provided under separate cover.

6. Building Materials / Potable Water Pipe

We confirm that an existing 50mm potable water pipe within the site footprint was re-laid as part of the works, with no new pipework installed. Details relating to the pipe material and installation methodology can be provided as required.

For completeness, we confirm that the works were carried out in coordination with the project team, and that the construction approach, site conditions, and any relevant observations during the works were communicated with and understood by the client and associated parties at the time. No concerns were raised during the construction phase that required deviation from the agreed methodology.

All works were undertaken in accordance with the information available at the time and in line with project requirements.

Please let us know if any further information or clarification is required.

Kind regards,

Ricky Klair
Operations Director
K5 Construction Limited
r.klair@theklaigroup.com