GEO Environmental Engineering

GROUND INVESTIGATION &

REMEDIATION SUMMARY REPORT

PROPOSED RESIDENTIAL DEVELOPMENT OF

LAND AT FORMER IVY MILLS

WHITEHAVE, CUMBRIA

FOR:

GLEESON HOMES LIMITED

GEO Environmental Engineering

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DOCUMENT CONTROL SHEET

Report Ref:	2024-6566
Report Date:	17.01.2025
Report Type:	Draft Ground Investigation and Remediation Summary Report v1
Report Tracking:	17.01.2025 – Draft Report v1 Issued
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Client Title:	Gleeson Homes Limited
Consultant:	~

CONTENTS

1.0 Introduction

1.1 Brief

GEO Environmental Engineering Ltd (GEO) were commissioned by the Client, Gleeson Homes Limited to complete a summary of the previous ground investigation, remediation and validation reports that have been completed for the proposed residential development of land at Ivy Mills in Whitehaven, Cumbria.

The site has previously been investigated as two separate sites, known to the Client as Ivy Mills: Phase 1 and Ivy Mills Phase 2. However, the Client will develop both phases as a single development area. This summary report combines all previous reports for the full development area.

1.2 Site Location and Description

The combined site area, occupying c.2.1Ha is located in Hensingham to the east of Whitehaven as indicated on the site location plan in Appendix I. The site boundary is indicated in Figure 1 below which also includes the areas previously known as Phase 1 and Phase 2.

- National Grid Reference: 299086, 517049
- Post Code: CA28 8TP (approximate only)

Figure 1. Site Boundary and Phase 1 and Phase 2 Development Areas.

1.3 Proposed Development

It is understood that the Client plans to redevelop the site for residential end use with houses, private gardens, car parking, access roads with associated infrastructure. A proposed site layout plan is included in Appendix I.

1.4 Limitations of Use

This report provides a comprehensive summary of the salient details presented in the previous reports; however, it is recommended that the previous reports are read in full for design or planning purposes.

It should be borne in mind that ground conditions have the potential to vary between the exploratory hole locations to those identified. Therefore, it is recommended that the developer adopt a “watching brief” during the redevelopment works to ensure that any potential variations encountered are identified and dealt with in an appropriate manner.

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The conclusions and recommendations presented within this report are considered reasonable based on the available information. However, these cannot be guaranteed to gain regulatory approval. Therefore, the report should be passed to the appropriate regulatory authorities and/or other key stakeholders, including warranty providers in order to seek their approval of the findings prior to undertaking any development works.

The Report and its contents are limited to the boundaries of the site, as indicated on the Plans in Appendix I. Intellectual copyright remains the sole property of Geo Environmental Engineering Ltd.

2.0 Previous Report Details

The following section provides details of the previous reports which have been completed for the site. The reports are listed in chronological order for each development phase.

Phase 1 Area:

- Preliminary Environmental Risk Assessment by Elliot Environmental Surveyors Ltd, ref: EES16-131, dated: 7th March 2017.
- Phase 1: Desk Top Study by Geo Environmental Engineering Ltd, ref: 2019-3732, dated: June 2019.
- Phase 2: Ground Investigation Report by Geo Environmental Engineering Ltd, ref: 2019-3886, dated: 10th December 2019.
- Soil Infiltration Tests, by Geo Environmental Engineering Ltd, ref: 2021-4625, dated 9th February 2021.
- Remediation Strategy, by Geo Environmental Engineering Ltd, ref: 2021-4986, dated 8th December 2021.
- Revised Remediation Strategy & Supplementary Ground Investigation by Geo Environmental Engineering Ltd, ref: 2021-4986, dated: 27th April 2022.
- Risk Assessment Form for Water Supply Pipes v2 by Geo Environmental Engineering Ltd, ref: 2023-5765, dated March 2023.
- Radon Risk Assessment, by Geo Environmental Engineering Ltd, ref: 2023-5776, dated March 2023.

Phase 2 Area:

- Geoenvironmental Appraisal by Sirius Geotechnical Ltd, ref: C8049, dated: March 2021.
- Ground Gas Monitoring Addendum Letter by Sirius Geotechnical Ltd, ref: C8049/7851/APC, dated: 15th May 2021.
- Remediation Strategy by Geo Environmental Engineering Ltd, ref: 2022-5170, dated 27th April 2022.
- Ground Gas Protection System Verification Plan V1 by GeoEnginSeer Ltd Geological Services, ref: N/A, dated: 3rd May 2022.
- Ground Gas Verification Strategy Report by Geo Environmental Engineering Ltd, ref: 2022-5170, dated: 10th August 2022.
- Soil Screening Report (stockpile testing) by Geo Environmental Engineering Ltd, ref: 2022-5590, dated: 14th December 2022.
- Radon Risk Assessment, by Geo Environmental Engineering Ltd, ref: 2023-5776, dated March 2023.

Full Development Area (Phases 1 and Phases 2 combined)

- Revised Contamination Remediation strategy by Geo Environmental Engineering Ltd, ref: 2024-6320, dated 5th June 2024.
- Validation Report by Sirius Geotechnical Ltd, ref: SR4798/VR, dated: December 2024.
- Risk Assessment For Water Supply Pipes by Geo Environmental Engineering Ltd, ref: 2024-6320, dated 14th January 2024.

3.0 PREVIOUS REPORT SUMMARY

A summary of the previous findings is included below and on the following pages, however, it is recommended that the reports are read in full in conjunction with this report.

3.1 Summary of Reports for Phase 1 Area

Preliminary Environmental Risk Assessment - March 2017

The report was prepared prior to demolition of the former Romar Innovate Factory for a proposed residential end use. The factory occupied the western half of the Phase 1 area and comprised an extended mill building. Office blocks, car parking and cast-iron water tanks were also noted on site. Several potential sources of asbestos were noted within the building fabric. Surrounding land uses were noted as largely residential with a former Sekers Factory to the north east which had been demolished and a G&M supplies to the south west. An electrical sub-station was noted to the north.

Geological information indicated Glacial Till overlying solid strata of the Stainmore Formation (mudstone, siltstone and sandstone – Secondary Aquifer). No made ground was recorded on site, however, the report suggested that made ground would be present associated with the site former land use. The report dismissed any risks associated with shallow coal mining.

Historical information indicated that the site comprised agricultural fields until the early 1900s. The western part of the site was initially developed with a building and school and a drain was indicated along the western boundary. The site was later redeveloped as a factory for clothes manufacturing (work wear and Personal Protective Equipment) and the sub-station was constructed. Extensions were constructed during the 1960s and 70s.

The report indicated a low risk to human health from potential contamination but noted a potential health risk from asbestos within the fabric of the buildings. The report recommended a ground investigation to determine the ground conditions and any requirements for remediation.

Phase 1: Desk Top Study - June 2019.

The walkover was completed following demolition of the former factory. The site comprised a mixture of gravel and concrete hardstanding with piles of crushed concrete in the western part and an area of overgrown vegetation and trees in the east. An Electricity Sub-Station was present in the north of the site.

The report findings were generally similar to that of the previous report. Superficial drift was recorded as Glacial Till overlying solid strata of the Hensingham Grit (sandstone) and the Stainmore Formation (mudstone, siltstone and sandstone). A geological fault was recorded as passing through the site.

The report anticipated made ground and associated contamination across the western parts of the site. A negligible risk was deemed appropriate with respect to potential ground gasses.

The report suggested that conventional strip foundations may be appropriate within the natural drift deposits, subject to the results of an intrusive ground investigation.

Phase 2: Ground Investigation Report - December 2019.

The intrusive ground investigation comprised mini-percussive boreholes, trial pits, ground gas monitoring and laboratory analysis of soil and water samples. Made ground was encountered to depths of between c.0.30m and in excess of c.2.40m bgl. The deeper made ground was within the vicinity of the former factory in the western parts of the site and comprised areas of reworked clays with occasional anthropogenic material, occasional relict topsoil and gravel of demolition rubble, sandstone, slag and pottery with other anthropogenic materials. Evidence of former foundations or floor slabs was also noted within the vicinity of the former factory.

The eastern part of the site was surfaced with scrub vegetation and was underlain by sandy clay soil with occasional anthropogenic materials to a maximum depth of c.0.40m bgl. This area appeared to have remained undeveloped.

Evidence of possible hydrocarbon contamination was encountered within trial pit TPD within the western part of the site (former factory area). This was noted as a 'slight olfactory evidence of hydrocarbons'. However, no free product or oily sheen was noted, and chemical screening did not indicate elevated concentrations of petroleum hydrocarbons within the soils.

The made ground was underlain by natural sandy gravelly clays. Suspected shallow sandstone bedrock was encountered in the northern part of the site only. Localised perched groundwater was encountered at depths of between c.0.40m and c.2.20m bgl.

Ground gas monitoring indicated low concentrations of carbon dioxide and methane, therefore, gas protection measures were not deemed necessary.

The results of the chemical screening indicated elevated concentrations of metals (lead) and PAH compounds within the made ground in the western part of the site (former factory area). The report indicated that, although some made ground was identified in the eastern part of the site, no elevated contaminants were recorded, therefore, the made ground in this part was not deemed as a potential risk to the proposed end users.

The presence of very minor localised / perched hydrocarbon impacted groundwater and soils was not considered to pose a risk to the end users or Controlled Waters, however, the report recommended appropriate disposal of any hydrocarbon impacted soils/waters.

Soil Infiltration Tests - February 2021.

The investigation comprised 9 No. trial pits excavated to depths of between 0.65 and 2.20m bgl. Made ground was encountered to depths of between c.0.10m and c.1.30m bgl with occasional significant groundwater ingress. This was underlain by firm to stiff slightly sandy gravelly clay.

Soil infiltration tests were completed in four trial pits. The tests were completed over a period of c.5 hours. However, during the tests, the water level did not drop at all or dropped by a negligible amount which was considered insufficient for soak away drainage.

Given the ground conditions and the results of the soil infiltration tests, the site was not considered suitable for soak away drainage and it recommended that an alternative solution should be sought.

Remediation Strategy - December 2021.

The remediation strategy recommended delineation, excavation and removal of any hydrocarbon impacted soils. Where contaminated made ground materials were identified (former factory - western parts only), the report recommended the inclusion of a 600mm thick Clean Cover System for proposed gardens to remove the contamination pathway to the end user. The report recommended reducing this to 400mm thick in areas of general soft landscaping.

The report indicated that validation of the remediation works would be required upon completion to confirm that the works had been completed to a satisfactory standard.

Revised Remediation Strategy & Supplementary Ground Investigation - April 2022.

GEO returned to site in August 2022 (c.3 years later) to delineate the hydrocarbon contamination in the western part of the site (TPD). However, no visual, olfactory or analytical evidence of the contamination was encountered. It was considered likely that the contamination had been localised, limited in extent and therefore dispersed and degraded over the preceding three years after being disturbed during the ground investigation works.

The supplementary report concluded that remediation was required to mitigate the risk to human health from general soil contamination associated with the made ground in the western part of the site (former factory area). The report indicated that if any hydrocarbon impacted soils or groundwater was encountered, remediation would be required in order to protect the culverted water course and any offsite receptors.

Sampling of stockpiled topsoil material was completed and the samples scheduled to chemical laboratory screening. The results of the chemical screening confirmed that the materials do not pose a risk to human health and are suitable for re-use within a residential context.

Recommendations made within the previous report regarding the requirement for a Clean Cover System were still deemed appropriate and required as part of the proposed development.

Risk Assessment Form for Water Supply Pipes - March 2023.

Although no visual, olfactory or analytical evidence of hydrocarbon contamination was encountered during the supplementary ground investigation, GEO recommended that barrier pipe should be adopted for the proposed water supplies on the site due to the potential for other unidentified pockets of hydrocarbon contamination which may be present.

This recommendation was made prior to any remediation works and has subsequently been superseded by the Risk Assessment completed by GEO in January 2025.

Radon Risk Assessment - March 2023.

The British Geological Survey and UK Health Security Agency completed a re-assessment of radon risks and updated the radon map in December 2022. Therefore, a re-assessment was considered necessary in this respect. GEO acquired an up-to-date Ground Sure Report (GSR) for the site in February 2023.

The assessment indicated that basic radon protection measures are now required across the Phase 1 area (Full radon protection measures were deemed necessary for the phase 2 area).

3.2 Summary of Reports for Phase 2 Area

Geoenvironmental Appraisal - March 2021

The walkover was completed following demolition of the former textile factory and found that the site was primarily surfaced with crushed stone, partly overgrown with self-seeded vegetation. An access road was present along the southern boundary.

Historical information indicated that the site was undeveloped agricultural fields until the 1950s when an industrial building (Silk Mills) was developed in the north western parts. During the 1960s and 1970s, the site and adjacent land to the north-west was further developed with textile mill buildings and associated infrastructure. Reprofiling of the land was completed to facilitate the development. Tanks were recorded in the western quarter of the site and an above ground structure, thought to be an oil storage tank was located centrally. The factory closed in 2006 and was demolished in 2010. Adjacent land to the north was developed with a care home.

The intrusive investigation comprised trial pits, trenches, mini-percussive boreholes, gas and groundwater monitoring and laboratory analysis of soil samples.

Three large stockpiles were present in the west of the site. This included crushed recycled aggregate, asphalt, and topsoil.

The investigation encountered made ground to depths of between c.0.30m and in excess of c.2.20m bgl (typically less than c.1.00m). The made ground was locally absent in the east where the land had not been developed previously. The made ground was more extensive and deeper across the southern and western parts (former factory areas) where it typically comprised clayey gravel of concrete, slag, sandstone and brick and reworked gravelly clays. Evidence of former foundations was also noted.

The deepest area of made ground was encountered in the central-southern part of the site. The made ground exceeded c.2.20m depth and comprised gravel of sandstone, brick and concrete overlying silty/clayey gravelly sand and gravel of slag. Evidence of possible hydrocarbon contamination was also encountered in the central-southern and western parts where it was noted an odour of hydrocarbon and as oily sheen on the perched groundwater within the made ground.

The natural deposits typically comprised gravelly clays. Perched groundwater was encountered at depths of between c.0.90m and c.3.00m bgl during the fieldwork. Suspected sandstone bedrock was encountered at shallow depth in the south west parts.

The contamination screening did not identify any elevated metals or organic contaminants with regards to human health. However, the report indicated that the made ground was strongly alkaline and recommended remediation in this respect.

The mounds of crushed recycled aggregate and asphalt were found to include asbestos fibres. The asphalt was also found to include coal tar binder. A surface mound of asbestos contaminated materials was also noted in the east of the site on the access road.

Elevated concentrations of petroleum hydrocarbons were recorded locally within the groundwater, however, the report recommended a cautious approach as there was no indication that the impacts from the hydrocarbon contamination extend beyond the deep made ground. The report concluded that the risk to controlled waters was negligible.

Ground Gas Monitoring Addendum Letter - May 2021

A letter report was issued by Sirius following completion of the ground gas monitoring (6 No. occasions between December 2020 and April 2021). The monitoring encountered elevated concentrations of methane and carbon dioxide.

The report recommended basic gas protection measures in line with Characteristic Situation 2 (CS2).

Ground Gas Protection System Verification Plan V1 - May 2022
Ground Gas Verification Strategy Report - August 2022

The reports outline the protection measures required to mitigate the risks to the end users from possible ground gasses, the installation requirements and techniques used for verifying that the installation has been completed to a satisfactory standard.

Soil Screening Report (stockpile testing) - December 2022

Three large stockpiles were present in the west of the site. This included crushed recycled aggregate, asphalt, and topsoil.

Testing of the mounds by GEO in 2022 confirmed the presence of trace quantities of asbestos within the crushed demolition rubble. However, the report indicated that consideration could be given to reusing the materials where it is encapsulated to mitigate any risks to human health. The report indicated that the materials should not be used beneath gardens or soft landscaping (unless suitable remediation works are undertaken to mitigate the risks to human health).

The mound of topsoil was found to be visually and chemically suitable for reuse within a residential context.

Sampling and chemical screening of the asphalt material was completed to aid disposal, i.e. to determine a suitable landfill criteria and approximate costs.

Radon Risk Assessment - March 2023

The British Geological Survey and UK Health Security Agency completed a re-assessment of radon risks and updated the radon map in December 2022. Therefore, a re-assessment was considered necessary in this respect. GEO acquired an up-to-date Ground Sure Report (GSR) for the site in February 2023.

The revised assessment indicated that full radon protection measures are required for the proposed development (Bull radon protection measures were deemed necessary for the phase 1 area).

3.3 Summary of Reports for the Full Development Area (Phases 1 and 2)

Revised Contamination Remediation Strategy - June 2024

The revised Remediation Strategy was based on all previous investigation information.

With regards to re-use of the stockpiled materials, the following advice was provided:

- Consideration could be given to re-using the crushed concrete materials within Mound 1 for raising levels across the site. However, due to the presence of trace quantities of asbestos, the granular material should not be left exposed at the surface. The report recommended placement beneath roads and hardstanding or beneath proposed soft landscaping and private gardens if suitable remediation and protection measures are put in place (Clean Cover System).

- Consideration could be given to re-using the asphalt in Mound 2. However, as laboratory testing confirmed the presence of coal tar, re-use of this material should be strictly within the guidelines set out by the Environment Agency (EA) in accordance with 'Regulatory Position Statement 075'. This indicates that some coal tar can be used as a base, sub-base or binder within proposed roads or hardstanding however, surface applications are not allowed.

- Consideration can be given to reusing the topsoil materials within Mound 3 for proposed gardens and areas of soft landscaping. However, careful inspection of the materials is recommended to ensure that any possible contamination or unsuitable materials are set aside for further investigation and not re-used on site. Care should also be taken by the principal Contractor to ensure cross-contamination does not occur.

The report recommended further investigations to delineate the deep made ground, determine the extent of the slag and any associated geotechnical risks and to assess any risks associated with possible hydrocarbon contamination. These works would need to be completed following removal of the mounds, and it was therefore, recommended that the works are completed by the Remediation Principal Contractor during the remediation works.

The report recommended that all former foundations and floor slabs should be delineated and grubbed out prior to development as part of the remediation works. The report recommended inspection for possible hydrocarbon impacted waters within the former structures and possible asbestos materials. The report recommended crushing and re-use of any suitable materials that are free of suspected asbestos.

The report recommended a remediation within the proposed gardens to mitigate the risks to the end user from contaminated made ground. The report recommended a combination of Clean Cover thicknesses or removal of the made ground as indicated below:

- Phase 1, Former Factory Area:
  - 600mm thick Clean Cover required in private rear gardens.
  - 300mm thick Clean Cover required in front gardens and areas of general soft landscaping.
  - Where made ground was thin, consideration could be given to removing the made ground entirely.

- Phase 1 , Undeveloped Area:
  - Remediation was not deemed necessary in this section. However, it was considered prudent to incorporate a minimum c.100mm of topsoil at the surface.

- Phase 2 Area:
  - 300mm thick Clean Cover in front, rear and side gardens and areas of soft landscaping.

Details of the Clean Cover Systems were provided in the Revised Remediation report.

The report indicated variable requirements for gas protection measures across the site as indicated below:

- Phase 1 Area:
  - Basis radon protection measures are required.
  - No gas protection measures are required with respect to methane or carbon dioxide.

- Phase 2 Area:
  - Full radon protection measures are required.
  - Gas protection measures in line with Characteristic Situation 2 are required.

Due to the localised pockets of minor hydrocarbon contamination identified across the development area, barrier pipe was recommended for potable water supplies on site. This recommendation was made prior to any remediation works and has subsequently been superseded by the Risk Assessment completed by GEO in January 2025.

Validation Report - December 2024

Sirius completed remediation of the site between September and November 2024. A watching brief for evidence of previously unrecorded contamination was maintained by the Sirius Site Management Team and GEO throughout the course of the remedial and preparatory earthworks.

The works were also inspected independently on a part time basis by an Engineer from Geo Environmental Engineering Ltd but were wholly the responsibility of Sirius. Sirius have provided a Validation Report, which is summarised within this report and contained within as an appendix. This report is therefore suitable for submission to the Local Planning Authority to assist with discharging contaminated land conditions.

The remediation works designed, managed and implemented by Sirius comprised:

- Removal of all scrub vegetation and organic materials and Tree Preservation Areas were established.

  - Invasive species including Hollyberry Cotoneaster and Montbretia were identified on site and these areas cordoned off. The impacted soils were excavated and disposed of off-site to a suitably licenced wate transfer facility. The works were undertaken for Gleeson and Sirius under supervision from Eskdale Environmental Ltd

- Delineation and removal of all remnant floor slabs, foundations and areas of hardstanding. The materials were crushed to produce a suitable material for re-use on site (beneath proposed roads).

- Delineate and excavate areas of slag in the phase 2 area. Laboratory testing confirmed that the slag was non-expansive, therefore, the slag was placed within deep excavations within the proposed gardens. The slag was capped by at least 1m of clay soils.

- Supplementary investigations were undertaken during the remediation works. An area of hydrocarbon impacted soils were identified. These were delineated and removed off site to an appropriate landfill.

- The existing mound of crushed concrete in the Phase 2 area was placed beneath the proposed roads. Three samples of the material were screened by Sirius for asbestos prior to the works. No asbestos was detected in any of the samples, and Sirius deemed that the material was suitable for re-use within the development.

- A mound of crushed concrete present in the Phase 1 Area (recently deposited) was tested and this identified trace quantities of chrysotile asbestos fibres. However, subsequent quantification testing on the samples confirmed concentrations of chrysotile asbestos of <0.001% by mass and was therefore suitable for re-use. Air monitoring was completed during the works to ensure no asbestos fibres were being released.

- The remaining road in the Phase 2 area was grubbed out. The surface asphalt was found to contain coal tar residue and was, therefore, disposed offsite to an appropriate landfill along with the mound of coal tar asphalt already present on site.

- Topsoil materials present on site have been stockpiled for use by Gleesons. No testing has been completed on the stockpiled materials to confirm suitability for re-use.

- The base of excavation was surveyed throughout the remediation works. Sirius have provided a composite plan indicating the base of excavation and the thickness of the fill materials on site.

- Cut and fill works in the vicinities of the buried utilities (gas, water and electricity) could not be completed. These areas are indicated on the plans by Sirius.

- The earthworks were completed to provide a suitable platform for the proposed development. The finished levels were left low to accommodate the proposed development by the Client. The reduced ground levels varied between 300mm and 600mm.

    - The finished levels do not include any Clean Cover at the surface. The earthworks levels were left low to accommodate the proposed clean cover system by the Client.

- Sirius indicate the following works are still required to complete the remediation works:

    - Clean Cover Systems within the proposed gardens and areas of soft landscaping.

    - Installation and validation of ground gas protective measures within the buildings.

- Laboratory Geotechnical testing was completed to classify the materials on site for re-use and to aid the design of a suitable earthworks specification.

- In-situ Hand Shear Vane (HSV) tests were completed to confirm shear strengths during the earthworks.

- In-situ geotechnical tests including Plate Load Tests (PLTs) and Dynamic Cone Penetrometer (DCP) tests were completed following completion of the earthworks for reassurance of appropriate earthwork fill and to provide CBR values along the highway formation.

- The remediation works were constrained by several factors including:

    - An overall shortfall in materials to achieve the required levels.

    - Cut and fill works were limited in the areas of buried water pipes along the west, east and south-east boundaries of the site

    - Cut and fill works were limited by the medium pressure gas supply pipe on the northern boundary of Phase 2.

- Works were limited in the vicinity of the existing electrical sub-station.
- Works were limited within the tree preservation zones.

Risk Assessment Form for Water Supply Pipes - January 2025.

Due to the potential for unidentified contamination associated with the former development and the presence of minor localised pockets of hydrocarbon contamination, the previous risk assessment for water pipes recommended barrier pipe throughout the development. However, comprehensive remediation works have subsequently been completed on the site and the assessment has now changed as indicated below.

Following remediation works by Sirius in 2024, remnants of the former development (foundations and floor slabs) were grubbed out and any hydrocarbon impacted soils were excavated and disposed of offsite. The finished levels were achieved using reworked clay soils. No evidence of any hydrocarbon impacted soils were encountered within the reworked soils and the risk to the water supply pipes is now considered negligible. As such, standard PE pipes are now considered suitable within the proposed development.

4.0 Remediation Works Required During Development

4.1 Remediation Works Summary

The remediation works completed by Sirius are now complete and facilitate the proposed development. However, Clean soils will be required for the proposed gardens as part of the proposed Clean Cover System, as per the agreed Remediation Strategy. Typically, the clean cover system (within garden areas) would be completed towards the end of the development (potentially on a plot-by-plot basis) and prior to handover and occupation of the properties. No properties should be occupied until the Planning Authority and Warranty Provider are satisfied and have agreed that appropriate remediation has taken place.

Finished earthwork levels have been left low to accommodate the proposed Clean Cover as indicated below:

- Finished levels have been left 600mm low within the proposed gardens in the Phase 1 area to accommodate the Clean Cover System.
- Finished levels have been left 300mm low within the proposed gardens in the Phase 2 area to accommodate the Clean Cover System.

All materials brought on to site that are to be used as part of the clean cover should also be tested with results being evaluated against the human health assessment criteria.

Radon and ground gas protection measures will need to be installed within the proposed houses as indicated below and in accordance with the ground gas verification plan. Verification inspections will be required following the installation to satisfy the Local Planning Authority and building warranty provider.

- Basic radon protection measures will be required within the Phase 1 area.
- Full radon protection measures and gas protection measures in line with CS2 will be required within the Phase 2 area.

Given the remediation works, standard water supply pipes are now considered suitable.

If topsoil is brought on to site, the materials should be as specified in BS 3882:2015 as ‘suitable for the intended purpose’. BS3882:2015 relates to nutrient content of topsoil and phytotoxic contamination and does not consider contaminants that pose a risk specifically to human health. Soils should be tested for contaminants that are considered to pose a risk to human health in addition to BS3882:2015 to ensure that they are suitable for their intended use. All materials brought on to site that are to be used as part of soft landscaped areas should be assessed with regards to human health criteria.

4.2 General Comments

Consideration must be made for variations to occur in the ground conditions between the exploratory hole locations for which GEO holds no responsibility and areas where limited access was available. It is therefore recommended that a “watching brief” and “observational technique” be applied to this site to ensure that if ground conditions appear to vary from those identified within this investigation report then advice should be sought from a suitably qualified and experienced Engineering Geologist, Geotechnical or Geo-Environmental Engineer.

The recommendations and opinions expressed in this report are based on the strata observed within the exploratory holes in addition to the results of the site and laboratory tests commissioned by GEO. Consequently, GEO takes no responsibility for conditions that have not been revealed or which occur

between them. GEO takes no responsibility for the accuracy of third party information provided by sub-contract drillers or laboratories.

The conclusions and recommendations presented within this report are considered reasonable based on the available information. However, these cannot be guaranteed to gain regulatory approval. Therefore, the report should be passed to the appropriate regulatory authorities and/ or other key stakeholders including warranty providers in order to seek their approval of the findings prior to undertaking any works on site.

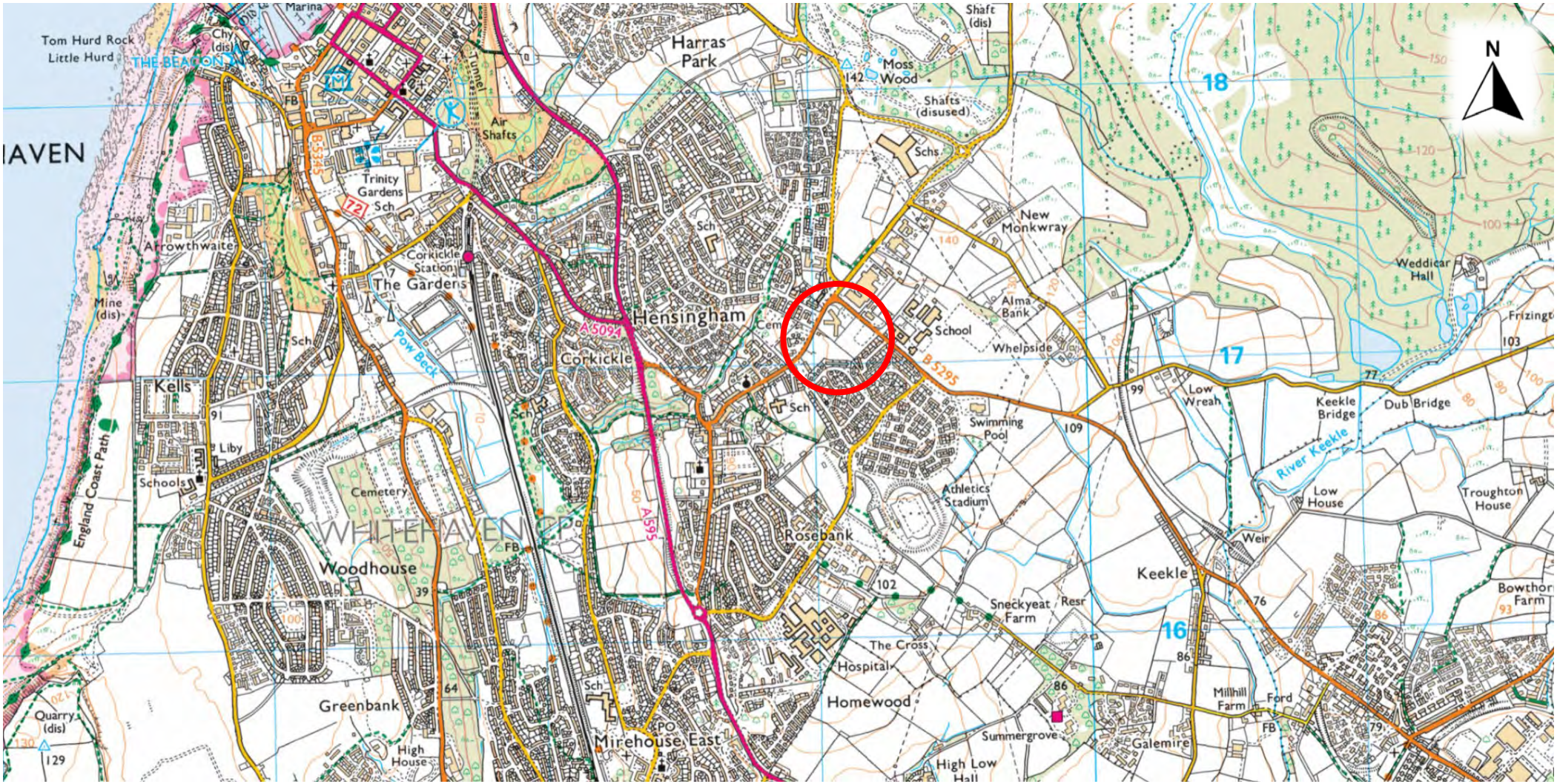
End of Report

Appendix I

- Site Location Plan
- Exploratory Hole Location Plan

GEO
Environmental Engineering

GEO2024-6566: Ivy Mills, Main Street, Hensingham, Whitehaven – Site Location



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0m 5m 10m 20m 30m 40m 50m 100m

SCALE BAR @ 1:500

KEY

- 1.8m HIGH TIMBER SCREEN FENCE TO SEPARATE DETAIL
- 1.8m HIGH TIMBER SCREEN DIVISIONAL FENCE TO SEPARATE DETAIL (AS ABOVE DETAIL)
- 1.8m HIGH SCREEN WALL TO SEPARATE DETAIL
- PROPOSED TREE PLANTING
- EXISTING TREES TO BE REMOVED
- BIN COLLECTION POINTS
- SHARED DRIVE
- AS / OPP 'AS' AND 'OPP' HANDINGS OF HTs

SCHEDULE OF ACCOMMODATION

TYPE	DESCRIPTION	SQ.FT	No.
201	2 bed semi-det.	651	4
211	2 bed semi-det.	651	3
301	3 bed semi-det.	759	14
303	3 bed semi-det.	772	8
340	3 bed semi-det.	839	3
353	3 bed detached	904	9
337	3 bed detached	864	2
359	3 bed detached	984	6
450	4 bed detached	1156	7
435	4 bed detached	1221	7
TOTAL		**56,283 SQ.FT**	**63No.**

REV	DESCRIPTION	DATE
B	UPDATED TO LATEST LAYOUTS.	10.04.24
A	PLOT 38 OMITTED AND 36 & 37 ON PHASE 2 AMENDED.	15.04.22

GLEESON HOMES & REGENERATION

DRAWING
PLANNING LAYOUT (COMBINED)

PROJECT
IVY MILL, WHITEHAVEN

SCALE	1:500@A1	REV. B	DRAWING No.
DATE	DEC 2021		MJG/PL-112-6
DRAWN	TWENTY10		

TWENTY 10
DESIGN AND PLANNING
Twenty10 Management Limited, 62 Hawkshead Avenue, Euxton, Chorley, Lancashire. PR7 6NZ
Tel: (01257) 277 100 Email: info@twenty10.biz Fax: (01257) 266 911

IVY MILL, WHITEHAVEN (COMBINED LAYOUT)

Appendix II

- Sirius Validation Report
- Plan – Depth of Fill

SR4798/VR VALIDATION REPORT
December 2024

For land at
IVY MILLS, WHITEHAVEN

prepared for
GLEESON HOMES LIMITED

REPORT NUMBER:	SR4798/VR	**REPORT STATUS:**	FINAL
REPORT TYPE:	VALIDATION REPORT FOR REMEDIAL AND PREPARATORY WORKS		
REPORT DATE:	DECEMBER 2024		
SITE:	IVY MILLS, WHITEHAVEN		
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VALIDATION REPORT on REMEDIAL and PREPARATORY WORKS

for

IVY MILLS, WHITEHAVEN

Prepared for

GLEESON HOMES LIMITED

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1. INTRODUCTION

1.1. Background and Proposed Development

Sirius Remediation Limited (Sirius) was commissioned by Gleeson Homes Ltd to undertake remedial and preparatory earthworks to facilitate development of land at Ivy Mills, Whitehaven, CA28 8TX. A site location plan is included as Drawing No. SR4798/VR/01 in Appendix A.

It is understood that the site will be developed with the construction of 63 No. residential dwellings with private gardens, access roads, car parking and associated infrastructure, as shown on Drawing SR4798/VR/02.

It is understood that structural loads associated with proposed development are to be supported on trench fill and strip foundations bearing onto competent natural strata. However, the choice of foundation solution for individual plots or garages shall be determined by Gleeson's appointed foundation designer.

The site has historically been divided into two distinct geographical areas as a consequence of previous land use. This division has resulted in the site being divided into two main areas, referenced as Phase 1 and Phase 2 for the purposes of investigation and remediation. The Phase 1 and Phase 2 boundaries are shown on Drawings presented in Appendix A.

This verification report details the remedial and preparatory earthworks undertaken by Sirius at the site between September 2024 and November 2024.

This report does not include validation of the placement of clean cover system topsoil and subsoils in garden areas, or the verification of ground gas protective measures which are understood to be undertaken by others as the development is built out.

1.2. Regulatory Context

A copy of the decision notices from Cumberland Council and Copeland Borough Council confirming grant of planning permission and reserved matters are presented in Appendix B.

1.3. Terms of Reference

The documents referenced below are the principal sources of information used in the execution of the remedial and preparatory earthworks and should be read in conjunction with this report:

- Phase 1 Geo-Environmental Assessment. Report ref: N09117. Dated May 2010. Prepared by Abatech UK Consulting Engineers.
- Phase 2: Ground Investigation Report. Report ref: 2019-3886. Dated October 2019. Prepared by Geo Environmental Engineering Ltd.
- Geoenvironmental Appraisal of Land at Cleator Moor Road, Whitehaven. Report ref: C8049-GA. Dated March 2021. Prepared by Sirius Geotechnical Ltd.
- Soil Screening Report. Report ref: 2019-3886. Darted November 2022. Prepared by Geo Environmental Engineering Ltd.
- Revised Contamination Remediation Strategy. Report ref: 2024-6320, RS. Dated June 2024. Prepared by Geo Environmental Engineering Ltd.
- Earthworks Specification for Land at Ivy Mill, Main Street, Hensingham, Whitehaven. Report ref. SR4528-ES. Dated September 2024. Prepared by Sirius Remediation.
- Briefing Note: Ivy Mills and Cleator Moor. Report ref: BioC24-116. Dated September 2024. Prepared by Biodiverse Consulting Ltd.

1.4. Objectives of the Remedial and Preparatory Earthworks

The objectives of the remedial and preparatory earthworks were as follows:

- Discharge the relevant planning conditions pertaining to contaminated land;
- Minimise the impact to the environment and human health whilst undertaking the works;
- Minimise the risk of future residents / end users coming into contact with any previously unrecorded contaminated soils;
- Satisfy the requirements of the Local Planning Authority (LPA) environmental health department and National House Building Council (NHBC);
- Construct a development platform to the agreed levels and gradients for subsequent construction of the proposed development and associated infrastructure;
- In the interests of sustainability, to promote the use of site-won materials where possible, providing they are suitable for proposed end use.

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unauthorised third party comes into possession of this report, they rely on it entirely at their own risk and the authors do not owe them any Duty of Care or Skill.

1.5. Parties to the Works

The principal parties to the remedial and preparatory earthworks include:

• **Gleesons Homes Limited**	Client and Developer of the site
• **Sirius Remediation Limited**	Contractor for the remedial and preparatory works
• **Geo Environmental Engineering**	Client's Consultant
• **Cumberland Council and Copeland Borough Council**	Local Planning Authorities
• **NHBC**	Building Warranty Provider

2. BACKGROUND INFORMATION

2.1. Introduction

For a detailed description of the sites historical development, published geology, hydrogeological and environmental setting, proven ground conditions and soil, groundwater and ground gas contaminant concentrations etc., reference should be made to the relevant reports listed in Section 1.3. A brief overview relevant to the remedial earthworks are given below.

2.2. Site Location and Description (Pre-Remediation)

The site is located 2km south-east of Whitehaven town centre at National Grid Reference 299086, 517049. The site is irregularly shaped covering an area of approximately 1.65 Ha and generally comprised of open land with areas of scrub, grass and gravel, as well as asphalt and concrete hardstanding. Semi-mature trees and overgrown vegetation were noted in the east of the Phase 1 area.

At commencement of the remedial earthworks, stockpiles of topsoil, broken out asphalt and crushed concrete were present in the south-west of the Phase 2 area. A stockpile of crushed concrete was also present in the east of the Phase 1 area with similar materials being present in smaller heaps placed up against the retaining wall in the west of the Phase 1 area. A small stockpile was also present in the east of the Phase 2 area, containing weathered plasterboard or similar material.

Some of these stockpiles are as described and investigated in geoenvironmental appraisals referenced in Section 1.3, although the crushed concrete in the south of the site is not referenced in those previous reports and its origin is unclear. There had also been some disturbance of the crushed concrete stockpile in the Phase 2 area of the site, with some possible transfer of materials across the phase boundaries during the time since the geoenvironmental appraisal reports were prepared.

2.3. Historical Development

The Phase 1 area was previously occupied by a textile factory/mill which manufactured work wear and personal protective equipment. Satellite imagery shows that the factory was demolished between 2016 and 2018.

The Phase 2 area remained undeveloped open fields prior to the 1950s. Development of the site took place in the 1960s and 1970s with the construction of a textile factory/ mill and associated infrastructure. This included access roads, car parking and soft landscaping areas. An area of

storage tanks were recorded in the western part of the site and an above ground storage tank was recorded in the centre of the site. The factory is understood to have closed in 2006, with buildings demolished in 2010.

2.4. Proven Ground Conditions

- Phase 1: Made ground was recorded as variable: reworked clays with occasional anthropogenic materials, occasional relict topsoil and gravel of demolition rubble, sandstone, slag and pottery. This ranged in thickness between 0.30m to 2.40m bgl. The made ground was underlain by glacial till comprising sandy gravelly clays to a maximum depth of 5.00m bgl. Sandstone bedrock was encountered at 1.10m bgl in the northern most part of the Phase 1 area and evidence of former foundations were also present locally.

- Phase 2: Made ground in the eastern half of the area was recorded to be up to 0.60m thick comprising reworked cohesive soil and granular material. Made ground in the western part of the area was recorded up to 1.10m thick and generally comprised clayey gravel of concrete, sandstone and brick and reworked gravelly clays. Made ground in excess of 2.20m bgl, comprising of concrete and brick gravel, and notably with a proportion of grey stony slag, was encountered in one central location. Relict structures were encountered locally across the area. Below made ground, natural deposits of stiff gravelly clays were present, extending to depths in excess of 5.45m in the east of the site. Sandstone bedrock was encountered as shallow as 0.10m bgl in the south west of the Phase 2 area.

2.5. Identified Contamination Considerations

The previous site investigations recorded the following:

- Elevated concentrations of lead and PAH compounds within the made ground in the western part of the Phase 1 area.

- Localised pockets/ hotspots of hydrocarbon contamination were also recorded within the Phase 1 area, although these were not considered to present a significant risk to future end users, nor to controlled waters based on the concentrations detected at the time, it was recognised that the presence of impacted soils would require management during preparatory works. Notably, a supplementary phase of investigation some three years after the initial fieldwork, by the same environmental consultant, was not successful in reidentifying the hydrocarbon hotspots at that later date.

- Trace quantities of dispersed asbestos fibres were identified in two phases of investigation, within the stockpile of crushed concrete type material in the Phase 2 area, with asbestos fibres, and the presence of coal tar based binder also recorded in the stockpile of asphalt.

- Hydrocarbon odours and a hydrocarbon sheen on groundwater were noted at two locations in the Phase 2 area of the site, although based on laboratory testing no significant risks to receptors were identified.

2.6. Hazardous Ground Gases / Vapours

A geoenvironmental appraisal report for the Phase 1 area concluded that part of the site was classified as CS1, for which no specific methane or carbon dioxide ground gas protective measures were required for the proposed development. However, basic radon gas protection measures **are** required across the Phase 1 area.

Elevated concentrations of carbon dioxide and methane were recorded across the Phase 2 area, and CS2 gas protection measure were recommended. A requirement for full radon protection measures across that part of the site was also identified.

2.7. Invasive Plant Species

Two invasive plant species were identified within the site: Hollyberry Cotoneaster was identified in the north-west of the Phase 1 area. Montbretia was identified in the south-east and the south-west of the Phase 2 area.

The preparatory works carried out in relation to mitigating the presence of invasive species are detailed in Section 7 of this report.

2.8. Statutory Services

An 8 inch diameter underground water supply pipe is present close to the eastern boundary of the Phase 2 area, and the south-east boundary of the Phase 1 area. Water supply and drainage infrastructure are also present along the western boundary of the Phase 1 area.

A medium pressure gas supply pipe enters the northern boundary of Phase 2 before terminating at a former gas meter housing a few meters into site.

A retained live electrical substation is located in the north west corner of Phase 1.

These services presented constraints to the preparatory earthworks and remained operational during the works. Their approximate locations and associated areas of the site which were precluded from earthworks, are shown on drawings in Appendix A.

3. PROPOSED REMEDIAL AND PREPARATORY EARTHWORKS

3.1. General

The principal document detailing the required remedial works to mitigate identified and recognised potential risks to receptors is the Revised Contamination Remediation Strategy, prepared by Geo Environmental Engineering Ltd; report reference 2024-6320, dated 05.06.2024.

In addition to the required remedial works to mitigate contamination risks, the remedial and preparatory earthworks were also designed to assist with achieving Gleesons desired development levels across the site.

Therefore, the remedial and preparatory earthworks were undertaken in accordance with the Revised Contamination Remediation Strategy and the Sirius Earthworks Specification referenced in Section 1, to provide a suitable platform for the proposed development.

The following reduced ground levels to be achieved on completion of the earthworks were agreed with Gleeson:

- Plots — 450mm below finished floor levels (FFL)
- Roads — 550mm below finished road levels (FRL)
- Gardens/Externals — 300mm below finished ground levels (FGL)
- Gardens in areas requiring remediation (Plots 1-17) — 600mm below FGL
- Shared driveways — 300mm below FRL

The works described herein have been undertaken by Sirius as Earthworks Contractor, in accordance with the requirements of the CL:AIRE Definition of Wastes: Code of Practice following a Materials Management Plan (MMP) which had been subject to review and declaration to CL:AIRE by a Qualified Person; and were supervised throughout the duration of the contract by a Geoenvironmental Engineer (GE).

A photographic record of the enabling and remedial earthworks was taken during the works. A selection the photographs is presented in Appendix C, and additional photographs have been retained on file for inspection if required.

3.2. Scope of Works

The main requirements of the remedial and preparatory earthworks are provided below in the approximate sequence of works undertaken:

- Erection of Heras fencing around the perimeter of the site and to demarcate working areas, as well as, providing protection to retained trees.
- Establish welfare and security facilities.
- Site clearance and removal from site of remaining shrubs, vegetation and organic materials from within the proposed development area.
- Removal of identified invasive plant species and excavation and removal of associated impacted soils.
- Breaking out of remnant slabs, foundations and areas of hardstanding within the proposed development area as necessary to facilitate the works. Processing of these materials to produce a material suitable for re-use on site where appropriate.
- Cut and fill earthworks to achieve development levels and allow the proposed clean cover system to be accommodated.
- Process, classify and place suitable site generated soils to achieve the formation levels.
- Undertake geotechnical and chemical testing as required throughout the earthworks.
- Undertake regular surveys for the development of base of excavation drawings (Drawing No. SR4798/VR/03 and SR4798/VR/03a) and as built (Drawing No. SR4248/VR/06) drawings upon completion of works.
- Further investigation/ delineation of areas which were previously inaccessible during site investigations (such as underneath stockpiles), and further investigation during bulk earthworks, in areas of previously identified low level hydrocarbon concentrations.
- Carry out a watching brief to identify any previously unidentified sources of contamination.
- Preparation of a validation report on completion of the works by a suitably experienced GE, providing a record of the works undertaken, including results.

3.3. Excluded/ follow-on Works

In addition to the works completed by Sirius as part of the preparatory and remedial earthworks, the following works are required to be undertaken by others:

- Phase 1 (Former Factory Area) – Placement and subsequent validation of a 600mm clean cover layer in rear gardens and 300mm in front gardens and areas of soft landscaping, comprising suitable topsoil and subsoil, over a high visibility geotextile and no dig layer. This is applicable to Plots 1 to 17, in the western part of the Phase 1 area only.

- Phase 1 (Previously undeveloped Area) – No specific requirements, however, a minimum c.100mm of topsoil is advised in proposed gardens and soft landscaped areas (Applicable to Plots 18 to 26 only)

- Phase 2 - Placement and validation of a 300mm clean cover in rear gardens and 100mm in front gardens and areas of soft landscaping, comprising suitable topsoil and subsoil, over a high visibility geotextile and no dig layer.

- Installation and validation of ground gas protective measures in accordance with the requirements of BS8485:2019, where required.

3.4. Contract Programme

The remedial and preparatory earthworks commenced in September 2024 and were completed in November 2024.

3.5. Health and Safety

The works were undertaken in accordance with a project specific health and safety plan compiled by Sirius, fully aligned with the requirements of the current Construction (Design and Management) Regulations. Routine QHSE (Quality, Health & Safety and Environmental) audits were undertaken throughout the works by Sirius.

3.6. Site Preparation

Site preparation activities included:

Site Welfare

A fully serviced site welfare cabin was established at the outset of the works and maintained for the duration of the contract. Offices and stores were located adjacent to the welfare cabin and appropriate signage was established at the site entrance.

Site Security

Heras fencing was used to make the entire site secure. The condition of the fencing was regularly checked and maintenance carried out if required. CCTV was established in the location of the site welfare cabin.

Services

The location of the existing water, electricity and gas mains were marked out and protected throughout the duration of the works.

4. EARTHWORKS

4.1. General

Site works were undertaken in general accordance with the Geo Environmental Engineering Remediation Strategy and the Sirius Earthwork Specification.

Remedial and preparatory works were undertaken using conventional earthwork methods. Several plant items (tracked excavators and dozer) were equipped with Trimble 3D Grade Control technology designed for “live” cut/fill operation, which incorporates the earthworks design model, thereby enabling automatic establishment of earthworks formation. Remediated formation levels were achieved by ‘cut and fill’ earthworks using site-won engineered fill.

As the earthworks progressed, periodic surveys were undertaken to enable the preparation of final drawings showing ‘as built’ formation ground levels and ‘base of excavation’ ground levels, these are shown on Drawing No’s SR4842/VR/03, SR4842/VR/03a and SR4842/VR/06, respectively, presented in Appendix A.

Throughout the remediation and preparatory earthworks, a watching brief for previously unrecorded sources of contamination was undertaken by the site management team, which included a suitably qualified GE.

4.2. Site Clearance

Site clearance works comprised of stripping shrubs, vegetation and organic materials. With the exception of ‘invasive’ plant species (management of which is described in Section 7), these were relocated to three temporary stockpiles in the Phase 2 area of the site. The location of these stockpiles is shown on the ‘As Built Survey with constraints’ plan, presented in Appendix A.

4.3. Laboratory Geotechnical Testing

Material Classification

Geotechnical testing of representative samples of materials both within stockpiles and required to be excavated from the ground to achieve desired finished levels, was undertaken to allow classification in general accordance with MCHW 600.

Representative samples were recovered by the GE and sent to Professional Soils Laboratory Ltd, a UKAS accredited geotechnical testing laboratory under subcontract to Sirius. These were scheduled

for a suite of testing generally including particle size distribution (PSD), moisture content and Atterberg limits tests.

Sample references and classification testing results for site-won fills are summarised in Table 5-1. Copies of geotechnical laboratory test certificates are included in Appendix D.

Table 4-1 Engineered Fill Classification Test Summary

Sample Ref.	Material Type /Source	Series 600 MCHW Class	Test Certificates
SP104 – SP106	Site-Won Granular Fill	Class 1B	PSL24/7630
SPB4	Site-Won Granular Fill	Class 1A	PSL24/8078
Plot 9, 12, 20, 25, 30, 35, 36, 39	Site-Won Cohesive Fill	Class 2A	PSL24/7630 PSL24/8078 PSL24/8293 PSL24/8529
Plot 3 and SPB3	Site-Won Stony Cohesive Fill	Class 2C	PSL24/7631 PSL24/8078

Class 1B Materials

All recorded uniformity coefficients were less than 10.

Class 1A Materials

One sample, SPB4, was classified as Class 1A. The recorded uniformity coefficient was greater than 10.

Class 2A Materials

Atterberg limit determinations undertaken on samples of site-won Class 2A soils returned liquid limits of between 39% and 53%, plastic limits between 18% and 23% and modified plasticity indices of between 19% and 25%.

All but one of the samples were determined to be intermediate plasticity clay. Sample ‘Plot 12’ was determined to be high plasticity clay.

Consistency indices values ranged between 0.69 and 0.98, indicative of typically stiff consistency cohesive soils with sample ‘Plot 20’ being firm.

Class 2C Materials

Two samples, Plot 3 and SPB3, were classified as Class 2C. Sample ‘Plot 3’ recorded a liquid limit of 47%, plastic limit of 21% and a modified plasticity limit of 15%. This was determined to be of intermediate plasticity with a consistency index value of 0.98, indicative of stiff consistency cohesive soil.

Moisture Contents

Samples were recovered for moisture content testing as the earthworks progressed. The recorded moisture content values ranged between 17.6% and 31.7% with a mean and median of 23.1% and 21.9% Laboratory test certificates (Ref. PSL24/7630, PSL24/7631 PSL24/8078, PSL24/8293 and PSL24/8529) are included in Appendix D.

4.4. Compaction

Compaction was undertaken using a self-propelled smooth drum vibratory roller with a mass per metre width of 2900kg and 3600kg. Class 2A and 2C engineered fill was reinstated by placement in 200mm layers followed by compaction with four passes of the smooth drum vibratory roller. Class 1B fill was reinstated by placement in 250mm followed by compaction with 10 passes.

A post-remediation survey detailing ‘as built’ levels following the completion of the remedial and preparatory earthworks is presented as Drawing No. SR4842/VR/06 in Appendix A.

4.5. In situ Geotechnical Testing

As the earthworks were undertaken based on a method specification approach, in situ geotechnical testing has been limited to reassurance testing, including:

a) Plate Load Testing (PLT) for estimation of CBR values on the completed highways formation.

b) Dynamic cone penetrometer testing (DCP) to confirm relative soil strength and estimation of CBR values along highway alignments and on engineered fill.

c) Hand Shear Vane (HSV) tests within the engineered fill where applicable at various depths of placement throughout the duration of the works to confirm undrained shear strength.

The results of in situ testing are summarised in Tables 5.2, 5.3 and 5.4.

Plate Load Tests

A total of nine PLT's were undertaken at finished remediated level on engineered fill within areas of adoptable highways. Locations of PLT testing are indicated on Drawing No. SR4842/VR/05 within Appendix A. The testing was carried out under subcontract by Professional Soils Laboratory and copies of all test certificates are presented in Appendix E.

The results of all PLTs undertaken are presented in Appendix E and are summarised in Table 5-2.

Table 4-2 Summary of Plate Load Tests

Test Ref.	Test Date	PSL Report Number	Plate Size	Test Location	Maximum Applied Pressure (kPa)	Maximum Deformation (mm)	Calculated CBR Value (%)
Road 1 – Test 1	14/11/2024	PSL24/8467	600mm	Highway	115.51	2.47	5.0
Road 1 – Test 2	14/11/2024	PSL24/8467	600mm	Highway	115.51	2.02	8.1
Road 1 – Test 3	14/11/2024	PSL24/8467	600mm	Highway	115.51	1.84	9.9
Road 1 – Test 5	14/11/2024	PSL24/8467	600mm	Highway	115.51	2.15	6.5
Road 1 – Test 6	14/11/2024	PSL24/8467	300mm	Highway	480.92	4.16	3.1
Road 2 – Test 1	14/11/2024	PSL24/8467	600mm	Highway	115.51	0.78	17.3
Road 2 – Test 2	14/11/2024	PSL24/8467	600mm	Highway	115.51	1.28	16.6
Road 2 – Test 3	14/11/2024	PSL24/8467	600mm	Highway	115.51	3.15	2.8
Road 2 – Test 4	14/11/2024	PSL24/8467	600mm	Highway	115.51	1.99	8.6

Dynamic Cone Penetration Tests

A total of 17 No. Dynamic Cone Penetrometer (DCP) test were undertaken by the GE on engineered fill during the remedial earthworks, in order to determine the equivalent CBR values and assess soil strength parameters. The results of DCP tests are summarised in Table 5.3.

Table 5.3 Summary of DCP Test Results

Maximum CBR	24%
Minimum CBR	4%
Mean CBR	9%
Median CBR	7%

Hand Shear Vane Tests

A total of 42 no. Hand Shear Vane (HSV) tests were undertaken within engineered fills across the site at various depths of placement throughout the duration of the works to assess undrained shear strength. HSV test results are presented in Appendix E and summarised in Table 5-4.

Table 4-4: Summary of Hand Shear Vane Results

Range of Results - Undrained Shear Strength	
Maximum	100kN/m^2
Minimum	60kN/m^2
Mean	86kN/m^2
Median	88kN/m^2

5. WATCHING BRIEF FOR UNRECORDED CONTAMINATION

A watching brief for evidence of previously unrecorded contamination was maintained by the Sirius Site Management Team and GE throughout the course of the remedial and preparatory earthworks. No visual or olfactory evidence of any such previously unrecorded contamination was identified at any time during the works.

6. REMEDIATION OF CONTAMINATED MATERIALS

6.1. Stockpiled Material

At commencement of the remedial and preparatory earthworks, four large stockpiles and a number of smaller stockpiles of materials were present on site.

Three stockpiles, located in the Phase 2 area, consisted of crushed aggregate (Stockpile SP104), asphalt (SP107) and topsoil. This was as generally identified in previous phases of intrusive investigation, although the crushed aggregate (SP104) appeared visibly different to that present at that location at the time of the geoenvironmental investigation, with considerable evidence of having been disturbed/ replaced in the intervening period.

An additional stockpile of crushed aggregate (SP105) was present in the eastern part of the Phase 1 area. No stockpile was recorded in this area of the site at the time of the geoenvironmental investigation and anecdotal information suggests that SP105 may have been derived from the previous stockpile of similar material, originally recorded in the south-west of the Phase 2 area of the site. This is also consistent with SP104 appearing to be different in footprint area, shape and nature, to that previously described at that location.

SP104 – Crushed aggregate in Phase 2 area

A total of three samples were collected and scheduled for the presence of asbestos fibres. No asbestos was detected in any of the samples, and the material was considered suitable for re-use within the development.

A copy of the Chemtest Laboratory test Certificates (24-31626-1) are included in Appendix F.

SP105 – Crushed aggregate in Phase 1 area

Three samples of the material in SP015 were collected and tested for the presence of asbestos fibres. The presence of trace quantities of chrysotile asbestos fibres was confirmed in all three samples. Subsequent quantification testing on the samples confirmed concentrations of chrysotile asbestos of <0.001% by mass. This testing, together with that on SP104, supports the understanding that the stockpile originally recorded in the Phase 2 area, at the time of the intrusive investigation, has been relocated to form SP105 in the Phase 1 area and that Stockpile SP104 does not represent the original, asbestos impacted stockpile previously present in the Phase 2 area.

Based on the results of this testing, the stockpile was considered suitable for use as fill to be placed at depth below capping soils in the rear gardens of Plots 1-14, in the west of the Phase 1 area.

Assurance air monitoring took place whilst the stockpile was moved, with reported fibre concentrations <0.01 f/ml at the perimeter of the working area.

Following relocation of the soils into the western part of the Phase 1 area of the site, 3 No. validation samples were recovered from the area of the former footprint of the stockpile and tested for asbestos fibres, to ensure that no residual fibres associated with its former presence remained. No asbestos fibres were detected in any of these validation samples.

A copy of the Chemtest Laboratory test Certificates (24-31625-1, 24-31625-2 and 24-34168-1) and the Testing Lab test sheets (289659) are included in Appendix F.

SP107 – Asphalt Stockpile (and in situ hard surfacing)

The existing stockpile of asphalt was subject to testing previously by both Sirius and Geo Environmental Engineering. That testing confirmed the presence of coal tar and trace asbestos fibres.

Additional testing of small areas of asphalt hard surfacing which remained in situ within the Phase 2 area also indicated that such areas of asphalt surfacing also contained coal tar binder.

Consequently, both the stockpile, and other areas of asphalt surfacing which were excavated during the preparatory works, were disposed of off-site as part of the works. Additional samples of the material were recovered to assist with classification for disposal to an appropriate facility. Copies of the Laboratory test Certificates (24-31621-1 and 24-34168-1) are included in Appendix F. The asphalt was removed from site under separate contract directly between Gleeson, hauliers and waste receivers and records of the transfer and disposal of this material are held by Gleeson.

6.2. TPH Hotspots

The Remediation Strategy identified a requirement for further investigation and/ or watching brief during works in areas in which previous investigation identified low levels of hydrocarbon contamination, as well as in areas which were previously inaccessible to investigation owing to the presence of the large stockpiles in the Phase 2 area.

Phase 1 – Potential Hotspots TPD and TPF

A watching brief was undertaken during the course of preparatory earthworks in these areas.

Extensive excavations across both of these areas, supervised by the RE, did not identify any visual or olfactory evidence of possible hydrocarbon contamination.

A photographic record of the soils exposed in these excavations, is presented in Appendix C.

Phase 2 – TP3

Previous investigation by Sirius encountered evidence of hydrocarbon contamination at a depth of 0.5m bgl, in Sirius TP3.

Further, widespread excavations during the preparatory works, supervised by the RE, did not encounter any further visual or olfactory evidence of hydrocarbons, or hydrocarbon impacted soils.

A photographic record of the works confirming the absence of any hydrocarbons in this area are presented in Appendix C.

Phase 2 – TP6 and Slag delineation

Elevated concentration of hydrocarbons were recorded at this location by Sirius as part of the Geo Environmental Appraisal report, within soils and associated with groundwater. In addition, the investigation in this area also identified the presence of stoney grey slag type material entrained within the made ground.

As part of the watching brief during the preparatory works, a series of trial pit excavations were undertaken within this area of the site. More widespread slag type material was observed at depths typically between 0.80 and 1.50m bgl beneath the footprint of the former access road and car parking area which occupied this part of the site historically.

Three samples of the made ground containing slag were recovered and subject to expansivity testing. The results confirmed minimal expansion of the sample over the duration of the tests following an initial change in volume owing to thermal change at commencement of testing. Therefore, the slag containing material was considered suitable for reuse on site. This was placed in a thin layer in rear garden area of Plots 1-14 in the west of the Phase 1 area, at depth below the clean cover soil capping layer.

Laboratory test certificates from PSL (Ref PSL24/7686 and PSL24/7631) relating to the testing of the slag are included in Appendix D.

Phase 2 – TP207 TPH Hotspot

As part of the watching brief investigation of the deeper made ground and slag type materials previously recorded in TP06, some limited evidence of hydrocarbons was observed within the soils and localised perched groundwater, possibly associated with a relict buried structure which was observed at that location. A sample of the impacted soils was recovered, confirming hydrocarbons within the visually impacted soils at concentrations potentially posing a risk to human health (Laboratory test certificate 24-32996-1).

The impacted soils were subsequently excavated out under the supervision of the RE and temporarily stockpiled on plastic sheeting before being disposed of from site to an appropriate receiving facility following waste classification testing. Waste transfer and disposal records have been retained by Sirius and are available at request.

7. INVASIVE SPECIES

Eskdale Environmental Ltd were appointed by Gleeson to supervise the excavation, segregation and processing of Hollyberry Cotoneaster and Montbretia impacted materials prior to off-site disposal to a suitably licenced wate transfer facility.

8. CONSTRAINTS

The following constraints were identified during the course of the remedial and preparatory earthworks and are indicated on Drawing No. SR4798/VR/06, in Appendix A.

i. Three areas in Phase 2 were left below the formation levels initially agreed with Gleeson. This was owing to a materials shortfall. An area covering the rear gardens of Plots, 3, 4, 12, to 14 and 19 to 21 have been left low along with the proposed POS/ attenuation tank to accommodate the placement of civils arisings.

ii. Cut/ fill earthworks could not be undertaken in the area of the live water pipes along the west, east and south-east boundaries of the site or the live medium pressure gas supply pipe on the northern boundary of Phase 2.

iii. An existing substation is present in the north-west of the Phase 1 area, precluding any nearby excavations.

iv. A tree protection zone is present near to the boundary between the Phase 1 and Phase 2 areas of the site, again preventing any works in that area.

9. CONCLUSIONS

This document confirms that the remedial and preparatory earthworks have been carried out at in accordance with the agreed Geo Environmental Engineering Remediation Strategy and Sirius' Earthworks Specification.

Excluding the constrained areas detailed in Section 8 of this report, areas of previously identified contamination in made ground soils have been further investigated and, where necessary, satisfactorily remediated.

Geotechnical testing was undertaken throughout the remedial and preparatory earthworks which confirmed that the works have been undertaken to a satisfactory standard.

10. FURTHER WORKS REQUIRED

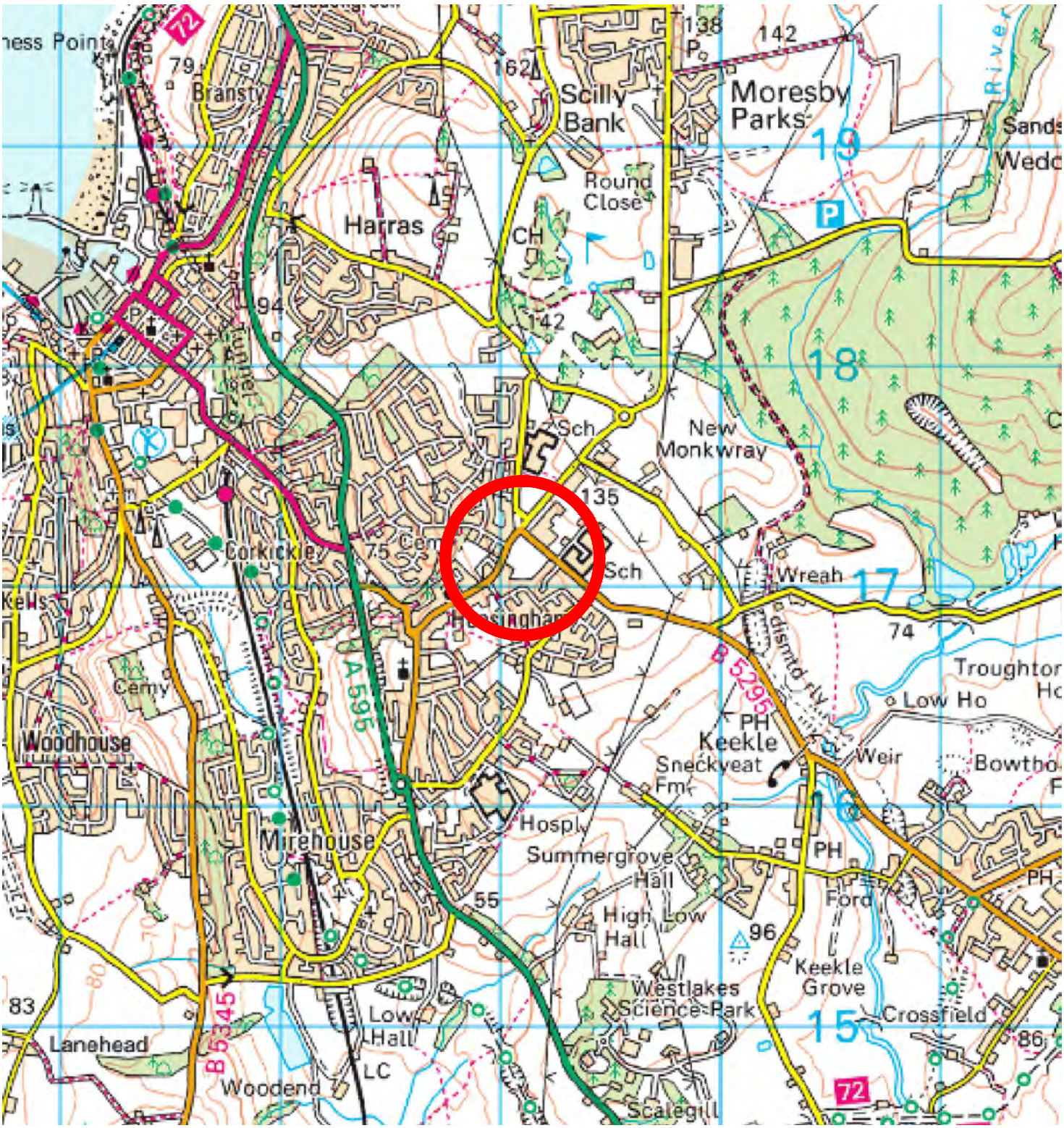
Subsequent to the remedial and preparatory earthworks undertaken by Sirius, additional remedial works are to be undertaken by others in order to ensure that the site is suitable for reuse. These works are to comprise:

- Placement and validation of the clean cover system in front and rear gardens, as well as soft landscaping areas, to satisfy the Local Planning Authority.
- Validation as required of any installed ground gas protective measures in accordance with the requirements of BS8485:2019, where required, to satisfy the Local Planning Authority and building warranty provider.

During the course of the remedial earthworks any additional importations of soils will require the MMP to be amended and a revised Qualified Person's declaration submitted to CL:AIRE. This must occur prior to any import taking place. Following completion of the remedial earthworks, any subsequent importation of soils will require a new MMP to be produced and declared by a Qualified Person and submitted to CL:AIRE.

APPENDIX A

DRAWINGS



NOTES

Site Location

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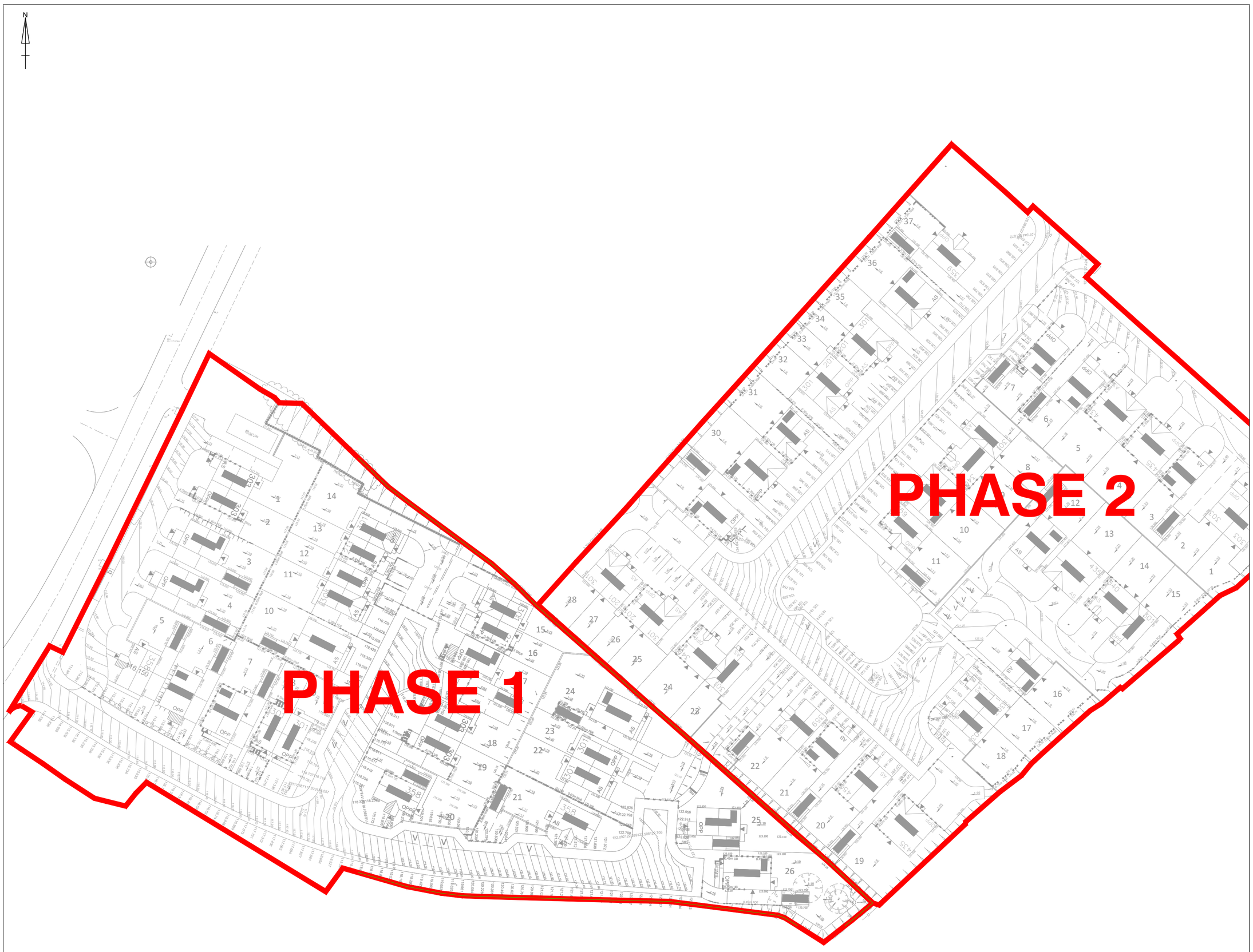
C	>>
D	>>

SIRIUS GEOTECHNICAL LTD
Russel House,
Mill Road,
Langley Moor,
Durham DH7 8HJ
www.thesiriusgroup.com
TEL: 0191 378 9972
FAX: 0191 378 1537

CLIENT: Gleeson Homes Ltd	DRAWING NO.: SR4798/VR/01	REVISION NO.: 0	
SITE: Ivy Mills, Whitehaven	DRAWN BY: JH	APPROVED BY: AC	
DRAWING TITLE: Site Location Plan	DATE: December 2024	SCALE: 1:25,000	A4



NOTES

Phase boundary

Note:
-Proposed phase boundary and proposed remediated platform levels based on information from **External Works,** 'GHC-IM-C-12-01 External Works Plan Rev A' & 'GHC-IM-C-P2-12-01 External Works Plan', produced by Site Infrastructure Services
-Existing topographical survey taken from 'Gleeson Homes - Ivy Mill - Whitehaven - Topographical Survey 14-080219_TS01' & 'Gleeson Homes - Cleator Moor Rooad - Whitehaven - Topographical Survey 02' merged with the updated topographical survey titled 'DTCE GH Ivy Mills 030624'
25m grid spacing

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SIRIUS
REMEDIATION LTD
Suite 10a,
Stone Cross Place,
Stone Cross Lane,
North Lowton,
Warrington
www.thesiriusgroup.com
TEL: 01942 718 551

CLIENT

Gleeson Homes Ltd

SITE

Ivy Mills,
Whitehaven

DRAWING TITLE

Site Layout Plan

DRAWING NO.	REVISION NO.
SR4798/VR/02	0
DRAWN BY	APPROVED BY
JH	AC

DATE	SCALE	PAPER SIZE
December 2024	1:500	A2

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Existing infrastructure and associated easements

Existing infrastructure and associated easements

Existing infrastructure and associated easements

Existing wall retained

TPD

TP03

TPF

TP207

TP06

Tree protection area

Tree protection area

NOTES

- Phase boundary
- Contours (0.5m)
- +120.00 Spot level on natural strata
- +120.00 Proposed finished ground level
- Assumed line of water main
- Inaccessible areas within overall site boundary
- Manually excavated hand pit (taken from 'GEO2019-3886: Exploratory Hole Location Plan - Ivy Mills, Hensingham', produced by GEO Enviromental Engineering Ltd)
- Trial pit (location taken from 'C8049/03 Exploratory Hole Location Plan', produced by Sirius Geotechnical Ltd)
- Trial pit excavated during remedial works

Note:
-Proposed phase boundary and proposed remediated platform levels based on information from External Works, 'GHC-IM-C-12-01 External Works Plan Rev A' & 'GHC-IM-C-P2-12-01 External Works Plan', produced by Site Infrastructure Services
-Surveyed information based on Ordnance Survey Grid & Datum (Trimble GPS System OSTN15 Transformation) using Trimble VRSnow network.

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CLIENT

Gleeson Homes Ltd

SITE

Ivy Mills, Whitehaven

DRAWING TITLE

Composite Base of Excavation Survey

DRAWING NO.	REVISION NO.
SR4798-VR-03	0
DRAWN BY	APPROVED BY
JH	AC
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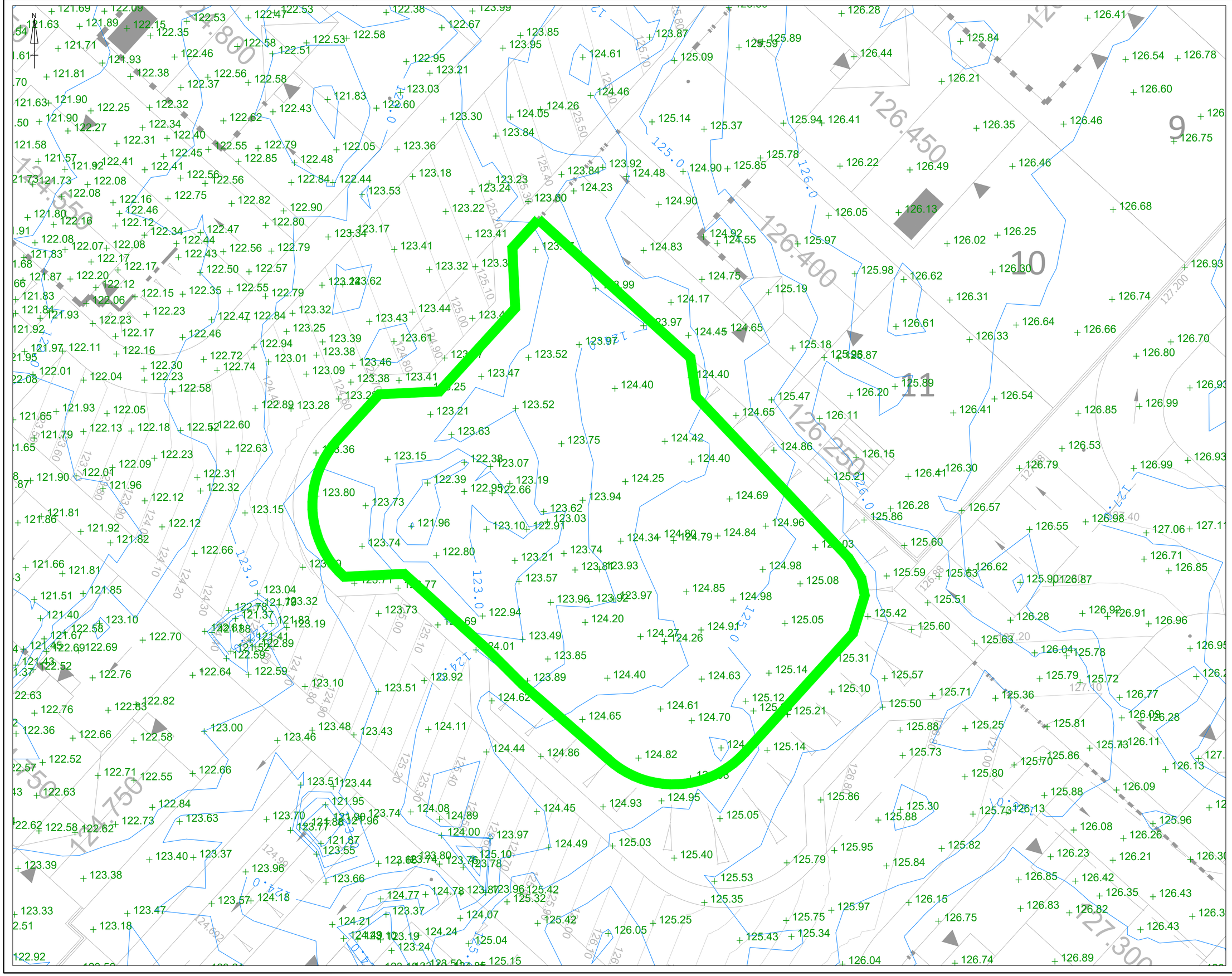
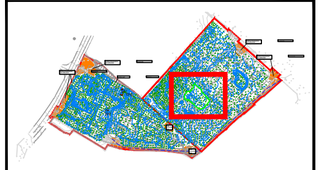


NOTES

- Phase boundary
- Contours (0.5m)
- Area of excavation terminated on rockhead
- +120.00 Spot level on natural strata
- +120.00 Proposed finished ground level
- Assumed line of water main

Note:
-Proposed phase boundary and proposed remediated platform levels based on information from **External Works,** 'GHC-IM-C-12-01 External Works Plan Rev A' & 'GHC-IM-C-P2-12-01 External Works Plan', produced by Site Infrastructure Services
-Surveyed information based on Ordnance Survey Grid & Datum (Trimble GPS System OSTN15 Transformation) using Trimble VRSnow network.



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CLIENT

Gleeson Homes Ltd

SITE

**Ivy Mills,
Whitehaven**

DRAWING TITLE

Composite Base of Excavation Survey - Showing Rockhead Level

DRAWING NO.	REVISION NO.
SR4798-VR-03a	0

DRAWN BY	APPROVED BY
JH	AC

DATE	SCALE	PAPER SIZE
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Plot 13 HSV
Plot 2 DCP
Plot 3 HSV
Plot 13 DCP
Plot 6 DCP
Plot 5 HSV
Road 1 - DCP04
Plot 8 DCP
Plot 9 HSV
Road 1 - DCP01
Plot 24 DCP
Plot 17 HSV
Road 1 - DCP02
Plot 21 HSV
Road 1 - DCP03
Plot 36 HSV
Plot 35 DCP
Road 2 - DCP03
Plot 32 DCP
Plot 31 HSV
Road 2 - DCP02
Plot 12 DCP
Plot 11 HSV
Plot 27 HSV
Plot 26 DCP
Plot 24 HSV
Road 2 - DCP01
Plot 16 HSV
Plot 22 HSV
Plot 20 DCP
Plot 25 HSV

NOTES

Phase boundary

Dynamic cone penetration test location

Hand shear vane test location

Note:
-Proposed phase boundary and proposed remediated platform levels based on information from **External Works,** 'GHC-IM-C-12-01 External Works Plan Rev A' & 'GHC-IM-C-P2-12-01 External Works Plan', produced by Site Infrastructure Services
-Existing topographical survey taken from 'Gleeson Homes - Ivy Mill - Whitehaven - Topographical Survey 14-080219_TS01' & 'Gleeson Homes - Cleator Moor Rooad - Whitehaven - Topographical Survey 02' merged with the updated topographical survey titled 'DTCE GH Ivy Mills 030624'
-25m grid spacing

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CLIENT

Gleeson Homes Ltd

SITE

**Ivy Mills,
Whitehaven**

DRAWING TITLE

In Situ Geotechnical Test Location Plan

DRAWING NO.	REVISION NO.
SR4798/VR/04	0

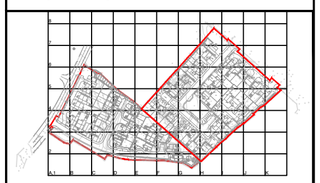
DRAWN BY	APPROVED BY
JH	AC

DATE	SCALE	PAPER SIZE
December 2024	1:500	A2

NOTES

- Phase boundary
- Plate bearing test location (610mm plate)
- Plate bearing test location (300mm plate)

Note:
-Proposed phase boundary and proposed remediated platform levels based on information from **External Works,** 'GHC-IM-C-12-01 External Works Plan Rev A' & 'GHC-IM-C-P2-12-01 External Works Plan', produced by Site Infrastructure Services
-Existing topographical survey taken from 'Gleeson Homes - Ivy Mill - Whitehaven - Topographical Survey 14-080219_TS01' & 'Gleeson Homes - Cleator Moor Rooad - Whitehaven - Topographical Survey 02' merged with the updated topographical survey titled 'DTCE GH Ivy Mills 030624'
-25m grid spacing



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CLIENT

Gleeson Homes Ltd

SITE

Ivy Mills,
Whitehaven

DRAWING TITLE

Plate Bearing Test Location Plan

DRAWING NO.	REVISION NO.
SR4798/VR/05	0

DRAWN BY	APPROVED BY
JH	AC

DATE	SCALE	PAPER SIZE
December 2024	1:500	A2

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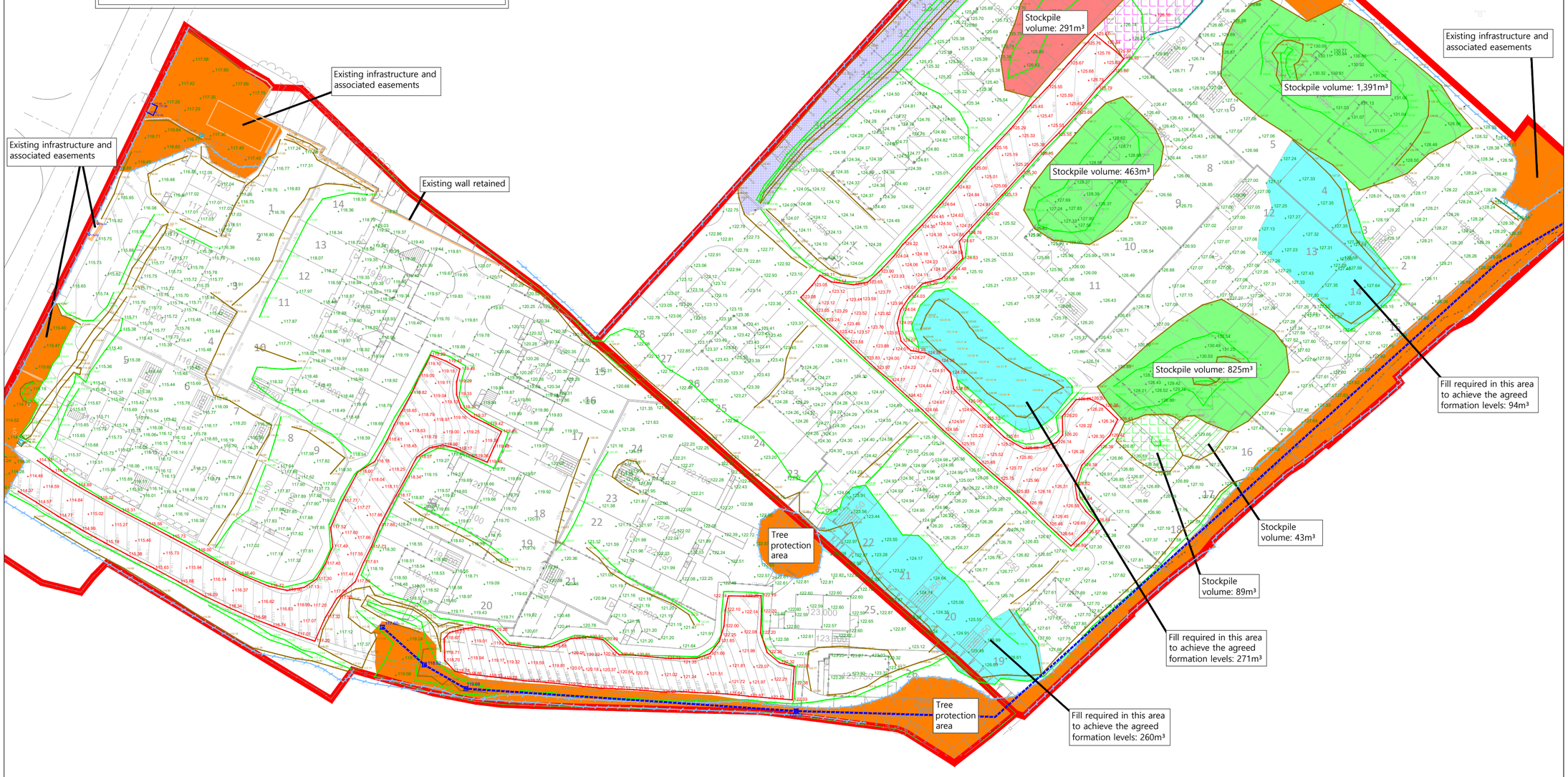
Levels shown indicate as surveyed ground levels.

Proposed formation levels based on finished ground levels taken from 'GHC-IM-C-12-01 External Works Plan Rev A' & 'GHC-IM-C-P2-12-01 External Works Plan', produced by Site Infrastructure Services with the following construction depths reductions applied:

Garages for plots 3,4,5,6,17,21,25 in phase 1 removed under instruction from Gleesons.
Garages for plots 2,6,7,11,21,22,37 in phase 2 removed under instruction from Gleesons.

Plots: -450mm BFFL
Roads: -550mm BFRL (300m granular layer below)
Gardens / Externals: -300mm BFGL
Gardens in areas requiring remediation: -600mm BFGL
Shared driveways: -300mm BFGL

Areas inaccessible during Sirius works, including:
Retained tree easements
Existing water main easement
Existing infrastructure easements



NOTES

- Overall site Boundary
- Bottom of bank
- Top of bank
- Edge of granular running layer
- Wall
- Fence
- Assumed line of water main
- +120.00 Spot level
- +120.00 Spot level on granular running layer
- 120.00 Spot level on water main pipe crest
- 120.00 Spot level on water main pipe crest
- +120.00 Proposed finished ground level
- Organic material stockpile
- 6F2 stockpile
- Inaccessible areas within overall site boundary
- Areas left low of agreed formation levels owing to a shortfall of suitable fill materials
- Compound installed by Sirius
- SWMP bund
- Root balls and foilage stockpile
- Wood chippings stockpile

Note:
-Proposed phase boundary and proposed remediated platform levels based on information from External Works, 'GHC-IM-C-12-01 External Works Plan Rev A' & 'GHC-IM-C-P2-12-01 External Works Plan', produced by Site Infrastructure Services
-Surveyed information based on Ordnance Survey Grid & Datum (Trimble GPS System OSTN15 Transformation) using Trimble VRSnow network.

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CLIENT

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SITE

Ivy Mills, Whitehaven

DRAWING TITLE

As Built Survey Showing Ground Levels and Constraints on Completion of Remedial Earthworks

DRAWING NO.	REVISION NO.
SR4798/VR/06	0
DRAWN BY	**APPROVED BY**
JH	AC

DATE	SCALE	PAPER SIZE
December 2024	1:500	A2

APPENDIX B

PLANNING CONSENT

Copeland borough council
Proud of our past. Energised for our future.

Copeland Borough Council
The Copeland Centre,
Catherine Street, Whitehaven,
Cumbria CA28 7SJ

tel: 01946 59 83 00
email: info@copeland.gov.uk
web: www.copeland.gov.uk
twitter: @copelandbc

TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)

NOTICE OF APPROVAL OF RESERVED MATTERS

Gleeson Homes
Rural Enterprise Centre
Redhills
PENRITH
Cumbria CA11 0DT
FAO Mr David Wright

APPLICATION No: 4/20/2334/0R1

RESERVED MATTERS APPLICATION FOR 26 DWELLINGS AND ASSOCIATED INFRASTRUCTURE FOLLOWING OUTLINE APPROVAL 4/17/2143/0O1
FORMER ROMAR FACTORY, IVY MILL, MAIN STREET, HENSINGHAM, WHITEHAVEN

Gleeson Homes

The above application dated 02/09/2020has been considered by the Council in pursuance of its powers under the above Act and APPROVAL OF RESERVED MATTERS HAS BEEN GRANTED subject to the following conditions:

Standard Conditions

1. The development must be carried out in accordance with the plans submitted and in accordance with the conditions attached to the outline planning permission.

   Reason

   To comply with Section 92 of the Town and Country Planning Act 1990, as amended by the Planning and Compulsory Purchase Act 2004.

2. This permission relates to the following plans and documents as received on the respective dates and development must be carried out in accordance with them:-

   - Location Plan, Scale 1:1250, Drawing Number: 16061-00, received by the Local Planning Authority on the 2nd September 2020.

- Planning Layout (Amended), Scale 1:500, Drawing No: MJG/PL-110, Rev: F, received by the Local Planning Authority on the 1st November 2021.
- Planning Layout (Colour Coded) (Amended), Scale 1:500, Drawing Number: MJG/PL-110-2, Rev C, received by the Local Planning Authority on the 1st November 2021.
- Site Sections (Amended), Scale 1:500, Drawing Number: MJG/PL-110-7, Rev A, received by the Local Planning Authority on the 26th August 2021.
- Street Scene Plots 1-5 (Amended), Scale 1:100, received by the Local Planning Authority on the 22nd July 2021.
- Car Parking Plan (Amended), Scale 1:500, Drawing Number: MJG/PL-110-3, Rev: C, received by the Local Planning Authority on the 1st November 2021.
- Boundary Treatment Plan (Amended), Scale 1:500, Drawing Number: MJG/PL-101-1, Rev C, received by the Local Planning Authority on the 1st November 2021.
- Boundary Treatments 1800mm High Brickwork Screen Wall, Scale 1:20, Drawing Number: SD-110, Rev: B, received by the Local Planning Authority on the 2nd September 2020.
- Boundary Treatments 1800mm High Timber Fence, Scale 1:20, Drawing Number: SD-100, Rev: D, received by the Local Planning Authority on the 2nd September 2020.
- Detached Garage Details Single, Scale 1:50 & 1:100, Drawing Number: SD700, Rev: A, received by the Local Planning Authority on the 2nd September 2020.
- Detached Garage Details Double, Scale 1:50 & 1:100, Drawing Number: SD701, Rev: B, received by the Local Planning Authority on the 2nd September 2021.
- Landscape Plan (Amended), Scale 1:250, Drawing Number: GHIM-WW01-C, received by the Local Planning Authority on the 22nd July 2021.
- Landscape Management Plan (Amended), Scale 1:250, Drawing Number: GHIM-WW02-C, received by the Local Planning Authority on the 22nd July 2021.
- Site Surroundings, received by the Local Planning Authority on the 26th February 2021.
- External and Finished Floor Levels (Amended), Scale 1:200, Drawing Number: K36892/A1/102, Rev: D, received by the Local Planning Authority on the 22nd July 2021.
- Proposed Highway Longitudinal Sections (Amended), Scale 1:100 & 1:500, Drawing Number: K36892/A1/102, Rev: B, received by the Local Planning Authority on the 22nd July 2021.
- Noise Assessment Report, Prepared by RS Acoustic Engineering 22nd July 2021, received by the Local Planning Authority on the 22nd July 2021.
- Economic Benefits Report, Prepared by Homes by Gleeson August 2020, received by the Local Planning Authority on the 2nd September 2020.
- Proposed Highway Levels (Amended), Scale 1:200, Drawing Number: K36892/A1/100, Rev: B, received by the Local Planning Authority on the 22nd July 2021.

- External Works Layout (Amended), Scale 1:200, Drawing Number: K36892/A1/110, Rev: A, received by the Local Planning Authority on the 2^{2nd} July 2021.
- Plot 13 and 14 (211/301), Scale 1:100, Drawing Number: MJG/PL-107-7, received by the Local Planning Authority on the 2nd September 2020.
- Plots 11, 12, 15, and 16 – 301 and 221 House Type, Scale 1:100, Drawing Number: MJG/PL-107-8, received by the Local Planning Authority on the 2nd September 2020.
- House Type 301 Elevations (Rural 13) (Amended), Scale 1:100, Drawing Number: 13/301-8, Rev: E, received by the Local Planning Authority on the 26th August 2021.
- House Type 301 Floor Plans, Scale 1:100, Drawing Number: 301/1H, received by the Local Planning Authority on the 2nd September 2021.
- House Type 303 Elevations (Rural 13) (Amended), Scale 1:100, Drawing No 13/303-9, Rev: F, received by the Local Planning Authority on the 26th August 2021.
- House Type 303 Floor Plans, Scale 1:100, Drawing No: 303/1E, received by the Local Planning Authority on the 2nd September 2020.
- House Type 353 – Elevations and Floor Plans (Opposite Hand), Scale 1:100, Drawing No: 353/1A, received by Local Planning Authority on the 7th September 2021.
- House Type 358 (Rural 13) (Amended), Scale 1:100, Drawing Number: 13/358/359-9, Rev A, received by the Local Planning Authority on the 2^{6th} August 2021.
- House Type 358 Floor Plans, Scale 1:100, Drawing Number: 358/9/1A, received by the Local Planning Authority on the 2nd September 2020.
- House Type 450 Elevations (Amended), Scale 1:100, Drawing Number 13/450-9, received by the Local Planning Authority on the 26th August 2021.
- House Type 450 Floor Plans, Scale 1:100, Drawing Number: 450/1A, received by the Local Planning Authority on the 27th September 2021.
- House Type 450 Elevations and Floor Plans – Opposite Hand (Amended), Scale 1:100, Drawing Number: 1:100, received by the Local Planning Authority on the 7th September 2021.

Reason

To conform with the requirement of Section 91 of the Town and Country Planning Act 1990, as amended by the Planning and Compulsory Purchase Act 2004.

<u>Pre Commencement Conditions:</u>

3. Before development commences at this site a Light Assessment based around the night-time operations of the adjacent commercial garage must be submitted to and

approved in writing by the Local Planning Authority. Any approved remedial action identified within this assessment must be implemented before the development is first occupied and must be retained at all times thereafter.

Reason

To protect residential amenity.

4. Before development commences, a Construction Management Plan must be submitted to and approved in writing by the Local Planning Authority. This plan must include provide details of dust emissions, noise and vibration, and must identify remedial action to prevent nuisance. The development must be carried out in accordance with the approved details at all times thereafter.
   Reason
   In order to protect residential amenity.

Prior to Occupation Conditions:

5. Prior to the first occupation of the development hereby approved a sustainable drainage management and maintenance plan for the lifetime of the development must be submitted to the local planning authority and agreed in writing. The sustainable drainage management and maintenance plan must include as a minimum:

   a) Arrangements for adoption by an appropriate public body or statutory undertaker, or, management and maintenance by a resident's management company; and
   b) Arrangements for inspection and ongoing maintenance of all elements of the sustainable drainage system to secure the operation of the surface water drainage scheme throughout its lifetime.

   The development must subsequently be completed, maintained and managed in accordance with the approved plan.

   Reason

   To ensure that management arrangements are in place for the sustainable drainage system in order to manage the risk of flooding and pollution during the lifetime of the development.

6. Prior to the first occupation of any dwelling hereby approved, the boundary treatment at this site must be installed in accordance with the following approved plans:

    - Boundary Treatment Plan (Amended), Scale 1:500, Drawing Number: MJG/PL-101-1, Rev C, received by the Local Planning Authority on the 1st November 2021.
    - Boundary Treatments 1800mm High Brickwork Screen Wall, Scale 1:20, Drawing Number: SD-110, Rev: B, received by the Local Planning Authority on the 2nd September 2020.
    - Boundary Treatments 1800mm High Timber Fence, Scale 1:20, Drawing Number: SD-100, Rev: D, received by the Local Planning Authority on the 2nd September 2020.

    Once installed the boundary treatment must be retained in accordance with these approved details at all times thereafter.

    Reason

    To protect residential amenity.

7. Prior to the first occupation of any dwelling hereby approved, the mitigation measures identified within the approved document 'Noise Assessment Report, Prepared by RS Acoustic Engineering 22nd July 2021, received by the Local Planning Authority on the 22nd July 2021', must be installed. Once installed the mitigation measures must be retained in accordance with these approved details at all times thereafter.

    Reasons

    To protect residential amenity.

8. Prior to the first occupation of any dwelling hereby approved, the proposed landscaping at this site must be planted in accordance with the following approved document 'Landscape Plan (Amended), Scale 1:250, Drawing Number: GHIM-WW01-C, received by the Local Planning Authority on the 22nd July 2021'. Once installed the landscaping must be retained in accordance with these approved details and managed in accordance with the following approved document 'Landscape Management Plan (Amended), Scale 1:250, Drawing Number: GHIM-WW02-C, received by the Local Planning Authority on the 22nd July 2021', at all times thereafter.

    Reason

To enhance the appearance of the development in the interest of visual amenities of the area and to ensure a satisfactory landscaping scheme.

9. Prior to the first occupation of any dwelling hereby approved, the proposed access to the site must be installed in accordance with the following approved plan 'Planning Layout (Amended), Scale 1:500, Drawing No: MJG/PL-110, Rev: F, received by the Local Planning Authority on the 1st November 2021'. The approved access must be retained at all times thereafter in accordance with these approved details.

   Reason

   In the interests of highway safety

Other conditions:

10. The development hereby approved must be carried out in accordance with the schedule of materials set out in the approved plan 'Planning Layout (Amended), Scale 1:500, Drawing No: MJG/PL-110, Rev: F, received by the Local Planning Authority on the 1st November 2021', and retained as such at all times thereafter.

    Reason

    In the interest of visual amenity.

11. The existing stone wall along the north east frontage of the site must be retained at all times in accordance with the details shown on the approved plan ' Planning Layout (Amended), Scale 1:500, Drawing No: MJG/PL-110, Rev: F, received by the Local Planning Authority on the 1st November 2021'. This wall should not be altered without the prior written consent of the Local Planning Authority.

    Reason

    In the interest of visual amenity.

12. Construction site operating hours will be Monday-Friday 08:00 to 18:00 and Saturdays 08:00 to 13:00. No construction on Sundays or Bank Holidays.

    Reason

In the interest of residential amenity.

13. All HGV deliveries to the site must be carried out solely between the hours of 09:00 and 17:00 Monday to Friday. There must be no HGV deliveries on Saturdays, Sundays and/or Bank Holidays.

    Reason

    In the interest of residential amenity.

Informatives:

1. Prior to the commencement of this development, the requirements of Planning Conditions 4, 5, 6, 7, 8, and 10 of Outline Planning Approval Ref: 4/17/2143/0O1 are required to be submitted and approved in writing by the Local Planning Authority.

2. The development hereby approved must be carried out in accordance with conditions 2, 9, and 11 of Outline Planning Approval Ref: 4/17/2143/0O1.

3. All external lighting must meet the guidelines and obtrusive limits details in the institute of lighting professionals Guidance Notes for the Reduction of Obtrusive light (GN01:2011).

4. The proposed development lies within a coal mining area which may contain unrecorded coal mining related hazards. If any coal mining feature is encountered during development, this should be reported immediately to the Coal Authority on 0345 762 6848.

   Further information is also available on the Coal Authority website at: www.gov.uk/government/organisations/the-coal-authority

Statement:

The Local Planning Authority has acted positively and proactively in determining this application by assessing the proposal against all material considerations, including planning policies and any representations that may have been received, and subsequently determining to grant planning permission in accordance with the presumption in favour of sustainable development as set out in the National Planning Policy Framework.

Please read the accompanying notice

PP Pat Graham
Chief Executive

17th November 2021

APPROVALS
(OUTLINE, FULL RESERVED MATTERS & HOUSEHOLDER)

DEVELOPMENT MANAGEMENT PROCEDURE (ENGLAND) ORDER 2015

PART 2

TOWN AND COUNTRY PLANNING ACT 1990

Appeals to the Secretary of State

- If you are aggrieved by the decision of your local planning authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State under section 78 of the Town and Country Planning Act 1990.
- If you want to appeal against your local planning authority's decision then you must do so within 6 months of the date of this notice.
- Appeals can be made online at: https://www.gov.uk/planning-inspectorate.
  If you are unable to access the online appeal form, please contact the Planning Inspectorate to obtain a paper copy of the appeal form on tel: 0303 444 5000.
- The Secretary of State can allow a longer period for giving notice of an appeal but will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- The Secretary of State need not consider an appeal if it seems to the Secretary of State that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.
- If you intend to submit an appeal that you would like examined by inquiry then you must notify the Local Planning Authority and Planning Inspectorate (inquiryappeals@planninginspectorate.gov.uk) at least 10 days before submitting the appeal. Further details are on GOV.UK.

Purchase Notices

- If either the Local Planning Authority or the Secretary of State refuses permission to develop land or grants it subject to conditions, the owner may claim that he can neither put the land to a reasonably beneficial use in its existing state nor render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted.
- In these circumstances, the owner may serve a purchase notice on the Council (District Council, London Borough Council or Common Council of the City of London) in whose area the land is situated. This notice will require the Council to purchase his interest in the land in accordance with the provisions of Part V1 of the Town and Country Planning Act 1990.

Cumberland Council
Cumbria House
107-117 Botchergate
Carlisle
Cumbria CA1 1RD
Telephone 0300 373 3730
cumberland.gov.uk

TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED).

NOTICE OF GRANT OF PLANNING PERMISSION

This Permission is Subject to a Section 106 Agreement

Gleeson Homes
Rural Enterprise Centre
Penrith
CA11 0DT
FAO Mr Jordan Tyson

APPLICATION No: 4/21/2489/0F1
RESIDENTIAL DEVELOPMENT OF 37 DWELLINGS
LAND WEST OF CLEATOR MOOR ROAD, WHITEHAVEN

Gleeson Homes

The above application dated 08/11/2021 has been considered by the Council in pursuance of its powers under the above mentioned Act and PLANNING PERMISSION HAS BEEN GRANTED subject to the following conditions:

Standard Conditions

1. The development hereby permitted must be commenced before the expiration of three years from the date of this permission.

   Reason

   To comply with Section 91 of the Town and Country Planning Act 1990 as amended by the Planning and Compulsory Purchase Act 2004.

2. This permission relates to the following plans and documents as received on the respective dates and development shall be carried out in accordance with them:-

   - Location Plan, Scale 1:1250, received by the Local Planning Authority on the 8th November 2021.
   - Planning Layout (Amended), Scale 1:500, Drawing No: MJG/PL-112, Revision: G, received by the Local Planning Authority on the 18th August 2022.
   - Planning Layout (Colour Coded) (Amended), Scale 1:500, Drawing No: MJG/PL-112-2, Revision: B, received by the Local Planning Authority on the 18th August 2022.
   - Boundary Treatment Plan (Amended), Scale 1:500, Drawing No: MJG/PL-112-1, Revision: C, received by the Local Planning Authority on the 18th August 2022.
   - Boundary Treatments 1800mm High Brickwork Screen Wall, Scale 1:20, Drawing No: SD-100, Revision: B, received by the Local Planning Authority on the 8th December 2021.
   - 1800mm High Close Boarded Timber Fence, Scale 1:20, Drawing No: SD-100, Revision: F, received by the Local Planning Authority on the 8th December 2021.
   - Car Parking Plan (Amended), Scale 1:500, Drawing No: MJG/PL-112-3, Revision: B, received by the Local Planning Authority on the 18th August 2022.
   - 201 & 301 House Types Contemporary – Elevations (Amended), Scale 1:100, Drawing No: 21-201_301-C, Revision: -, received by the Local Planning Authority on the 15th December 2021.
   - 201 & 301 House Types Contemporary – Elevations (handed) (Amended), Scale 1:100, Drawing No: 21-201_301-C(h), Revision: -, received by the Local Planning Authority on the 15th December 2021.
   - 201/301 Floor Plans (Amended), Scale 1:100, Drawing No: MJG/PL-107-7, Rev: -, received by the Local Planning Authority on the 17th December 2021.
   - 301/201 Floor Plans (Amended), Scale 1:100, Drawing No: MJG/PL-107-8, Rev: -, received by the Local Planning Authority on the 17th December 2021.
   - 303 House Type Contemporary – Elevations (Amended), Scale 1:100, Drawing No: 21-303-C-0301, Revision: C01, received by the Local Planning Authority on the 15th December 2021.
   - 303 Dwelling Type – Floor Plans (Amended), Scale 1:100, Drawing No: 303/1E, received by the Local Planning Authority on the 8th December 2021.
   - 337 House Type Contemporary – Elevations (Amended), Scale 1:100, Drawing No: 21-337-C-0001, Revision: C02, received by the Local Planning Authority on the 14th December 2021.
   - 337 Dwelling Type – Floor Plans (Amended), Scale 1:100, Drawing No: 337/1, received by the Local Planning Authority on the 8th December 2021.

- 340 & 301 House Types Contemporary – Elevations (Amended), Scale 1:100, Drawing No: 21-340_301-C, Revision: -, received by the Local Planning Authority on the 15th December 2021.
- 340 & 301 House Types Contemporary – Elevations (handed) (Amended), Scale 1:100, Drawing No: 21-340_301-C-(h), Revision: -, received by the Local Planning Authority on the 15th December 2021.
- 340/301 House Types Contemporary – Planning Drawing Floor Plans (handed) (Amended), Scale 1:100, Drawing No: 21-340/301-C-0001-(h), Revision: C01, received by the Local Planning Authority on the 17th January 2022.
- 340/301 House Types Contemporary – Planning Drawing Floor Plans (Amended), Scale 1:100, Drawing No: 21-340/301-C-0001, Revision: C01, received by the Local Planning Authority on the 17th January 2022.
- 353 House Type Contemporary – Elevations, Scale 1:100, Drawing No: 21-353-C-0301, Revision: C01, received by the Local Planning Authority on the 8th November 2021.
- 353 House Type Contemporary – Elevations (handed), Scale 1:100, Drawing No: 21-353-C-0301-(h), Revision: C01, received by the Local Planning Authority on the 15th December 2021.
- 353 House Type Contemporary – Planning Drawings Floor Plans (handed), Scale 1:100, Drawing No: 21-353-C-0001-(h), Revision: C01, received by the Local Planning Authority on the 25th January 2022.
- 353 Dwelling Type – Floor Plans, Scale 1:100, Drawing No: 353/1A, received by the Local Planning Authority on the 8th December 2021.
- 359 House Type Contemporary – Elevations (handed) (Amended), Scale 1:100, Drawing No: 21-358/9-C-0301(h), Revision: C01, received by the Local Planning Authority on the 25th January 2022.
- 359 House Type Contemporary – Floor Plans (handed) (Amended), Scale 1:100, Drawing No: 21-358/9-C-0001(h), Revision: C01, received by the Local Planning Authority on the 17th January 2022.
- 435 House Type Contemporary – Elevations, Scale 1:100, Drawing No: 21-435-C-0301, Revision: C02, received by the Local Planning Authority on the 8th November 2021.
- 435 House Type Contemporary – Elevations (handed), Scale 1:100, Drawing No: 21-435-C-0301-(h), Revision: C02, received by the Local Planning Authority on the 15th December 2021.
- 435 Dwelling Type – Floor Plans (Amended), Scale 1:100, Drawing No: 435/1A, received by the Local Planning Authority on the 8th December 2021.
- 435 House Type Contemporary – Planning Drawing Floor Plans (handed) (Amended), Scale 1:100, Drawing No: 21-435-C-0001-(h), Revision: C02, received by the Local Planning Authority on the 17th January 2022.
- 450 House Type Contemporary – Elevations, Scale 1:100, Drawing No: 21-450-C-0301, Revision: C01, received by the Local Planning Authority on the 8th November 2021.
- 450 House Type Contemporary – Elevations (handed), Scale 1:100, Drawing No: 21-450-C-0001, Revision: C01, received by the Local Planning Authority on the 17th January 2022.

- 450 Dwelling Type – Floor Plans, Scale 1:100, Drawing No: 450/1A, received by the Local Planning Authority on the 8th December 2021.
- 450 House Type Contemporary – Planning Drawing Floor Plans (handed), Scale 1:100, Drawing No: 21-450-C-0001-(h), Revision: C01, received by the Local Planning Authority on 17th January 2022.
- Detached Single Garage Details, Scale 1:20, 1:50, & 1:100, Drawing No: SD700, Revision E, received by the Local Planning Authority on the 8th December 2021.
- Street Scenes (Amended), Scale 1:125, Drawing No: MJG/PL-112-2, Revision: A, received by the Local Planning Authority on the 29th April 2022.
- Tree Survey, Scale 1:680, Drawing No: Ivy Mill Phase2_Rev1.0, received by the Local Planning Authority on the 8th November 2021.
- Tree Mitigation Plan (Amended), Scale 1:500, Drawing No: TMP03, Revision: A, received by the Local Planning Authority on the 6th June 2022.
- Tree Constraints Plan, Scale 1:600, Drawing No: Ivy Mill Phase 2 TCP, Revision: 1, received by the Local Planning Authority on the 8th November 2021.
- Tree Survey Report, Prepared by Westwood Landscape July 2021, received by the Local Planning Authority on the 8th November 2021.
- Landscape Plan, Scale 1:500, Drawing No: WW01, Revision: A, received by the Local Planning Authority on the 6th April 2022.
- Topographical Survey, Scale 1:200, Drawing No: GH/CMR/TA01, Revision: -, received by the Local Planning Authority on the 8th November 2021.
- Outline Drainage Layout (Amended), Scale 1:200, Drawing No: 100, Revision: C, received by the Local Planning Authority on the 18th August 2022.
- Drainage Area Plan (Amended), Scale 1:500, Drawing No: GHC-IM-C-P2-14-01, Revision: A, received by the Local Planning Authority on the 23rd June 2022.
- A3 Land Registry Plan Phase 2 (Amended), Scale 1:1250, Ref: GHC-IV-C-P2-10-02, Revision: A, received by the Local Planning Authority on the 23rd June 2022.
- Phase 2 Section 38 Agreement Plan (Amended), Scale 1:500, Drawing No: GHC-IM-C-P2-19-01, Revision: A, received by the Local Planning Authority on the 23rd June 2022.
- Phase 2 S104 Agreement Plan (Amended), Scale 1:250, Drawing No: GHC-IM-C-P2-10-01, Revision: B, received by the Local Planning Authority on the 23rd June 2022.
- Phase 2 Road Setting Out (Amended), Scale 1:500, Drawing No: GHC-IM-C-P218-01, Revision: A, received by the Local Planning Authority on the 23rd June 2022.
- Phase 2 Manhole Schedules, Drawing No: GHC-IM-C-P2-15-01, Revision: -, received by the Local Planning Authority on the 6th June 2022.

- Phase 2 Highway Construction Details, Scale 1:20 & 1:25, Drawing No: GHC-IM-C-P2-SD-01, Revision: -, received by the Local Planning Authority on the 6th June 2022.
- White Lining and Signage Details, Scale 1:500, Drawing No: GHC-IM-C-P2-20-01, Revision: -, received by the Local Planning Authority on the 6th June 2022.
- Developer Services Construction Details, received by the Local Planning Authority on the 6th June 2022.
- Phase 2 Longitudinal Sections 1 of 2 (Amended), Scale 1:100 & 1:500, Drawing No: GHC-IM-C-P2-13-01, Revision: -, received by the Local Planning Authority on the 6th June 2022.
- Phase 2 Longitudinal Sections 2 of 2 (Amended), Scale 1:100 & 1:500, Drawing No: GHC-IM-C-P2-13-02, Revision: -, received by the Local Planning Authority on the 6th June 2022.
- Flood Risk Assessment & Outline Surface Water Drainage Strategy (Amended), Prepared by Site Infrastructure Services Limited May 2019, Ref: GHC-IM-W-FRA-REV B, received by the Local Planning Authority on the 16th November 2022.
- Preliminary Ecological Appraisal, Prepared by Carr Ecology March 2021, received by the Local Planning Authority on the 8th November 2021.
- GEOEnvironmental Appraisal, Prepared by Sirius March 2021, received by the Local Planning Authority on the 8th November 2021.
- Planning Statement (Amended), Prepared by Gleeson, received by the Local Planning Authority on the 18th August 2023.
- Design & Access Statement
- Transport Statement (Amended), Prepared by Vectos June 2022, received by the Local Planning Authority on the 1st July 2022.
- Economic Benefits Report, Prepared by Gleeson November 2021, Version 001, received by the Local Planning Authority on the 8th November 2021.
- Construction Management Plan, Prepared By Gleeson November 2021, received by the Local Planning Authority on the 8th November 2021.

Reason
To conform with the requirement of Section 91 of the Town and Country Planning Act 1990, as amended by the Planning and Compulsory Purchase Act 2004.

<u>Pre Commencement Conditions:</u>

3. Prior to the commencement of development (including any earthworks), the following must be submitted to the local planning authority and approved in writing:

    - Evidence that diversion/abandonment works for the existing water main have been agreed with the relevant statutory undertaker and that the approved works have been undertaken.

- Details of the means of ensuring the water main is protected from damage as a result of the development. These details must include the potential impacts on the water main from construction activities and the impacts post completion of the development, including landscaping, on the water main infrastructure, and identify mitigation measures, to protect and prevent any damage to the water main both during construction and post completion of the development.

Any mitigation measures identified by (ii) must be implemented in full prior to commencement of development in accordance with the approved details and must shall be retained thereafter for the lifetime of the development.

Reason
In the interest of public health and to ensure protection of the public water supply in accordance with the provision of Policy ENV1 and Policy DM24 of the Copeland Local Plan 2013 – 2028.

4. Prior to the commencement of the development hereby approved detailed specifications of carriageways, footways, footpaths, cycleways must be submitted to and approved in writing by the Local Planning Authority. The carriageway, footways, footpaths, cycleways etc shall be designed, constructed, drained and lit to a standard suitable for adoption and must be in accordance with the standards laid down in the current Cumbria Design Guide. Any works so approved must be constructed before the development is complete and maintained thereafter.

   Reason
   To ensure a minimum standard of construction in the interests of highway safety in accordance with the provisions of Policy T1 of the Copeland Local Plan 2013-2028.

5. The development shall not commence until visibility splays shown on approved plan 'Planning Layout (Amended), Scale 1:500, Drawing No: MJG/PL-112, Revision: G, received by the Local Planning Authority on the 18th August 2022' have been provided at the junction of the access road with the county highway.

   Notwithstanding the provisions of the Town and Country Planning (General Permitted Development) (England) Order 2015 (or any Order revoking and re-enacting that Order) relating to permitted development, no structure, vehicle or object of any kind shall be erected, parked or placed and no trees, bushes or other plants shall be planted or be permitted to grown within the visibility splay which obstruct the visibility splays.

The visibility splays shall be constructed before general development of the site commences so that construction traffic is safeguarded.

Reason

In the interests of highway safety in accordance with the provisions of Policy T1 of the Copeland Local Plan 2013-2028.

6. Prior to the commencement of the development hereby approved, details of the proposed vehicle crossing over the footway, including lowering of kerbs, must be submitted to and approved in writing by the Local Planning Authority in consultation with the Highway Authority. Any works so approved must be constructed before the development is complete and maintained thereafter.

   Reason
   To ensure a minimum standard of construction in the interests of highway safety in accordance with the provisions of Policy T1 of the Copeland Local Plan 2013-2028.

7. Any existing highway fence/wall boundary must be reduced to a height not exceeding 1.05m above the carriageway level of the adjacent highway in accordance with details submitted to and approved in writing by the Local Planning Authority before the development commences and must not be raised to a height exceeding 1.05m thereafter.

   Reason
   In the interests of highway safety in accordance with the provisions of Policy T1 of the Copeland Local Plan 2013-2028.

8. The highway drain must be protected at the access prior to the development commencing in accordance with details which have been submitted to and approved in writing by the Local Planning Authority. The works to protect the drain must be carried out in accordance with the approved specifications at all times thereafter.

   Reason
   In the interest of highway safety and environmental protection in accordance with the provisions of Policy T1 of the Copeland Local Plan 2013-2028.

9. The access and parking/turning requirements must be substantially met before any building work commences on site so that constructional traffic can park and turn clear of the highway.

Reason
The carrying out of this development without the provision of these facilities during the construction work is likely to lead to inconvenience and danger to road users.

10. Prior to the commencement of development a Construction Traffic Management Plan (CTMP) must be submitted to and approved in writing by the local planning authority. The CTMP shall include details of:

    - pre-construction road condition established by a detailed survey for accommodation works within the highways boundary conducted with a Highway Authority representative; with all post repairs carried out to the satisfaction of the Local Highway Authority at the applicants expense;
    - details of proposed crossings of the highway verge;
    - retained areas for vehicle parking, manoeuvring, loading and unloading for their specific purpose during the development;
    - cleaning of site entrances and the adjacent public highway;
    - details of proposed wheel washing facilities;
    - the sheeting of all HGVs taking spoil to/from the site to prevent spillage or deposit of any materials on the highway;
    - construction vehicle routing;
    - the management of junctions to and crossings of the public highway and other public rights of way/footway;
    - Details of any proposed temporary access points (vehicular / pedestrian);
    - Surface water management details during the construction phase
    - Specific measures to manage and limit the impact on the school, including working hours, any special measures to accommodate pedestrians, deliveries and movement of equipment on the road network surrounding the site must not take place during school muster times in the interests of road safety

    Reason

    To ensure the undertaking of the development does not adversely impact upon the fabric or operation of the local highway network and in the interests of highway and pedestrian safety in accordance with the provisions of Policy T1 of the Copeland Local Plan 2013-2028.

11. No development approved by this planning permission shall commence until a remediation strategy to deal with the risks associated with contamination of the site in respect of the development hereby permitted, has been submitted to, and approved in writing by, the local planning authority. This strategy will include the following components:

a) A preliminary risk assessment which has identified:
   - all previous uses
   - potential contaminants associated with those uses
   - a conceptual model of the site indicating sources, pathways and receptors
   - potentially unacceptable risks arising from contamination at the site
b) A site investigation scheme, based on (1) to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off-site.
c) The results of the site investigation and the detailed risk assessment referred to in (2) and, based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.
d) A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy in (3) are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

Any changes to these components require the written consent of the local planning authority. The scheme shall be implemented as approved.

Reason
To ensure that the development does not contribute to, and is not put at unacceptable risk from or adversely affected by, unacceptable levels of water pollution in line with paragraph 170 of the National Planning Policy Framework.

12. The development hereby approved must not commence until a tree maintenance scheme, to include detail of the planting and aftercare maintenance of the new trees, has been submitted to and approved in writing by the Local Planning Authority. The development must be carried out in accordance with the approved details at all times thereafter.

    Reason
    To adequately protect the proposed trees within the site.

<u>Prior to Erection of External Walling Conditions</u>

13. No superstructure must be erected until samples and details of the materials to be used in the construction of the external surfaces of the development hereby approved have been submitted to and approved in writing by the Local Planning Authority. Development must be completed in accordance with the

approved details of materials and must be retained for the lifetime of the development.

Reason
To ensure a satisfactory appearance of the development in the interests of visual amenity.

Prior to Occupation Conditions:

14. The drainage for the development hereby approved, must be carried out in accordance with principles set out in the approved document 'Flood Risk Assessment & Outline Surface Water Drainage Strategy (Amended), Prepared by Site Infrastructure Services Limited May 2019, Ref: GHC-IM-W-FRA-REV B, received by the Local Planning Authority on the 16th November 2022'. For the avoidance of doubt surface water for both phases 1 and 2 collectively) must drain at the restricted rate of 10 l/s. Prior to occupation of the proposed development, the drainage schemes must be completed in accordance with the approved details and retained thereafter for the lifetime of the development.

    Reason
    To ensure a satisfactory form of development and to prevent an undue increase in surface water run-off and to reduce the risk of flooding in accordance with the provision of Policy ENV1 and Policy DM24 of the Copeland Local Plan 2013 – 2028.

15. Prior to occupation of the development a sustainable drainage management and maintenance plan for the lifetime of the development must be submitted to the local planning authority and agreed in writing. The sustainable drainage management and maintenance plan must include as a minimum:

    a. Arrangements for adoption by an appropriate public body or statutory undertaker, or, management and maintenance by a resident's management company; and
    b. Arrangements for inspection and ongoing maintenance of all elements of the sustainable drainage system to secure the operation of the surface water drainage scheme throughout its lifetime.

    The development must subsequently be completed, maintained and managed in accordance with the approved plan.

    Reason
    To ensure that management arrangements are in place for the sustainable drainage system in order to manage the risk of flooding and pollution during the lifetime of the development in accordance with the provision of Policy ENV1 and Policy DM24 of the Copeland Local Plan 2013 – 2028.

16. No dwellings shall be occupied until the estate road including footways and cycleways to serve such dwellings has been constructed in all respects to base course level and street lighting where it is to form part of the estate road has been provided and brought into full operational use.

    Reason
    In the interests of highway safety in accordance with the provisions of Policy T1 of the Copeland Local Plan 2013-2028.

17. No dwelling hereby permitted must be occupied until the means of vehicular access and parking provisions to serve that dwelling has been constructed in accordance with the approved plan 'Car Parking Plan (Amended), Scale 1:500, Drawing No: MJG/PL-112-3, Revision: B, received by the Local Planning Authority on the 18th August 2022'. These access and parking arrangements must be retained as such at all times thereafter.

    Reason
    In the interests of highway safety in accordance with the provisions of Policy T1 of the Copeland Local Plan 2013-2028.

18. All hard and soft landscape works must be carried out in accordance with the details illustrated on the approved document 'Landscape Plan, Scale 1:500, Drawing No: WW01, Revision: A, received by the Local Planning Authority on the 6th April 2022'. The works must be carried out in the first planting season following the completion of the development. Any trees / shrubs which are removed, die, become severely damaged or diseased within five years of their planting must be replaced in the next planting season with trees / shrubs of similar size and species to those originally required to be planted unless the Local Planning Authority gives written consent to any variation.

    Reason
    To enhance the appearance of the development in the interest of visual amenities of the area and to ensure a satisfactory landscaping scheme in accordance with Policy DM26 and ENV5 of the Copeland Local Plan 2013-2028.

19. Prior to the first occupation of each dwelling hereby approved, the boundary treatment and landscaping on that occupied plot must be installed in accordance with the following approved plans:

    - Boundary Treatment Plan (Amended), Scale 1:500, Drawing No: MJG/PL-112-1, Revision: C, received by the Local Planning Authority on the 18th August 2022.

- Boundary Treatments 1800mm High Brickwork Screen Wall, Scale 1:20, Drawing No: SD-100, Revision: B, received by the Local Planning Authority on the 8th December 2021.
- 1800mm High Close Boarded Timber Fence, Scale 1:20, Drawing No: SD-100, Revision: F, received by the Local Planning Authority on the 8th December 2021.

Once installed the boundary treatment must be retained in accordance with these approved details at all times thereafter.

Reason
To protect residential amenity in accordance with the provisions of Policy ST1 of the Copeland Local Plan 2013-2028.

20. Prior to the occupation of the first dwelling hereby approved a scheme detailing the layout and design, including play equipment specifications, of the approved public open space must be submitted to and approved in writing by the Local Planning Authority. The approved scheme must be implemented as per the approved details prior to the completion of the development hereby approved. The area must be maintained for use as a public open space in accordance with the approved details for the lifetime of the development.

    Reason
    To ensure the provision of sufficient provision of children's play space within the development for use by residents in accordance with the provisions of Policy SS5 and Policy DM12 of the Copeland Local Plan 2013-2028.

21. Prior to the completion of the development hereby approved, a footpath must be provided that links to the adjacent site also to be developed by the applicant as shown on the approved plan 'Planning Layout (Amended), Scale 1:500, Drawing No: MJG/PL-112, Revision: G, received by the Local Planning Authority on the 18th August 2022'. Once completed the footway must be retained and accessible for its intended use in accordance with the approved details for the lifetime of the development.

    Reason
    To ensure that adequate provision is made for the provision and safeguarding of active travel connections in accordance with the provisions of Policy T1 of the Copeland Local Plan 2013-2028.

<u>Other Conditions:</u>

22. The development must be carried out in accordance with and implement all of the details and mitigation measures specified within the approved document 'Flood Risk Assessment & Outline Surface Water Drainage Strategy (Amended), Prepared by Site Infrastructure Services Limited May 2019, Ref: GHC-IM-W-FRA-REV B, received by the Local Planning Authority on the 16th November 2022', and must be maintained as such at all times thereafter.

    Reason
    To promote sustainable development, secure proper drainage and to manage the risk of flooding and pollution in accordance with the provision of Policy ENV1 and Policy DM24 of the Copeland Local Plan 2013 – 2028.

23. The development must implement all of the mitigation and compensation measures set out in the approved document 'Preliminary Ecological Appraisal, Prepared by Carr Ecology March 2021, received by the Local Planning Authority on the 8th November 2021'. The development must be carried out in accordance with the approved document at all times thereafter.

    Reason
    To protect the ecological interests evident on the site in accordance with Policies ENV3, and DM25 of the Copeland Local Plan 2013-2028.

24. The development must be carried out in accordance with and implement all of the details and mitigation measures specified within the approved document 'GEOEnvironmental Appraisal, Prepared by Sirius March 2021, received by the Local Planning Authority on the 8th November 2021, received by the Local Planning Authority on the 16th March 2023'. All mitigation measures identified must be maintained as such at all times thereafter.

    Reason
    To ensure that the development does not contribute to and is not put at unacceptable risk from or adversely affected by, unacceptable levels of water pollution in accordance with the provisions of Policy ST1 of the Copeland Local Plan 2013 – 2028.

25. The development must be carried out in accordance with and implement all of the details and mitigation measures specified within the approved document Tree Mitigation Plan (Amended), Scale 1:500, Drawing No: TMP03, Revision: A, received by the Local Planning Authority on the 6th June 2022 The development must be carried out in accordance with the approved document at all times thereafter.

    Reason
    To adequately protect the existing trees on site.

26. There shall be no vehicular access to or egress from the site other than via the approved access, unless otherwise agreed by the Local Planning Authority.

    Reason
    To avoid vehicles entering or leaving the site by an unsatisfactory access or route, in the interests of road safety in accordance with the provisions of Policy T1 of the Copeland Local Plan 2013-2028.

27 Access gates, if provided, shall be hung to open inwards only away from the highway.

    Reason
    In the interests of highway safety in accordance with the provisions of Policy T1 of the Copeland Local Plan 2013-2028.

28. The existing boundary wall along the north east boundary of the site must be retained at all times in accordance with the details submitted in the approved document 'Planning Layout (Amended), Scale 1:500, Drawing No: MJG/PL-112, Revision: G, received by the Local Planning Authority on the 18th August 2022'.

    Reason
    To ensure a satisfactory appearance of the development in the interests of visual amenity.

29. In the event that contamination is found at any time when carrying out the approved development that was not previously identified, it must be reported in writing immediately to the Local Planning Authority. Development on the part of the site affected must be halted and a risk assessment carried out and submitted to and approved in writing by the Local Planning Authority. Where unacceptable risks are found remediation and verification schemes shall be submitted to and approved in writing by the Local Planning Authority. These shall be implemented prior to the development (or relevant phase of development) being brought into use. All works shall be undertaken in accordance with current UK guidance, particularly CLR11.

    Reason
    To ensure that risks from land contamination both during the construction phase and to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors in

accordance with the provisions of Policy ST1 of the Copeland Local Plan 2013 – 2028.

30. The development must be carried out in accordance with and implement all of the details and mitigation measures specified within the approve document 'Construction Management Plan, Prepared By Gleeson November 2021, received by the Local Planning Authority on the 8th November 2021'. The development must be carried out in accordance with the approved document at all times thereafter.

    Reason
    To ensure that the development does not contribute to and is not put at unacceptable risk from or adversely affected by, unacceptable levels of water pollution in accordance with the provisions of Policy ST1 of the Copeland Local Plan 2013 – 2028.

31. Construction site operating hours must only take place between the following hours:

    - 08:00am to 18:00pm Monday to Friday; and
    - 08:00am to 13:00 Saturdays

    No construction works shall take place at any time on Sundays or Bank Holidays.

    Reason
    To safeguard the amenity of neighbouring occupiers in accordance with the provisions of Policy ST1 of the Copeland Local Plan 2013-2028.

32. All HGV deliveries to the site must only take place between the following hours:

    - 09:00am to 17:00pm Monday to Friday

    There must be no HGV deliveries on Saturdays, Sundays or Bank Holidays.

    Reason

    To safeguard the amenity of neighbouring occupiers in accordance with the provisions of Policy ST1 of the Copeland Local Plan 2013-2028.

Informative Notes:

1. Any works within the Highway must be agreed with the Highway Authority. No works and/or any person performing works on any part of the Highway, including Verges, will be permitted, until in receipt of an appropriate permit allowing such works. Enquires should be made to Cumberland Councils Streetwork's team.

2. The proposed development lies within a coal mining area which may contain unrecorded coal mining related hazards. If any coal mining feature is encountered during development, this should be reported immediately to the Coal Authority on 0345 762 6848.

   Further information is also available on the Coal Authority website at: www.gov.uk/government/organisations/the-coal-authority

Statement:

The Local Planning Authority has acted positively and proactively in determining this application by assessing the proposal against all material considerations, including planning policies and any representations that may have been received, and subsequently determining to grant planning permission in accordance with the presumption in favour of sustainable development as set out in the National Planning Policy Framework.

Please read the accompanying notice

Jane Meek
Assistant Director
Thriving Place and Investment

13th May 2024

APPROVALS
(OUTLINE, FULL RESERVED MATTERS & HOUSEHOLDER)

TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE) (ENGLAND) ORDER 2015

PART 2

TOWN AND COUNTRY PLANNING ACT 1990

Appeals to the Secretary of State

- If you are aggrieved by the decision of your local planning authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State under section 78 of the Town and Country Planning Act 1990.
- If you want to appeal against your local planning authority's decision then you must do so within 6 months of the date of this notice.
- Appeals can be made online at: https://www.gov.uk/appeal-planning-decision . If you are unable to access the online appeal form, please contact the Planning Inspectorate to obtain a paper copy of the appeal form on tel: 0303 444 5000.
- The Secretary of State can allow a longer period for giving notice of an appeal but will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- The Secretary of State need not consider an appeal if it seems to the Secretary of State that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.
- If you intend to submit an appeal that you would like examined by inquiry then you must notify the Local Planning Authority and Planning Inspectorate (inquiryappeals@planninginspectorate.gov.uk) at least 10 days before submitting the appeal. Further details are on GOV.UK.

Purchase Notices

- If either the Local Planning Authority or the Secretary of State refuses permission to develop land or grants it subject to conditions, the owner may claim that he can neither put the land to a reasonably beneficial use in its existing state nor render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted.
- In these circumstances, the owner may serve a purchase notice on the Council (District Council, London Borough Council or Common Council of the City of London) in whose area the land is situated. This notice will require the Council to purchase his interest in the land in accordance with the provisions of Part V1 of the Town and Country Planning Act 1990.

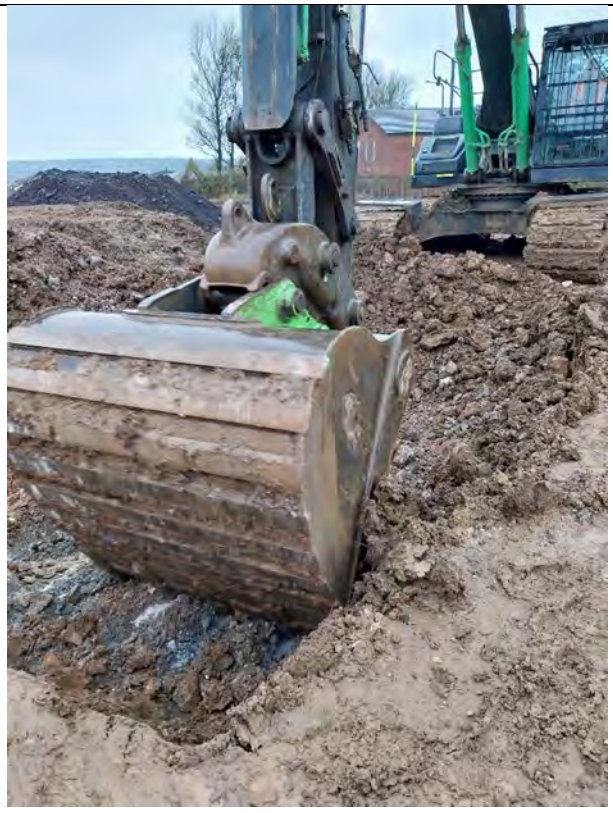
APPENDIX C

SITE PHOTOGRAPHIC RECORD

Project:	Ivy Mills, Whitehaven	Project No.	SR4798
Photograph 1: View across Phase 2 prior to works commencing			
Photograph 2: View across Phase 1 prior to works commencing			

Photograph 3: Turnover of made ground (Phase 2 Area)	
Photograph 4: Turnover of made ground (Phase 1 Area)	

Photograph 5: TPD hotspot excavation and validation (Phase 1 Area)	
Photograph 6: TPF hotspot excavation and validation (Phase I Area)	

Photograph 7: TP3 hotspot excavation and validation (Phase 2 Area)	
Photograph 8: Slag material being excavated near former TP6 (Phase 2 Area)	

Photograph 9: Slag material being placed below capping soils depth in rear gardens to Plots 1-14 in Phase 1 Area	

Photograph 10: TPH impacted material in TP207 (Phase 2 Area)	
Photograph 11: TP207 hotspot excavation and validation	

Photograph 12: TP207 hotspot excavation and validation	
Photograph 13: TP207 hotspot excavation and validation	

Photograph 14: Invasive plant species impacted soils being loaded onto plastic sheeting for temporary storage pending off-site disposal	
Photograph 15: Assurance air monitoring taking place during processing and placement of Stockpile SP105	

Photograph 16: Placed and compacted fill in Phase 1	
Photograph 17: Placed and compacted fill in Phase 2	

Photograph 18: Compaction of granular material at formation along proposed road alignments	
Photograph 19: CBR Plate Load testing along road alignments	

APPENDIX D

GEOTECHINCAL TESTING CERTIFICATES

LABORATORY REPORT

Contract Number: PSL24/7630

Report Date:	30 October 2024
Client's Reference:	SR4798
Client Name:	Sirius Durham 4245 Park Approach Century Way Thorpe Park Leeds LS15 8GB
For the attention of:	**Jack Clarke/Alastair Cook**
Contract Title:	Ivy Mills, Whitehaven
Date Received:	18/10/2024
Date Commenced:	18/10/2024
Date Completed:	30/10/2024
Notes:	**Opinions and Interpretations are outside the UKAS Accreditation**

Checked and Approved Signatories:

A Watkins
(Managing Director)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

D Nicholson
(Senior Technician)

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
SP104-S1		B			Grey GRAVEL with cobbles.
SP104-S2		B			Grey GRAVEL with cobbles.
SP105-S1		B			Grey very gravelly COBBLES.
SP105-S2		B			Grey GRAVEL with cobbles.
SP106-S1		B			Grey very gravelly COBBLES.
SP106-S2		B			Grey very gravelly COBBLES.
Plot 35 - B1		B			Brown sandy slightly gravelly CLAY.
Plot 39 - B1		B			Brown sandy slightly gravelly CLAY.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/7630
Client Ref:
SR4798

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Water Content %	Linear Shrinkage	Particle Density Mg/m^3	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425mm %	Remarks
Plot 35 - B1		**B**			**26.1**			**46**	**22**	**24**	**87**	**Medium Plasticity CIM**
Plot 39 - B1		**B**			**25.4**			**48**	**22**	**26**	**87**	**Medium Plasticity CIM**

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022
Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7
Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9
Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic

UKAS TESTING 4043

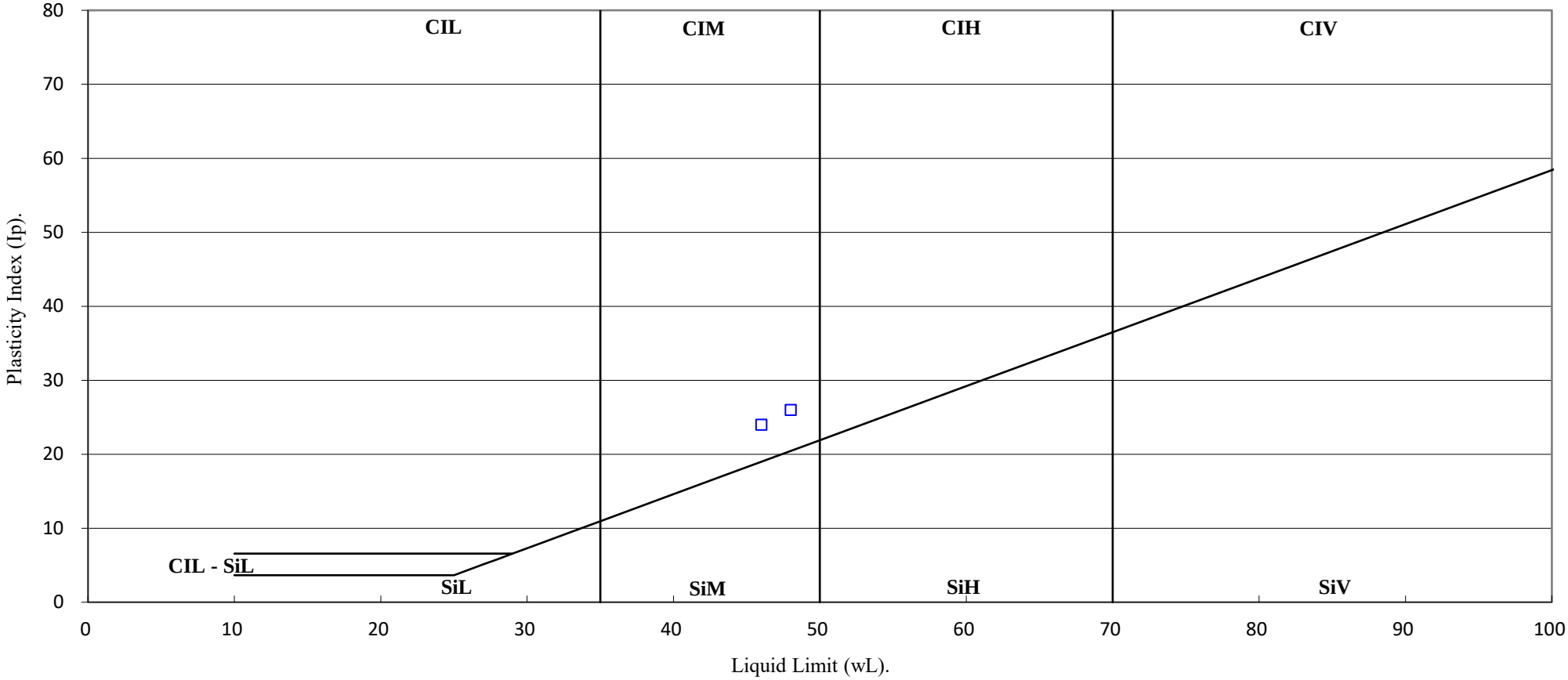
PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/7630
Client Ref:
SR4798

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**Ivy Mills, Whitehaven**	**Contract No:**
		PSL24/7630
		Client Ref:

PARTICLE SIZE DISTRIBUTION TEST

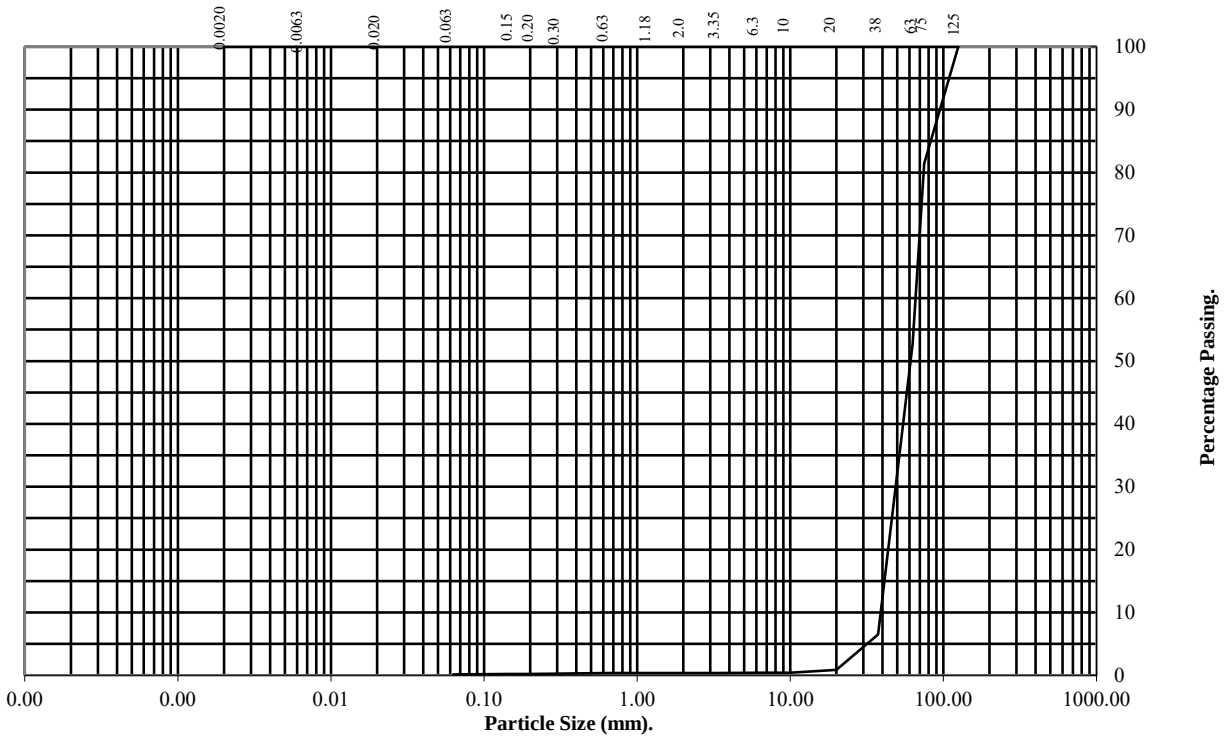
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: SP104-S1 **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	81
63	53
37.5	7
20	1
10	0
6.3	0
3.35	0
2	0
1.18	0
0.63	0
0.3	0
0.2	0
0.15	0
0.063	0

Soil Fraction	Total Percentage
Cobbles	47
Gravel	53
Sand	0
Silt/Clay	0

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

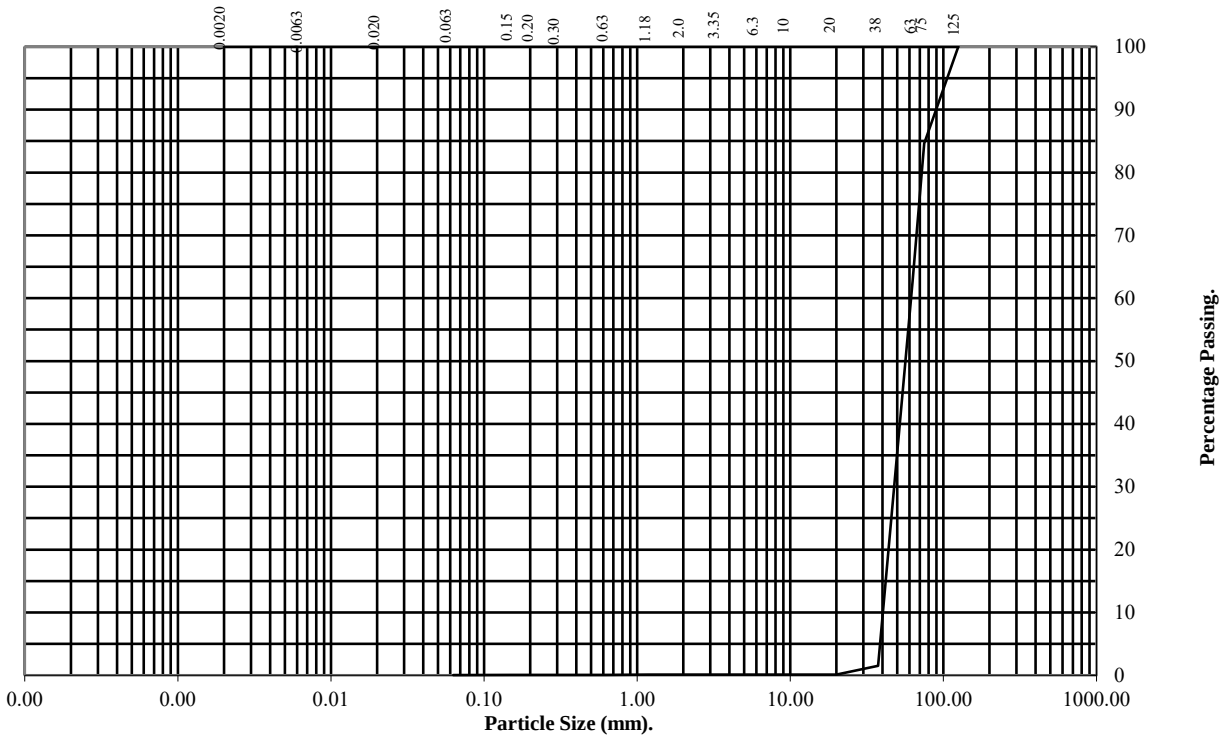
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: SP104-S2 **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	85
63	63
37.5	1
20	0
10	0
6.3	0
3.35	0
2	0
1.18	0
0.63	0
0.3	0
0.2	0
0.15	0
0.063	0

Soil Fraction	Total Percentage
Cobbles	37
Gravel	63
Sand	0
Silt/Clay	0

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

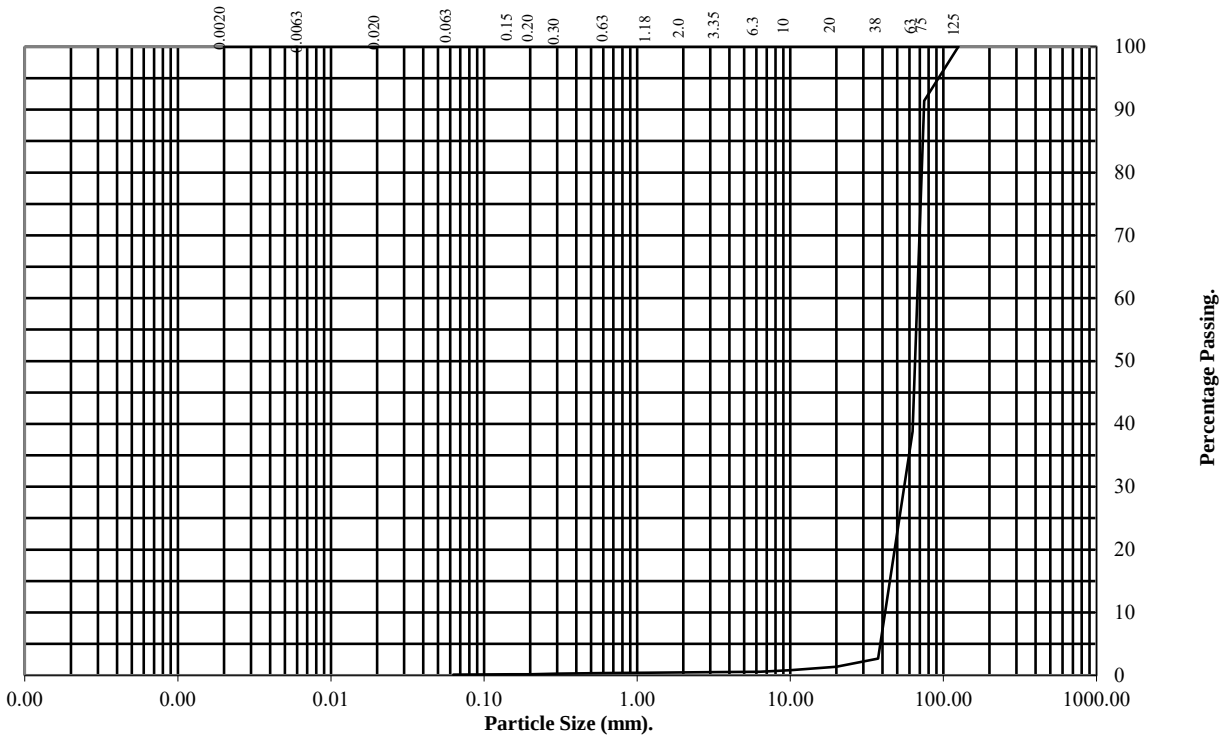
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: SP105-S1 **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	91
63	39
37.5	3
20	1
10	1
6.3	1
3.35	0
2	0
1.18	0
0.63	0
0.3	0
0.2	0
0.15	0
0.063	0

Soil Fraction	Total Percentage
Cobbles	61
Gravel	39
Sand	0
Silt/Clay	0

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

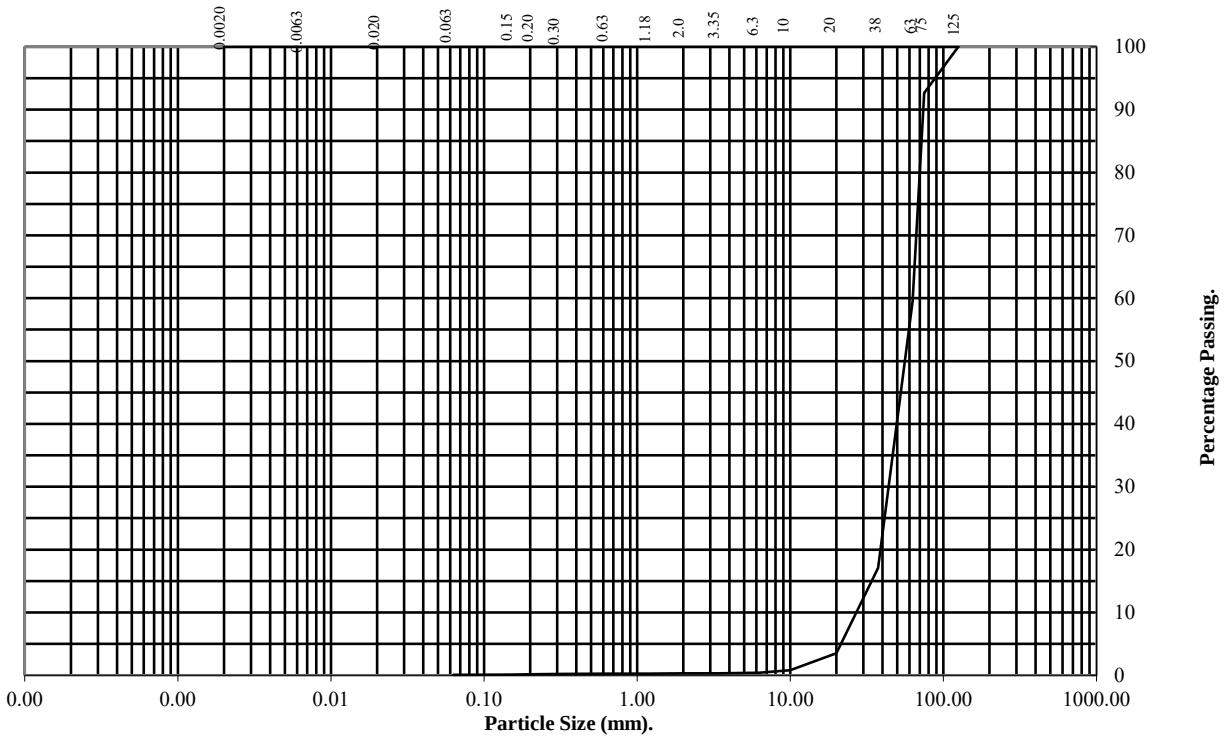
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: SP105-S2 **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	93
63	60
37.5	17
20	4
10	1
6.3	0
3.35	0
2	0
1.18	0
0.63	0
0.3	0
0.2	0
0.15	0
0.063	0

Soil Fraction	Total Percentage
Cobbles	40
Gravel	60
Sand	0
Silt/Clay	0

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

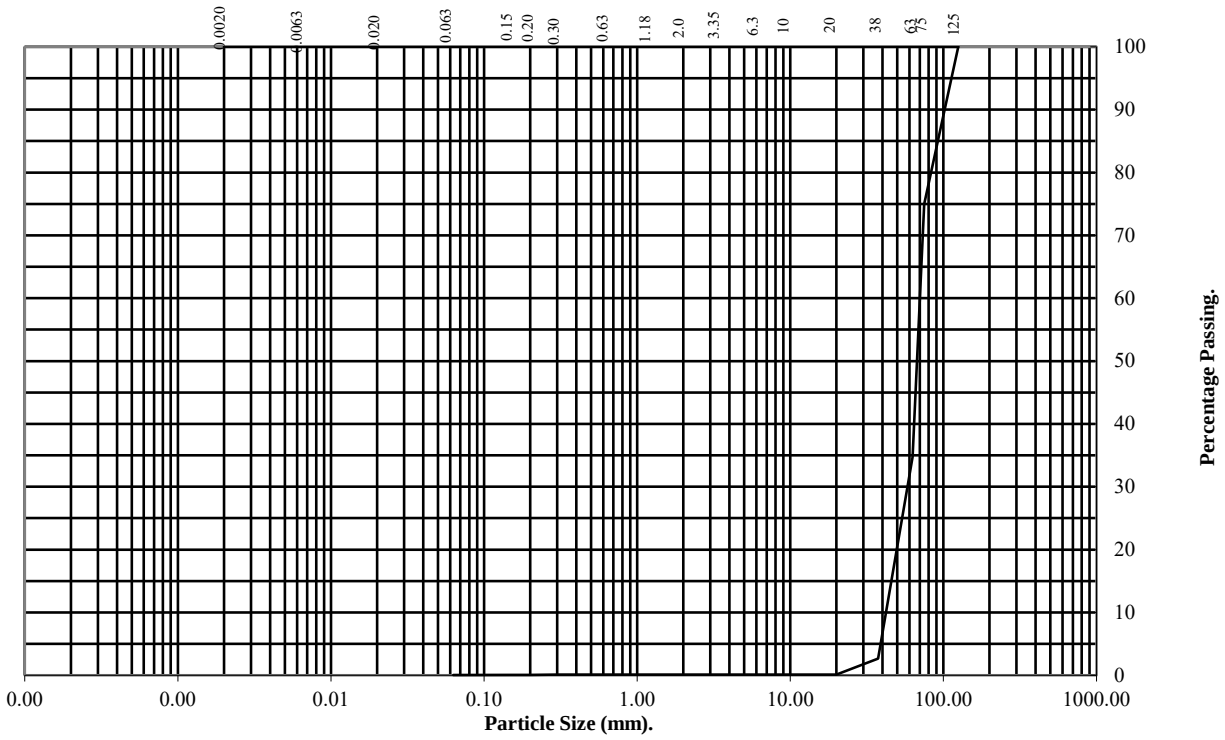
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: SP106-S1 **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	75
63	35
37.5	3
20	0
10	0
6.3	0
3.35	0
2	0
1.18	0
0.63	0
0.3	0
0.2	0
0.15	0
0.063	0

Soil Fraction	Total Percentage
Cobbles	65
Gravel	35
Sand	0
Silt/Clay	0

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

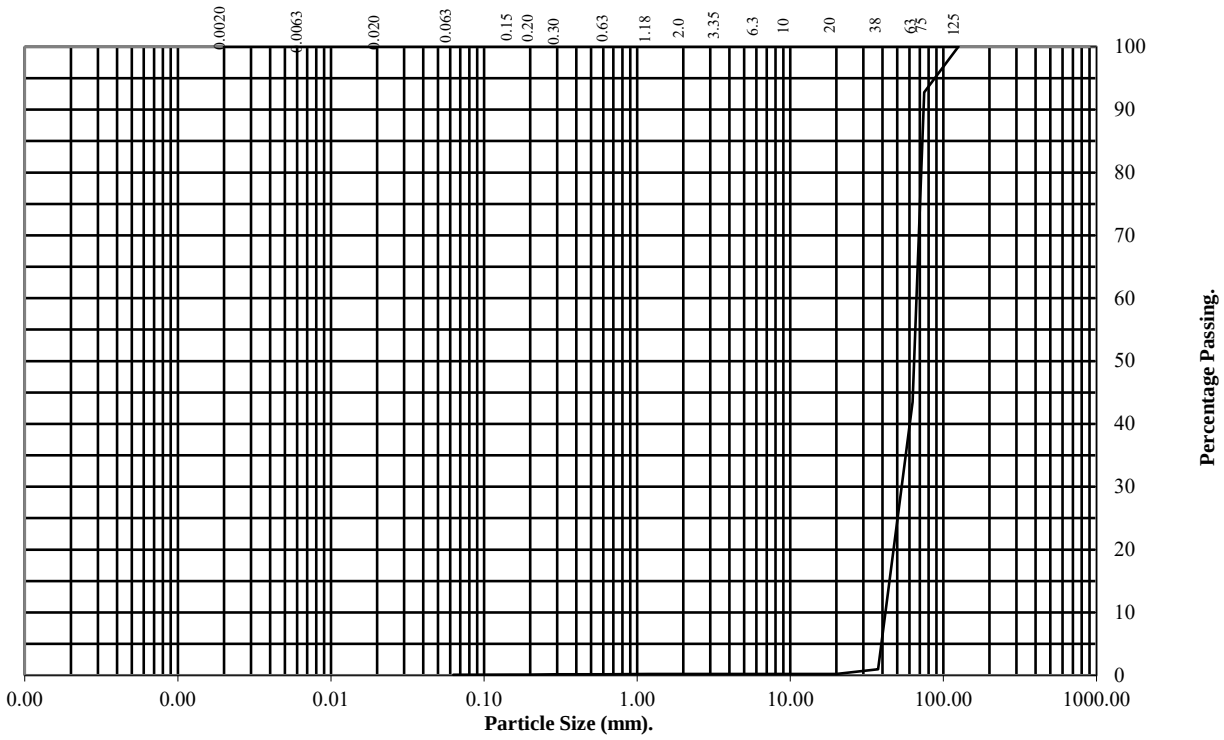
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: SP106-S2 **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	93
63	43
37.5	1
20	0
10	0
6.3	0
3.35	0
2	0
1.18	0
0.63	0
0.3	0
0.2	0
0.15	0
0.063	0

Soil Fraction	Total Percentage
Cobbles	57
Gravel	43
Sand	0
Silt/Clay	0

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

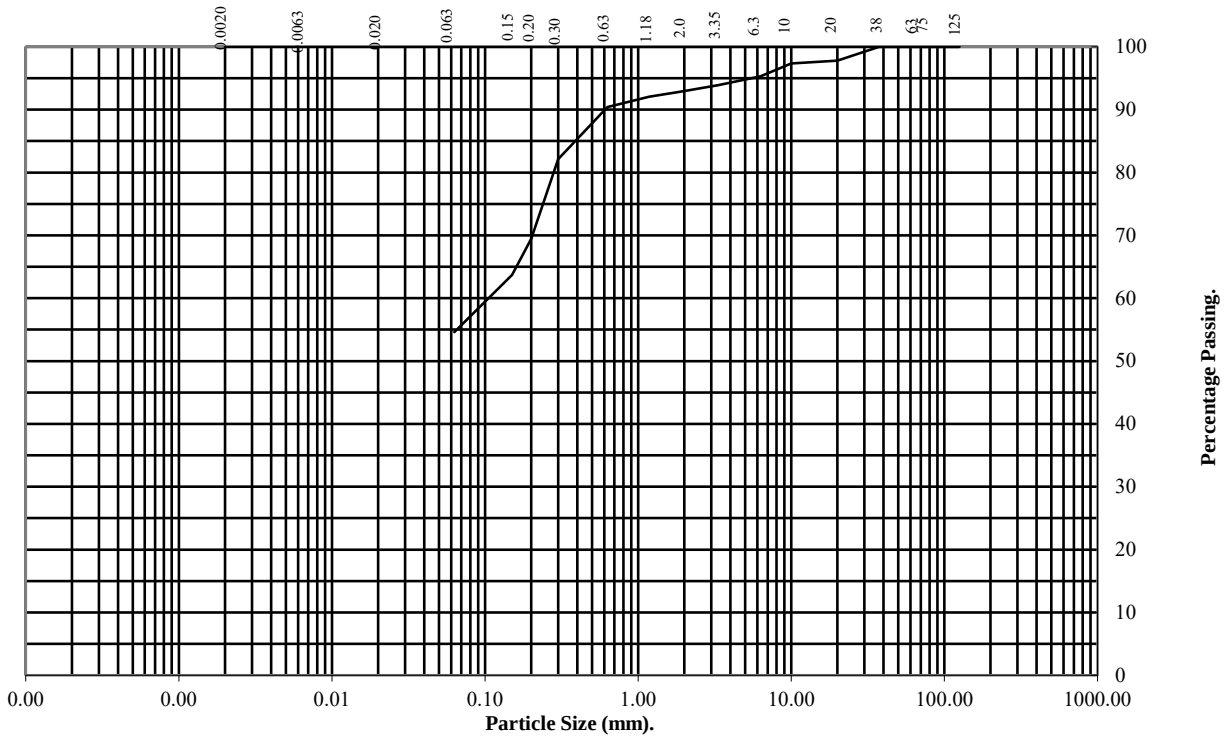
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: Plot 35 - B1 **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	98
10	97
6.3	95
3.35	94
2	93
1.18	92
0.63	90
0.3	82
0.2	69
0.15	64
0.063	55

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	38
Silt/Clay	55

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

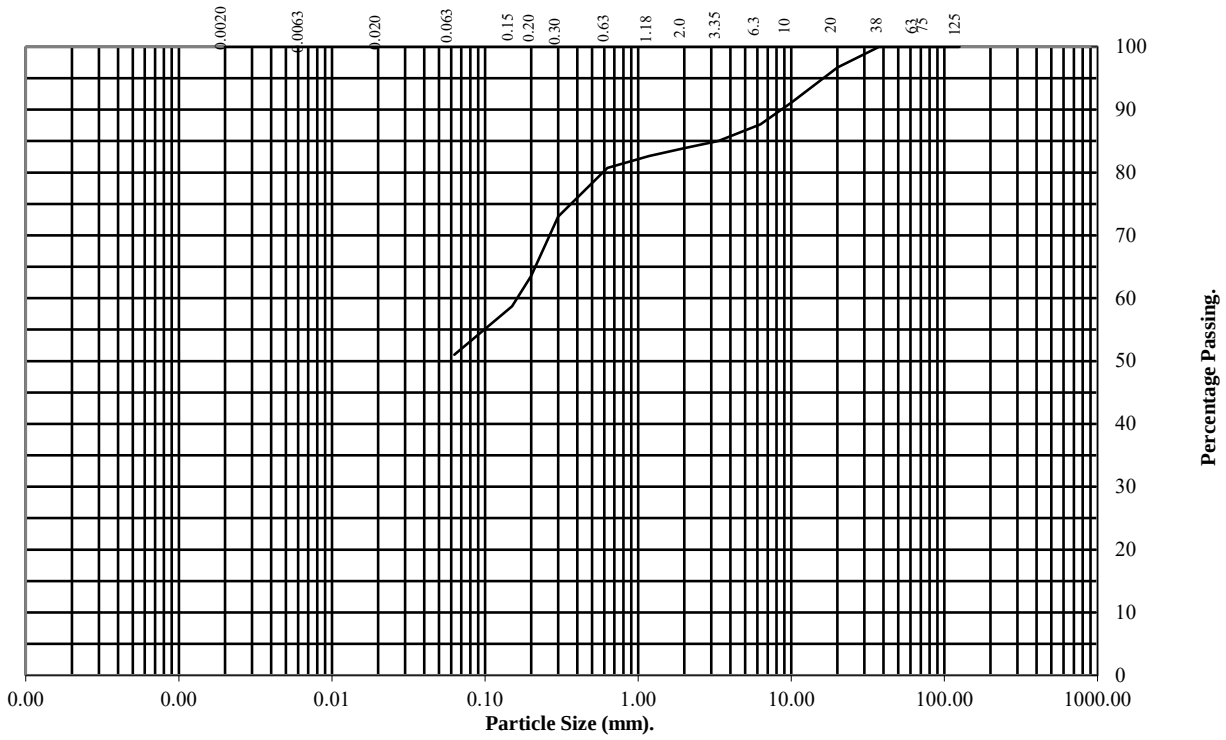
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: Plot 39 - B1 **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	97
10	91
6.3	88
3.35	85
2	84
1.18	83
0.63	81
0.3	73
0.2	64
0.15	59
0.063	51

Soil Fraction	Total Percentage
Cobbles	0
Gravel	16
Sand	33
Silt/Clay	51

Remarks:

See Summary of Soil Descriptions

LABORATORY REPORT

Contract Number: PSL24/7631

Report Date: 07 November 2024

Client's Reference: SR4798

Client Name: Sirius Durham
4245 Park Approach
Century Way
Thorpe Park
Leeds
LS15 8GB

For the attention of: Jack Clarke/Alastair Cook

Contract Title: Ivy Mills, Whitehaven

Date Received: 18/10/2024
Date Commenced: 18/10/2024
Date Completed: 7/11/2024

Notes: Opinions and Interpretations are outside the UKAS Accreditation

Checked and Approved Signatories:

A Watkins (Managing Director)
R Berriman (Associate Director)
S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)
S Eyre (Senior Technician)
T Watkins (Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Sample Reference	Layer Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
Plot 3	1	B			Brown slightly sandy slightly gravelly CLAY.
Plot 3	1	D			Brown slightly sandy slightly gravelly CLAY.
TT201		B	0.60	0.80	Grey SLAG.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/7631
Client Ref:
SR4798

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

Sample Reference	Layer Number	Sample Type	Grid Ref	Base Depth m	Water Content %	Linear Shrinkage	Particle Density Mg/m^3	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425mm %	Remarks
Plot 3	**1**	**B**			**21.5**			**47**	**21**	**26**	**59**	**Medium Plasticity CIM**
Plot 3	**1**	**D**			**21.5**							

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022
Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7
Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9
Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic

UKAS TESTING 4043

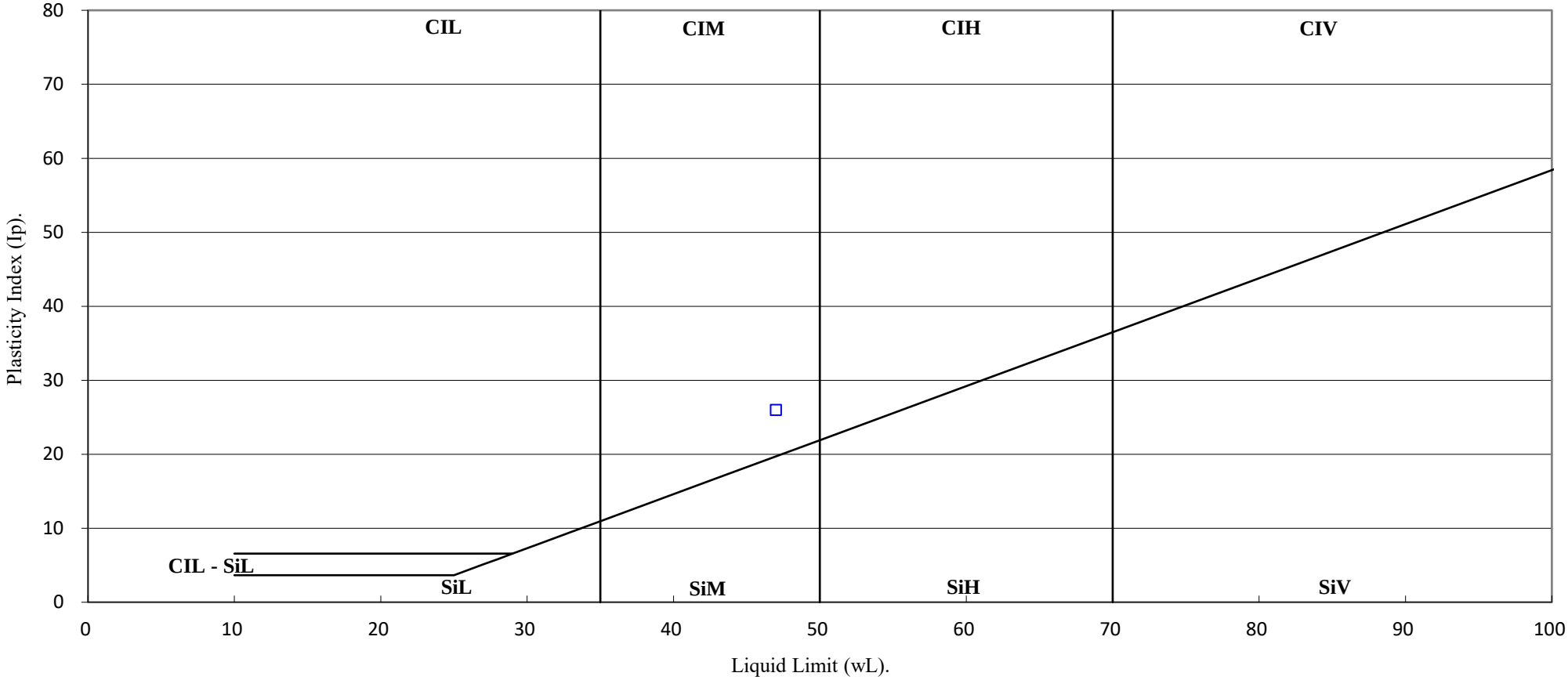
PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/7631
Client Ref:
SR4798

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**Ivy Mills, Whitehaven**	**Contract No:**
		PSL24/7631
		Client Ref:

PARTICLE SIZE DISTRIBUTION TEST

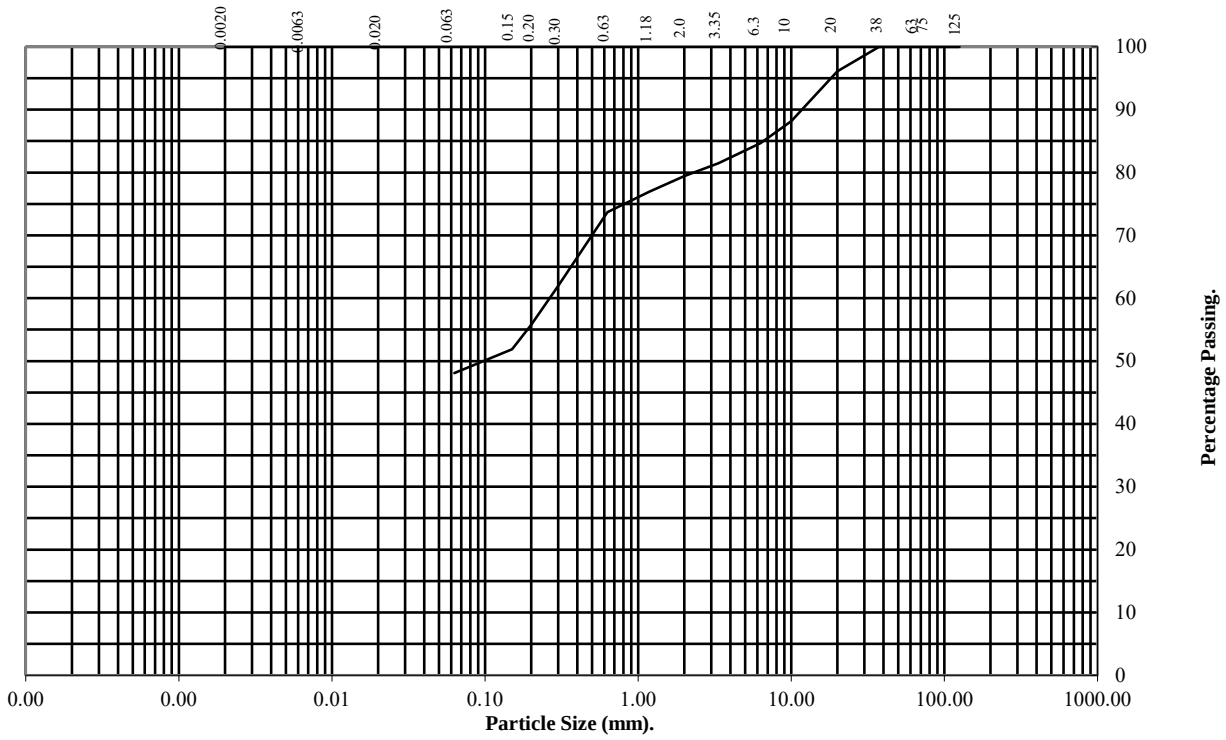
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Sample Reference: **Plot 3** **Grid Ref:**

Layer Number: **1** **Sample Date:**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	96
10	88
6.3	85
3.35	82
2	79
1.18	77
0.63	74
0.3	62
0.2	56
0.15	52
0.063	48

Soil Fraction	Total Percentage
Cobbles	0
Gravel	21
Sand	31
Silt/Clay	48

Remarks:

See Summary of Soil Descriptions

EMERY EXPANSION TEST.

Road and Transport Association of Canada 1974.

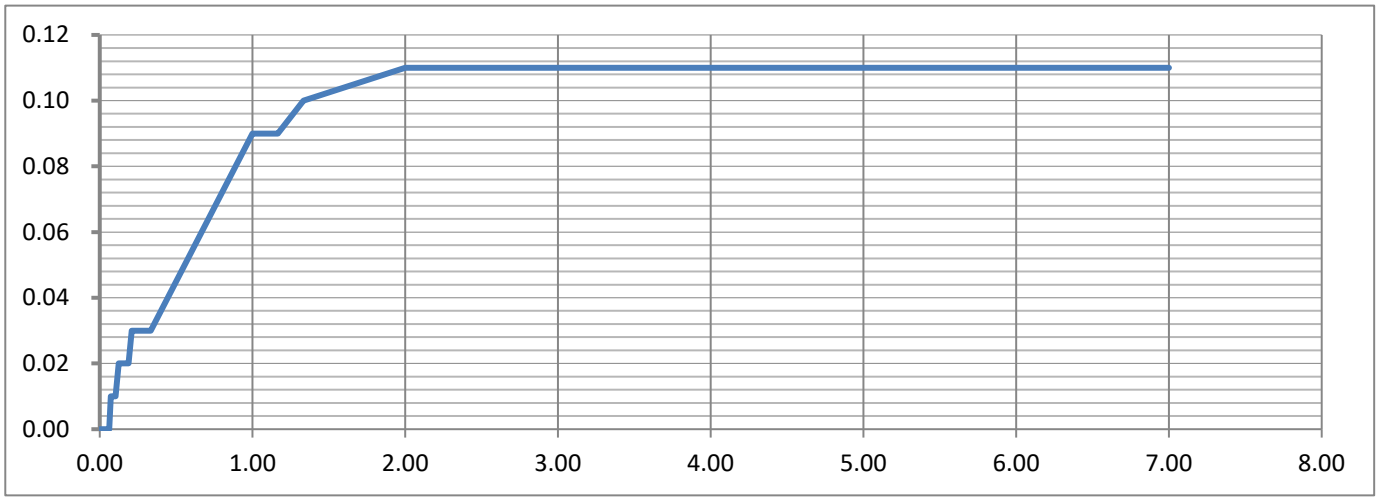
Hole Number: TT201 **Top Depth (m):** 0.60

Sample Number: **Base Depth(m):** 0.80

Sample Type: B

INITIAL CONDITIONS.		FINAL CONDITIONS.	
Initial Height - mm:	127.25	Final Height - mm:	127.36
Initial Diameter - mm:	152.08	Final Mass - g:	4114.00
Initial Mass - g:	4077.00	Final Volume - cm3:	2313.79
Initial Volume - cm3:	2311.79	Dry Mass - g:	3341.00
Dry Mass - g:	3341.00	Final Moisture Content - %:	23.1
Initial Moisture Content - %:	22.0	Final Bulk Density - Mg/m3:	1.78
Initial Bulk Density - Mg/m3:	1.76	Final Dry Density - Mg/m3:	1.44
Initial Dry Density - Mg/m3:	1.45	Test Temperature oC:	82

Elapsed Time Min	Dial Gauge Reading Div	Change In Height mm	Elapsed Time Min	Dial Gauge Reading Div	Change In Height mm	Elapsed Time Min	Dial Gauge Reading Div	Change In Height mm
0	0	0.00	120	1	0.01	2880	11	0.11
5	0	0.00	150	1	0.01	3120	11	0.11
10	0	0.00	180	2	0.02	3360	11	0.11
15	0	0.00	210	2	0.02	4320	11	0.11
20	0	0.00	240	2	0.02	4560	11	0.11
25	0	0.00	270	2	0.02	4800	11	0.11
30	0	0.00	300	3	0.03	5760	11	0.11
40	0	0.00	360	3	0.03	6240	11	0.11
50	0	0.00	420	3	0.03	7200	11	0.11
60	0	0.00	480	3	0.03	7680	11	0.11
75	0	0.00	1440	9	0.09	8640	11	0.11
90	0	0.00	1680	9	0.09	9120	11	0.11
105	1	0.01	1920	10	0.10	10080	11	0.11



PROFESSIONAL SOILS LABORATORY
A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/7631
Client Ref:
SR4798

LABORATORY REPORT

Contract Number: PSL24/7686

Report Date: 04 November 2024

Client's Reference: SR4798

Client Name: Sirius Durham
Suite 2, Russel House
Mill Road
Langley Moor
Durham
DH7 8HJ

For the attention of: Jack Clarke/Alastair Cook

Contract Title: Ivy Mills, Whitehaven

Date Received: 22/10/2024
Date Commenced: 22/10/2024
Date Completed: 4/11/2024

Notes: Opinions and Interpretations are outside the UKAS Accreditation

Checked and Approved Signatories:

A Watkins (Managing Director)
R Berriman (Associate Director)
S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)
S Eyre (Senior Technician)
T Watkins (Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
SP - B1		B			MADE GROUND grey slag.
SP - B2		B			MADE GROUND grey slag.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/7686
Client Ref:
SR4798

EMERY EXPANSION TEST.

Road and Transport Association of Canada 1974.

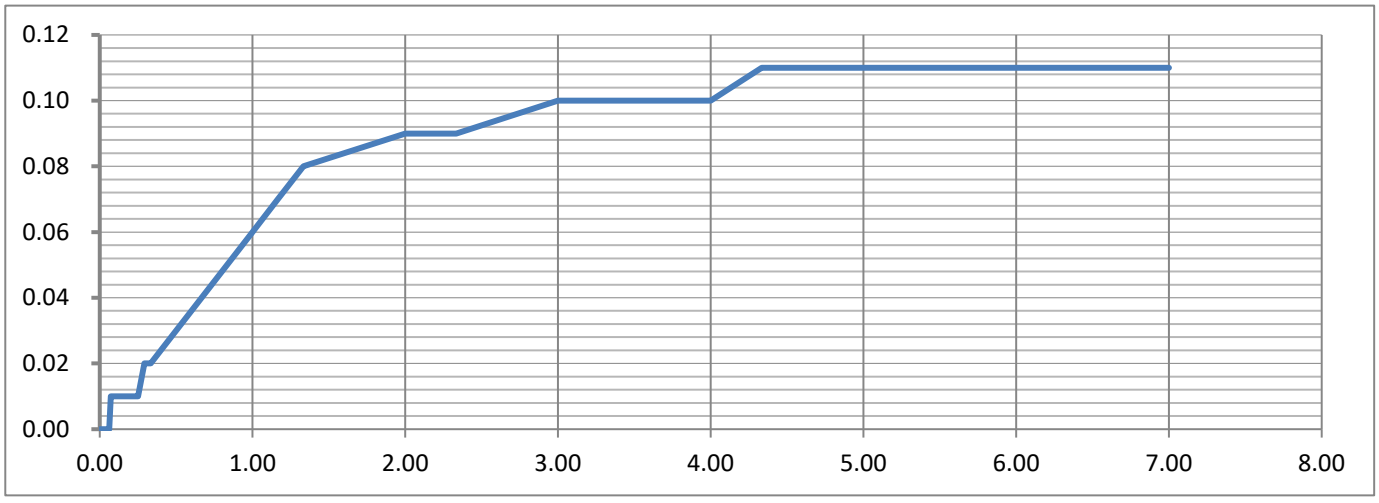
Hole Number: SP - B1 **Top Depth (m):**

Sample Number: **Base Depth(m):**

Sample Type: B

INITIAL CONDITIONS.		FINAL CONDITIONS.	
Initial Height - mm:	127.23	Final Height - mm:	127.34
Initial Diameter - mm:	151.97	Final Mass - g:	4475.00
Initial Mass - g:	4435.00	Final Volume - cm3:	2310.08
Initial Volume - cm3:	2308.08	Dry Mass - g:	3684.00
Dry Mass - g:	3684.00	Final Moisture Content - %:	21.5
Initial Moisture Content - %:	20.4	Final Bulk Density - Mg/m3:	1.94
Initial Bulk Density - Mg/m3:	1.92	Final Dry Density - Mg/m3:	1.59
Initial Dry Density - Mg/m3:	1.60	Test Temperature oC:	82

Elapsed Time Min	Dial Gauge Reading Div	Change In Height mm	Elapsed Time Min	Dial Gauge Reading Div	Change In Height mm	Elapsed Time Min	Dial Gauge Reading Div	Change In Height mm
0	0	0.00	120	1	0.01	2880	9	0.09
5	0	0.00	150	1	0.01	3120	9	0.09
10	0	0.00	180	1	0.01	3360	9	0.09
15	0	0.00	210	1	0.01	4320	10	0.10
20	0	0.00	240	1	0.01	4560	10	0.10
25	0	0.00	270	1	0.01	4800	10	0.10
30	0	0.00	300	1	0.01	5760	10	0.10
40	0	0.00	360	1	0.01	6240	11	0.11
50	0	0.00	420	2	0.02	7200	11	0.11
60	0	0.00	480	2	0.02	7680	11	0.11
75	0	0.00	1440	6	0.06	8640	11	0.11
90	0	0.00	1680	7	0.07	9120	11	0.11
105	1	0.01	1920	8	0.08	10080	11	0.11



PROFESSIONAL SOILS LABORATORY
A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/7686
Client Ref:
SR4798

EMERY EXPANSION TEST.

Road and Transport Association of Canada 1974.

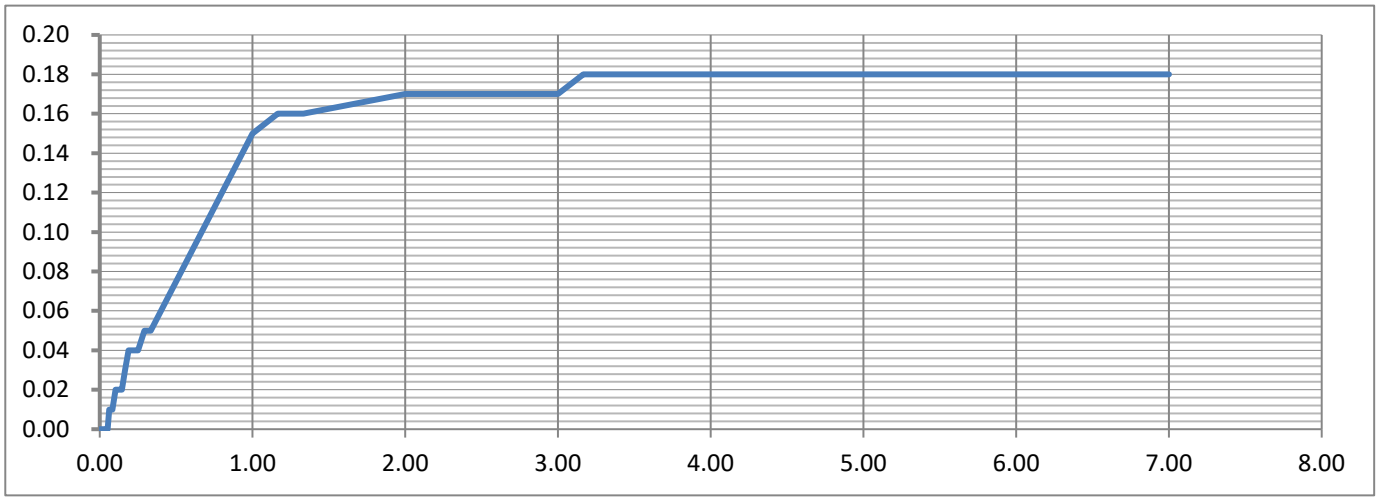
Hole Number: SP - B2 **Top Depth (m):**

Sample Number: **Base Depth(m):**

Sample Type: B

INITIAL CONDITIONS.		FINAL CONDITIONS.	
Initial Height - mm:	128.11	Final Height - mm:	128.29
Initial Diameter - mm:	151.83	Final Mass - g:	4080.00
Initial Mass - g:	4063.00	Final Volume - cm3:	2323.03
Initial Volume - cm3:	2319.77	Dry Mass - g:	3286.00
Dry Mass - g:	3286.00	Final Moisture Content - %:	24.2
Initial Moisture Content - %:	23.6	Final Bulk Density - Mg/m3:	1.76
Initial Bulk Density - Mg/m3:	1.75	Final Dry Density - Mg/m3:	1.41
Initial Dry Density - Mg/m3:	1.42	Test Temperature oC:	82

Elapsed Time Min	Dial Gauge Reading Div	Change In Height mm	Elapsed Time Min	Dial Gauge Reading Div	Change In Height mm	Elapsed Time Min	Dial Gauge Reading Div	Change In Height mm
0	0	0.00	120	1	0.01	2880	17	0.17
5	0	0.00	150	2	0.02	3120	17	0.17
10	0	0.00	180	2	0.02	3360	17	0.17
15	0	0.00	210	2	0.02	4320	17	0.17
20	0	0.00	240	3	0.03	4560	18	0.18
25	0	0.00	270	4	0.04	4800	18	0.18
30	0	0.00	300	4	0.04	5760	18	0.18
40	0	0.00	360	4	0.04	6240	18	0.18
50	0	0.00	420	5	0.05	7200	18	0.18
60	0	0.00	480	5	0.05	7680	18	0.18
75	0	0.00	1440	15	0.15	8640	18	0.18
90	1	0.01	1680	16	0.16	9120	18	0.18
105	1	0.01	1920	16	0.16	10080	18	0.18



PROFESSIONAL SOILS LABORATORY
A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/7686
Client Ref:
SR4798

LABORATORY REPORT

Contract Number: PSL24/8078

Report Date: 30 November 2024

Client's Reference: SR4798

Client Name: Sirius Durham
Suite 2, Russel House
Mill Road
Langley Moor
Durham
DH7 8HJ

For the attention of: Jack Clarke/Alastair Cook

Contract Title: Ivy Mills, Whitehaven

Date Received: 4/11/2024
Date Commenced: 4/11/2024
Date Completed: 30/11/2024

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Managing Director)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)

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awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
SP - B3		B			Brown mottled grey slightly sandy gravelly CLAY with cobbles.
SP - B4		B			Brown sandy clayey GRAVEL with cobbles.
Plot 9 - B		B			Brown mottled grey slightly sandy slightly gravelly CLAY.
Plot 9 - D		D			Brown mottled grey slightly sandy slightly gravelly CLAY.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:

PSL24/8078

Client Ref:

SR4798

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Water Content %	Linear Shrinkage	Particle Density Mg/m^3	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425mm %	Remarks
Plot 9 - B		**B**			**22.4**			**47**	**22**	**25**	**84**	**Medium Plasticity CIM**
Plot 9 - D		**D**			**18.9**							

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022
Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7
Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9
Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic

UKAS TESTING 4043

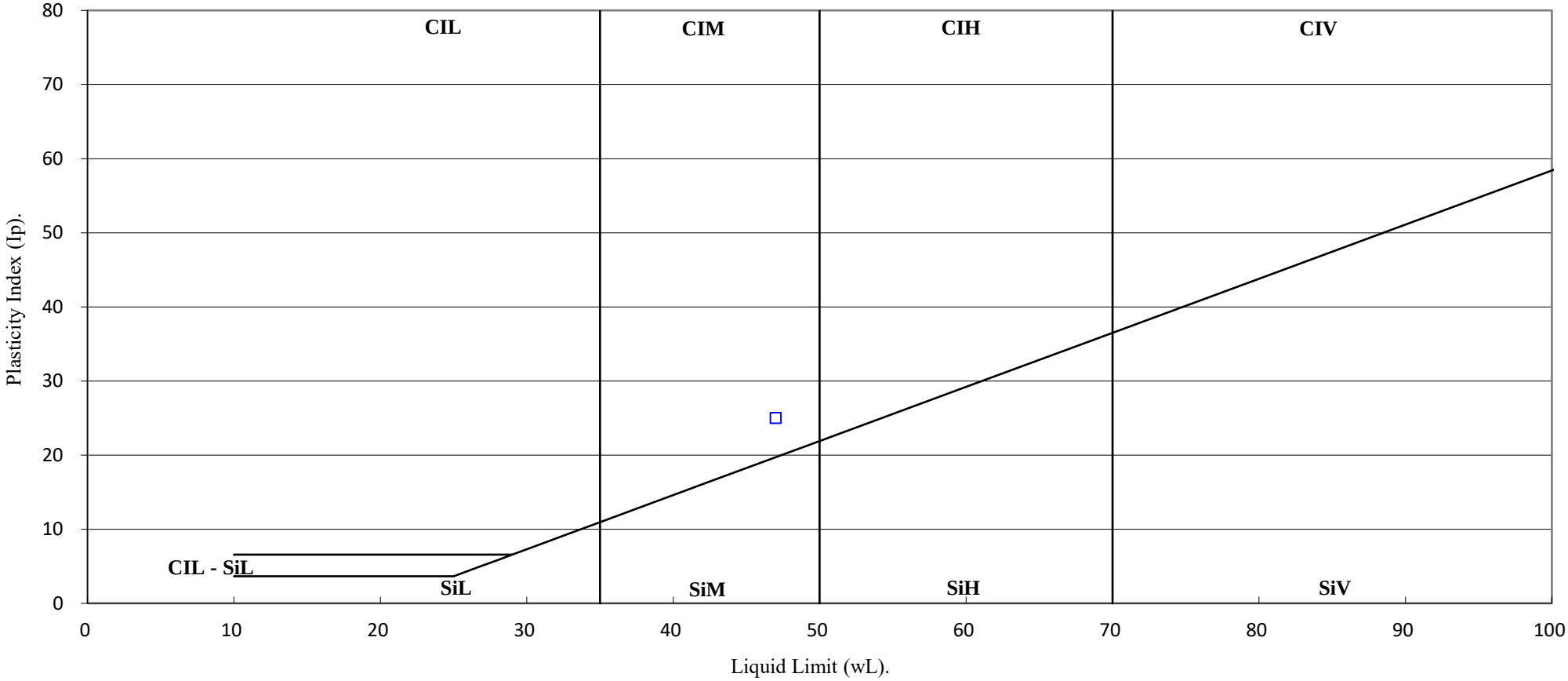
PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/8078
Client Ref:
SR4798

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**Ivy Mills, Whitehaven**	**Contract No:**
		PSL24/8078
		Client Ref:

PARTICLE SIZE DISTRIBUTION TEST

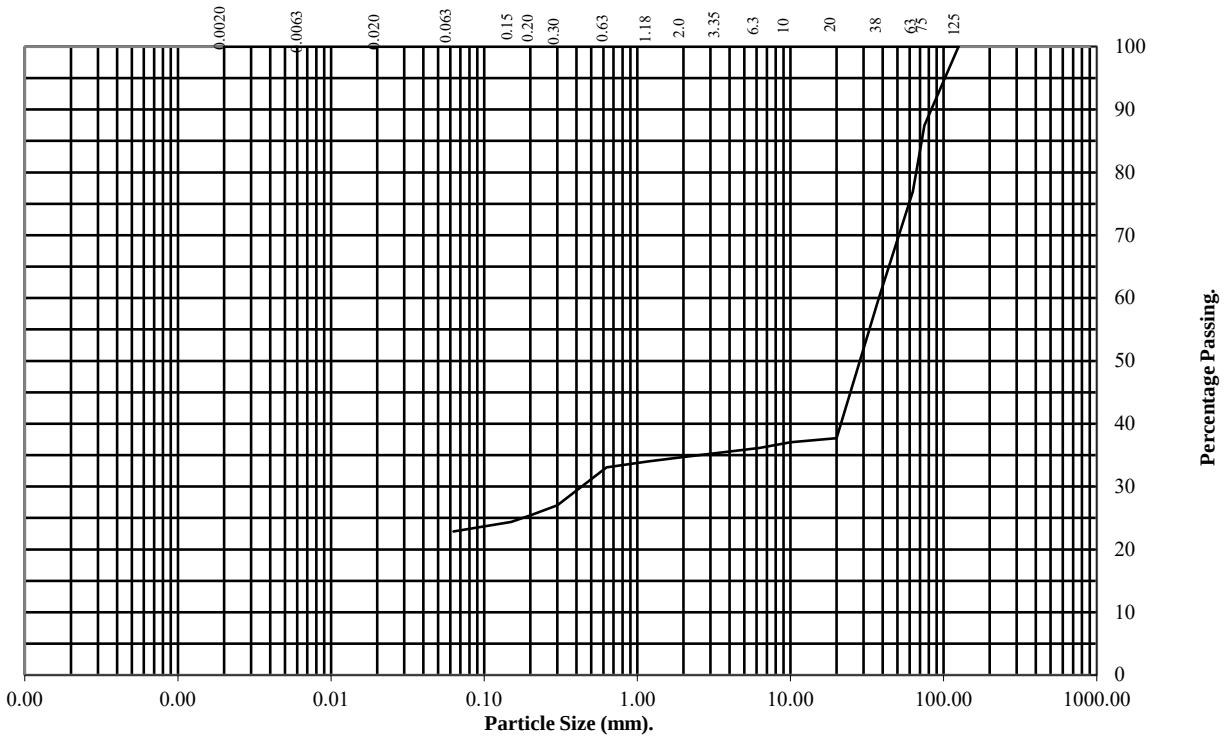
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: SP - B3 **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	87
63	77
37.5	60
20	38
10	37
6.3	36
3.35	35
2	35
1.18	34
0.63	33
0.3	27
0.2	25
0.15	24
0.063	23

Soil Fraction	Total Percentage
Cobbles	23
Gravel	42
Sand	12
Silt/Clay	23

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/8078
Client Ref:
SR4798

PARTICLE SIZE DISTRIBUTION TEST

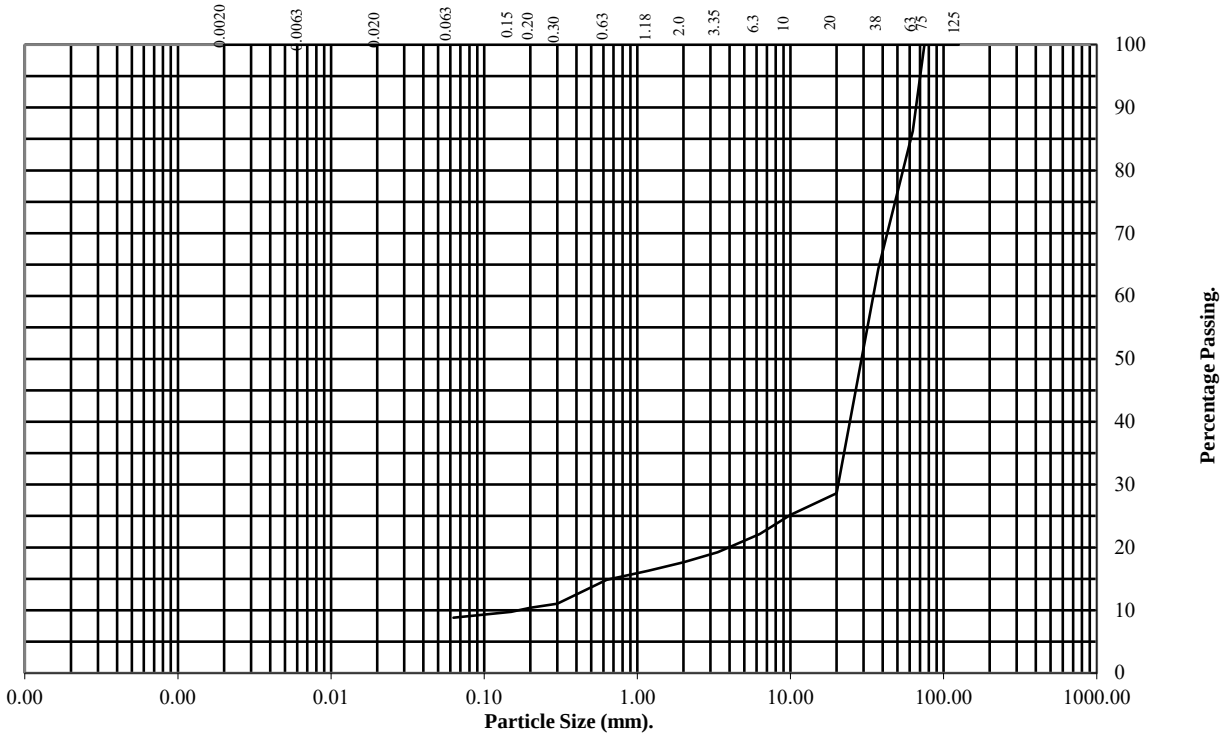
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: SP - B4 **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	86
37.5	64
20	29
10	25
6.3	22
3.35	19
2	18
1.18	16
0.63	15
0.3	11
0.2	10
0.15	10
0.063	9

Soil Fraction	Total Percentage
Cobbles	14
Gravel	68
Sand	9
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

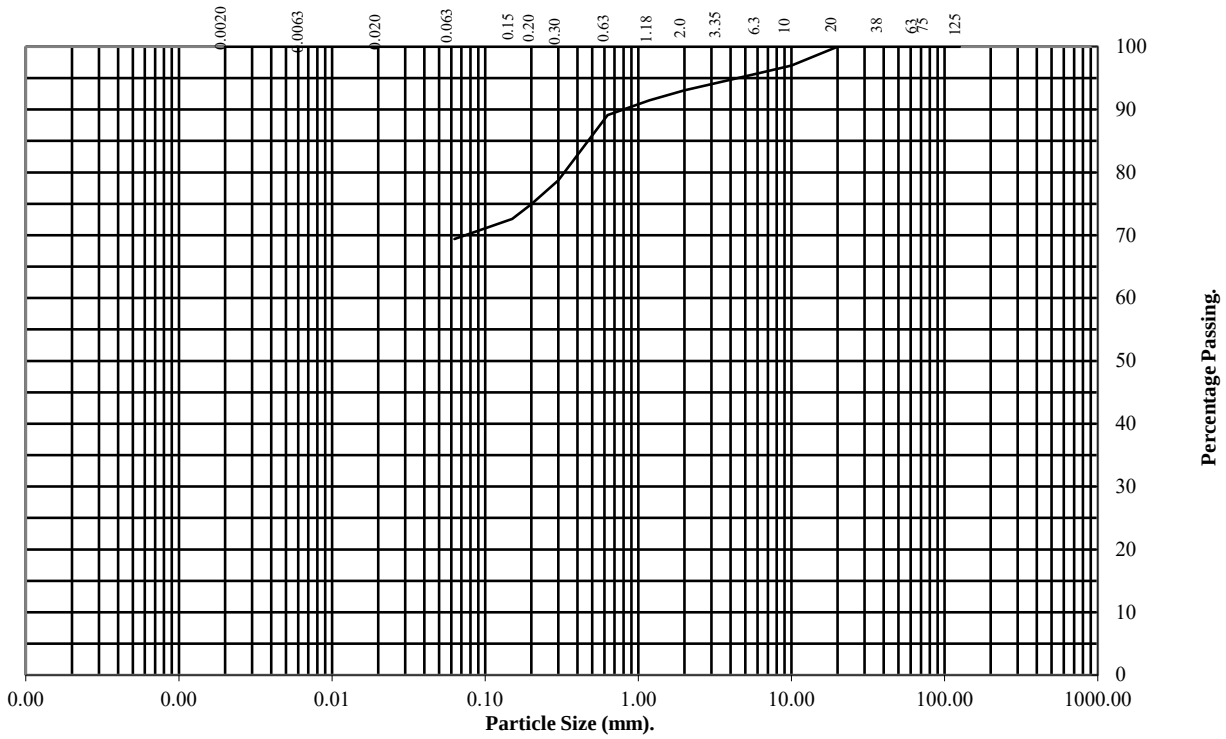
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: **Plot 9 - B** **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	97
6.3	96
3.35	94
2	93
1.18	91
0.63	89
0.3	79
0.2	75
0.15	73
0.063	69

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	24
Silt/Clay	69

Remarks:

See Summary of Soil Descriptions

LABORATORY REPORT

Contract Number: PSL24/8293

Report Date: 06 December 2024

Client's Reference: SR4798

Client Name: Sirius Durham
Suite 2, Russel House
Mill Road
Langley Moor
Durham
DH7 8HJ

For the attention of: Jack Clarke/Alastair Cook

Contract Title: Ivy Mills, Whitehaven

Date Received: 11/11/2024
Date Commenced: 11/11/2024
Date Completed: 06/12/2024

Notes: Opinions and Interpretations are outside the UKAS Accreditation

Checked and Approved Signatories:

A Watkins (Managing Director)	R Berriman (Associate Director)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	D Nicholson (Senior Technician)	T Watkins (Senior Technician)

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DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
Plot 25		B			Reddish brown slightly sandy slightly gravelly CLAY.
Plot 25		D			Brown slightly gravelly sandy CLAY.
Plot 12		B			Reddish brown slightly sandy slightly gravelly CLAY.
Plot 12		D			Brown slightly gravelly sandy CLAY.
Plot 20		B			Reddish brown slightly sandy slightly gravelly CLAY.
Plot 20		D			Brown slightly gravelly sandy CLAY.
Plot 36		B			Brown slightly sandy slightly gravelly CLAY.
Plot 36		D			Brown slightly gravelly sandy CLAY.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/8293
Client Ref:
SR4798

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Water Content %	Linear Shrinkage	Particle Density Mg/m^3	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425mm %	Remarks
Plot 25		B			22.5			48	21	27	95	Medium Plasticity CIM
Plot 25		D			31.7							
Plot 12		B			28.6			53	23	30	98	High Plasticity CIH
Plot 12		D			21.9							
Plot 20		B			24.4			39	18	21	95	Medium Plasticity CIM
Plot 20		D			17.6							
Plot 36		B			22.7			44	21	23	92	Medium Plasticity CIM
Plot 36		D			18.5							

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022
Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7
Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9
Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic

UKAS TESTING 4043

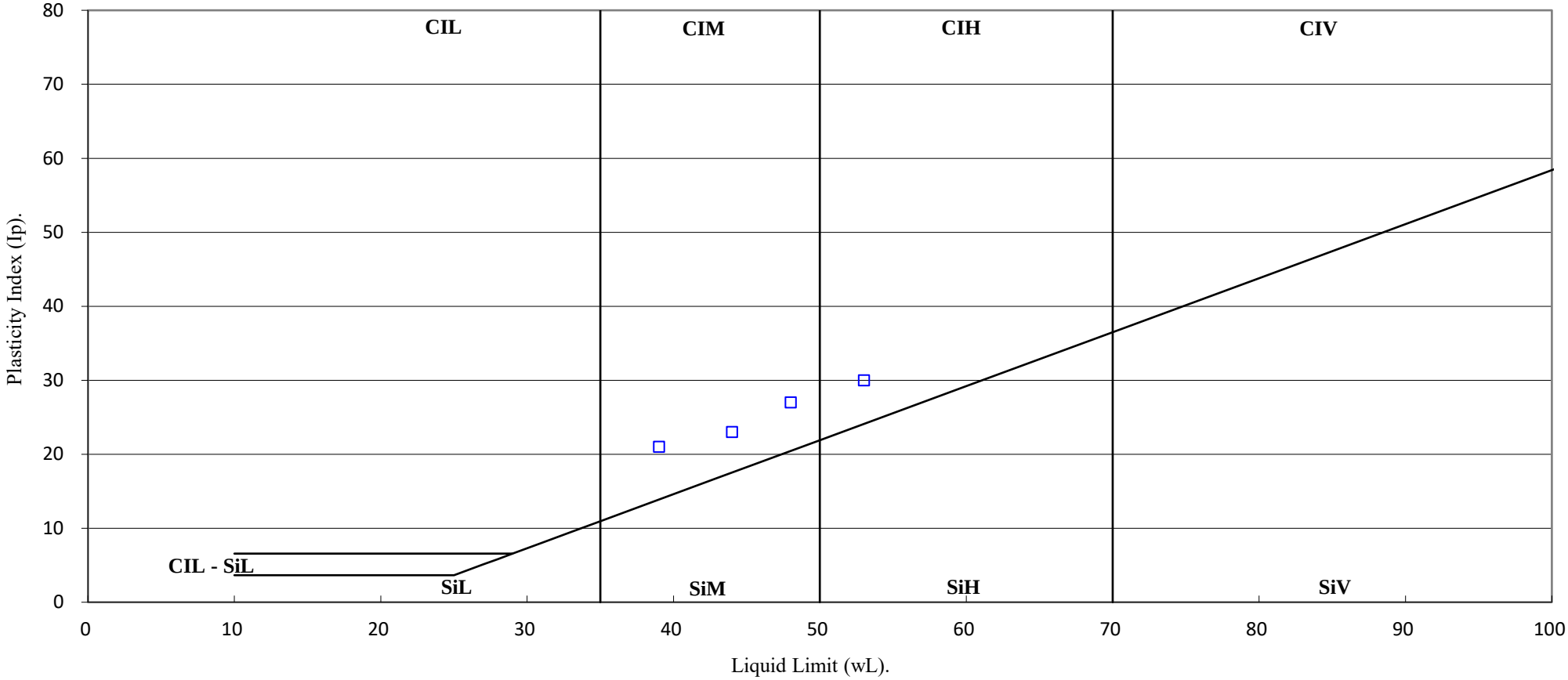
PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/8293
Client Ref:
SR4798

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**Ivy Mills, Whitehaven**	**Contract No:**
		PSL24/8293
		Client Ref:
		SR4798

PARTICLE SIZE DISTRIBUTION TEST

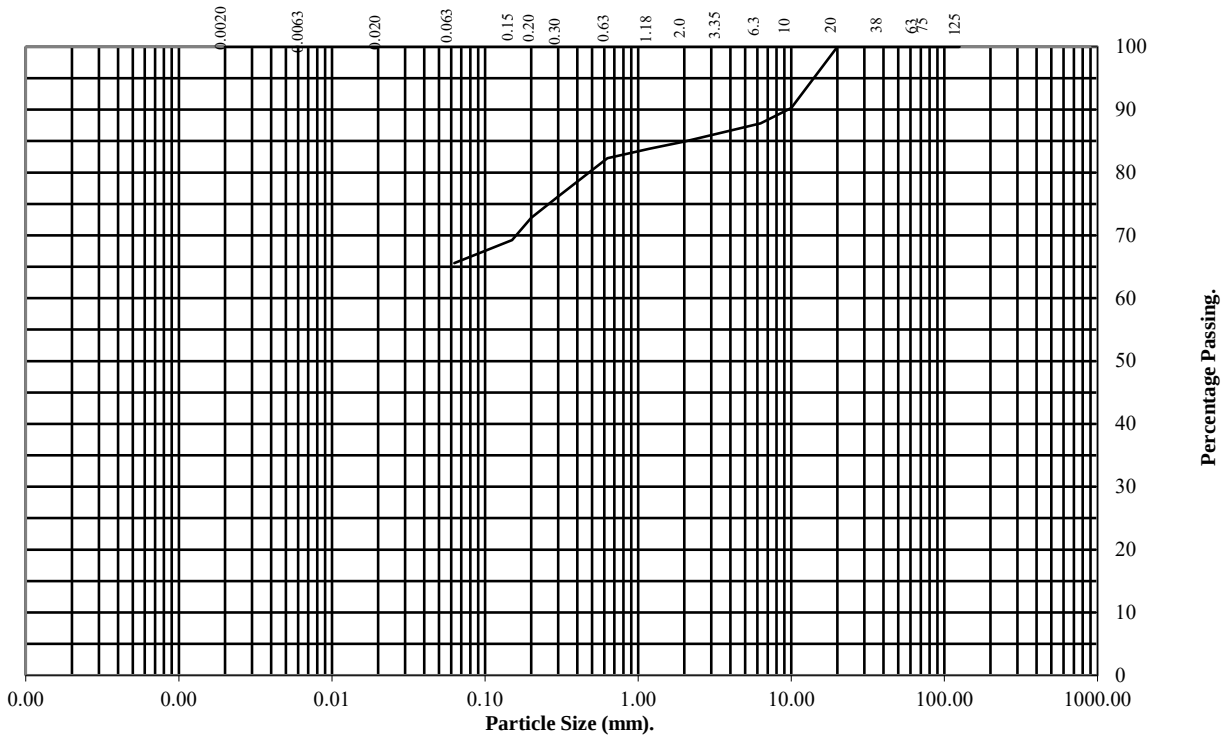
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: **Plot 12** **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	90
6.3	88
3.35	86
2	85
1.18	84
0.63	82
0.3	76
0.2	73
0.15	69
0.063	66

Soil Fraction	Total Percentage
Cobbles	0
Gravel	15
Sand	19
Silt/Clay	66

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

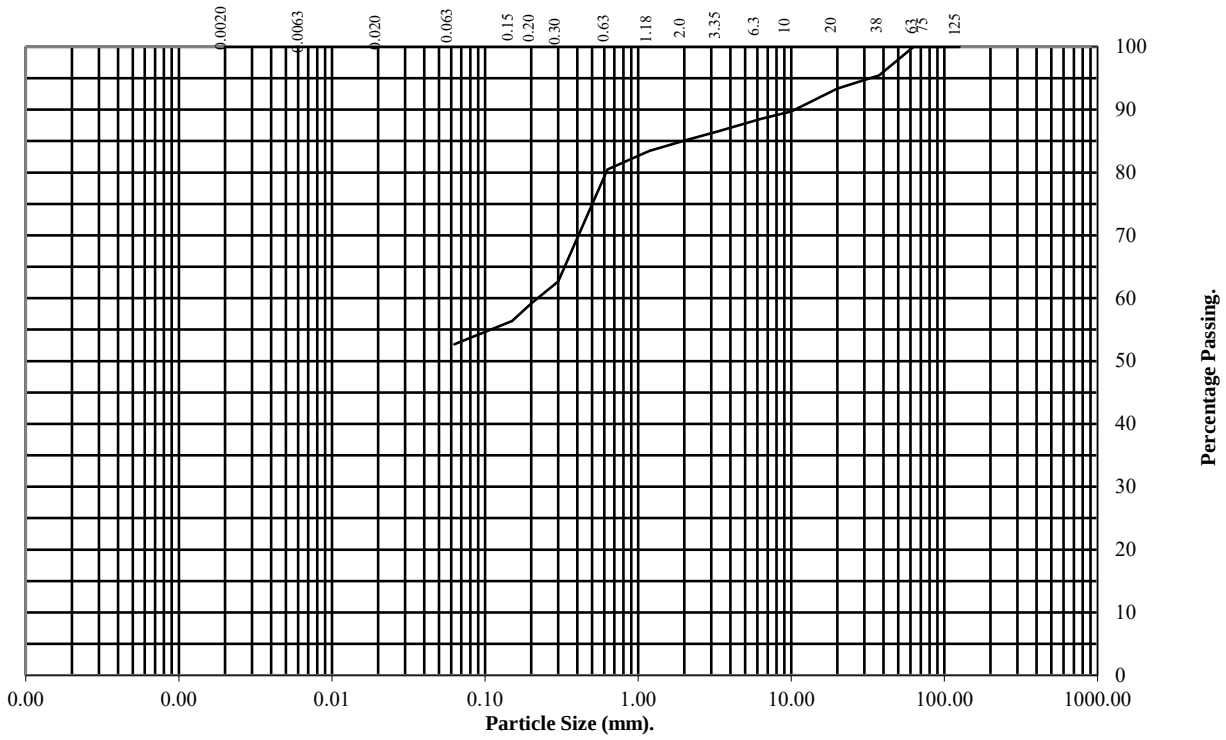
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: **Plot 20** **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	95
20	93
10	90
6.3	89
3.35	87
2	85
1.18	83
0.63	81
0.3	63
0.2	59
0.15	56
0.063	53

Soil Fraction	Total Percentage
Cobbles	0
Gravel	15
Sand	32
Silt/Clay	53

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No: **PSL24/8293**

Client Ref: **SR4798**

PARTICLE SIZE DISTRIBUTION TEST

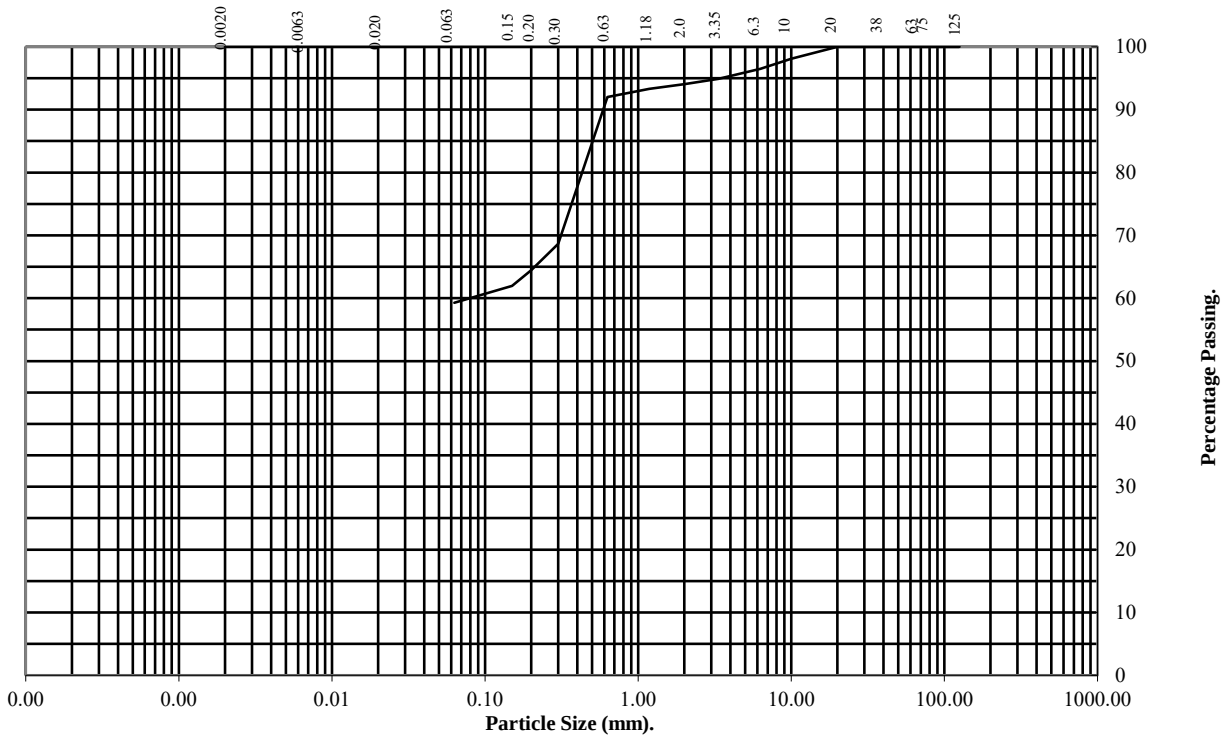
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: **Plot 25** **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	96
3.35	95
2	94
1.18	93
0.63	92
0.3	69
0.2	64
0.15	62
0.063	59

Soil Fraction	Total Percentage
Cobbles	0
Gravel	6
Sand	35
Silt/Clay	59

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

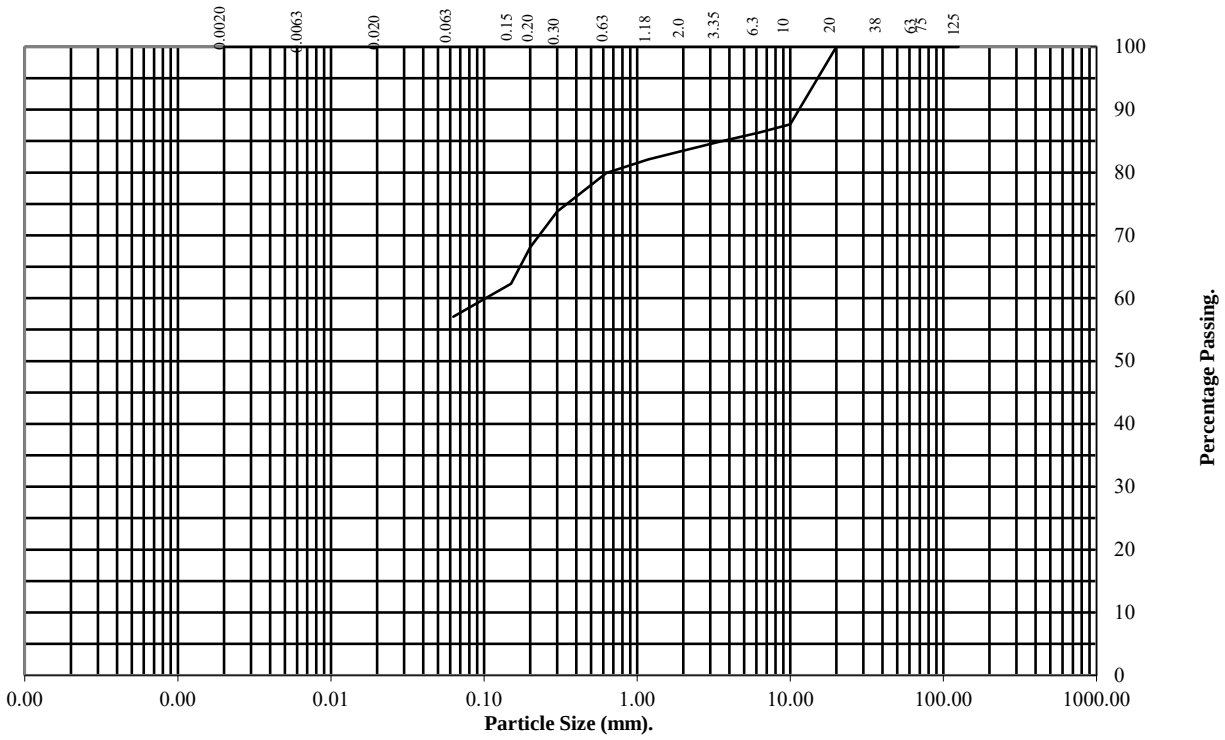
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: **Plot 36** **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	88
6.3	86
3.35	85
2	83
1.18	82
0.63	80
0.3	74
0.2	68
0.15	62
0.063	57

Soil Fraction	Total Percentage
Cobbles	0
Gravel	17
Sand	26
Silt/Clay	57

Remarks:

See Summary of Soil Descriptions

LABORATORY REPORT

Contract Number: PSL24/8529

Report Date:	10 December 2024
Client's Reference:	SR4798
Client Name:	Sirius Durham Suite 2, Russel House Mill Road Langley Moor Durham DH7 8HJ
For the attention of:	**Jack Clarke/Alastair Cook**
Contract Title:	Ivy Mills, Whitehaven
Date Received:	18/11/2024
Date Commenced:	18/11/2024
Date Completed:	10/12/2024

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Managing Director)	R Berriman (Associate Director)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	D Nicholson (Senior Technician)	T Watkins (Senior Technician)

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Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
Plot 30		B			Brown slightly gravelly sandy CLAY.
Plot 30		D			Brown sandy gravelly CLAY.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/8529
Client Ref:
SR4798

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Water Content %	Linear Shrinkage	Particle Density Mg/m^3	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425mm %	Remarks
Plot 30		**B**			**25.6**			**49**	**26**	**23**	**81**	**Medium Plasticity CIM**
Plot 30		**D**			**26.3**							

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022
Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7
Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9
Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic

UKAS TESTING 4043

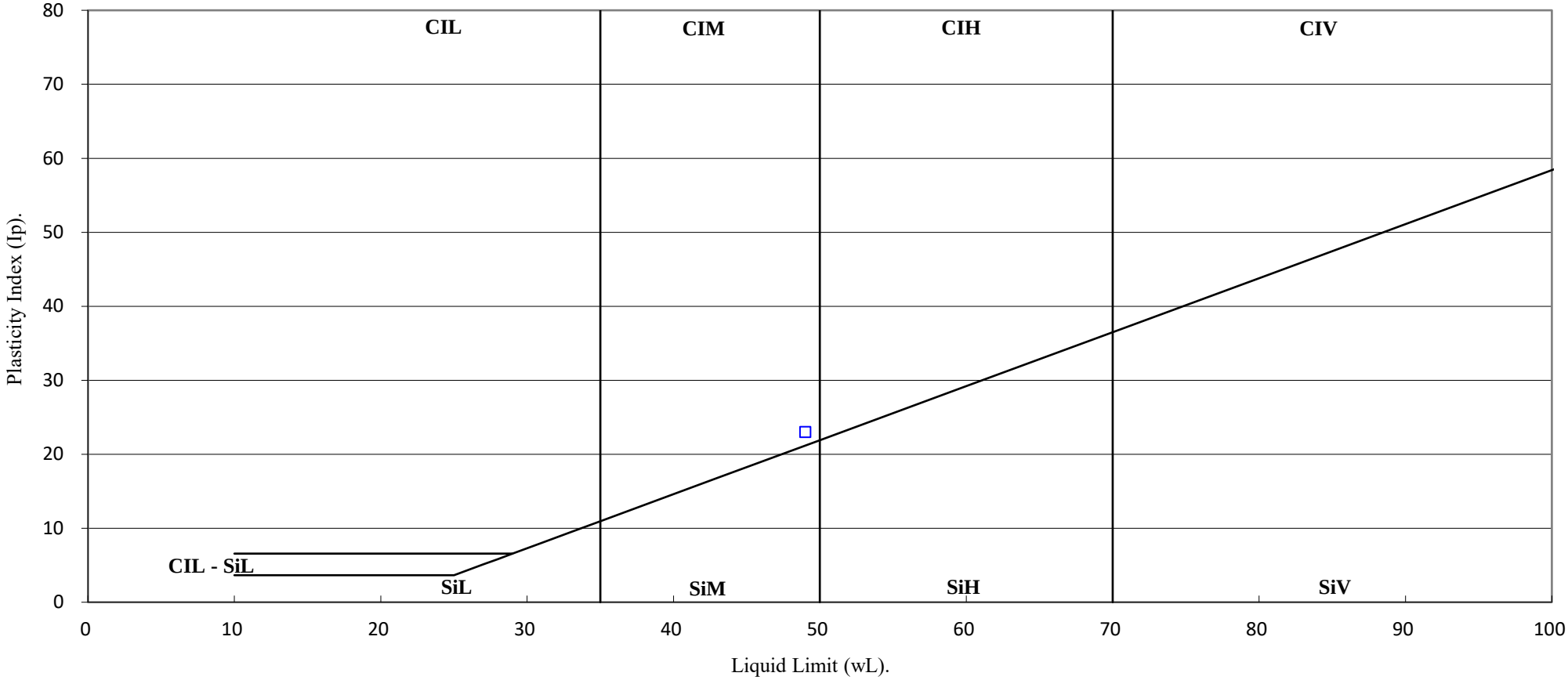
PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/8529
Client Ref:
SR4798

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**Ivy Mills, Whitehaven**	**Contract No:**
		PSL24/8529
		Client Ref:
		SR4798

PARTICLE SIZE DISTRIBUTION TEST

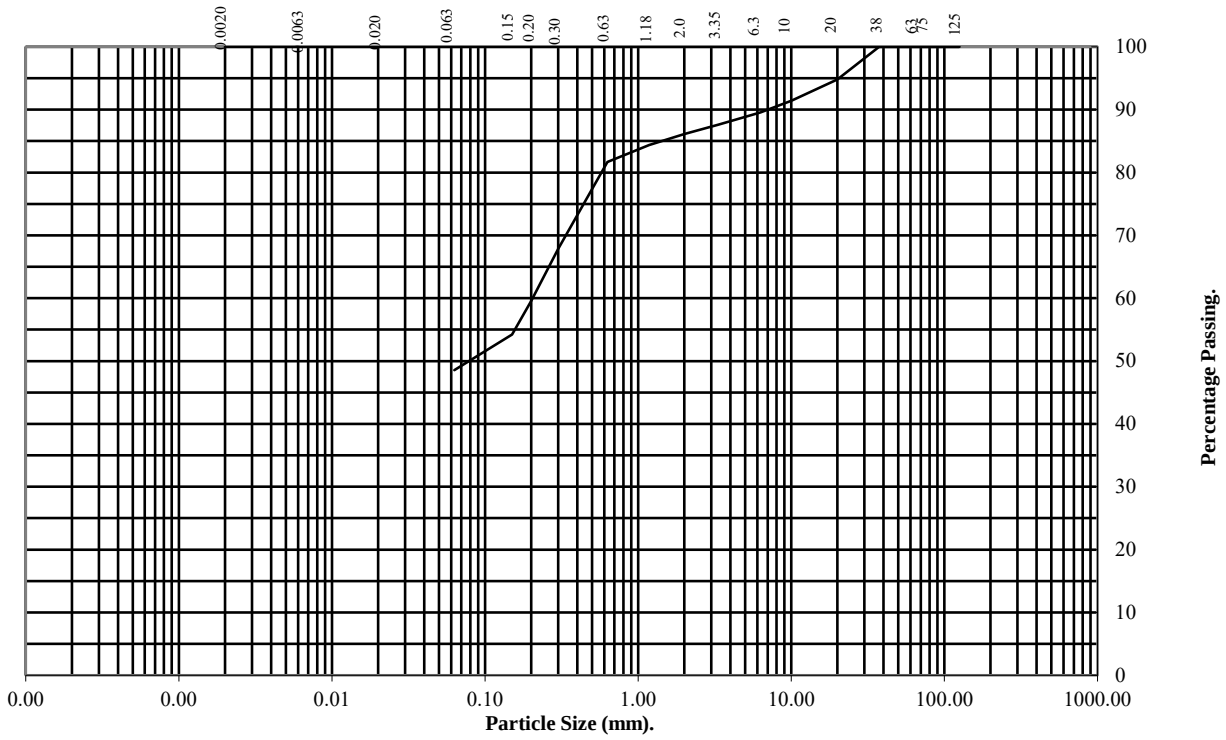
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: **Plot 30** **Top Depth (m):**

Sample Number: **Base Depth (m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	95
10	91
6.3	90
3.35	88
2	86
1.18	84
0.63	82
0.3	68
0.2	60
0.15	54
0.063	49

Soil Fraction	Total Percentage
Cobbles	0
Gravel	14
Sand	37
Silt/Clay	49

Remarks:

See Summary of Soil Descriptions

APPENDIX E

IN SITU GEOTECHNICAL TESTING RECORDS

LABORATORY REPORT

Contract Number: PSL24/8467

Report Date: 12 December 2024

Client's Reference: SR4798

Client Name: Sirius Durham
Suite 2, Russel House
Mill Road
Langley Moor
Durham
DH7 8HJ

For the attention of: Jack Clarke/Alastair Cook

Contract Title: Ivy Mills, Whitehaven

Date Received: 14/11/2024
Date Commenced: 14/11/2024
Date Completed: 15/11/2024

Notes: Opinions and Interpretations are outside the UKAS Accreditation

Checked and Approved Signatories:

A Watkins (Managing Director)
R Berriman (Associate Director)
S Royle (Laboratory Manager)

L Knight (Assistant Laboratory Manager)
S Eyre (Senior Technician)
T Watkins (Senior Technician)

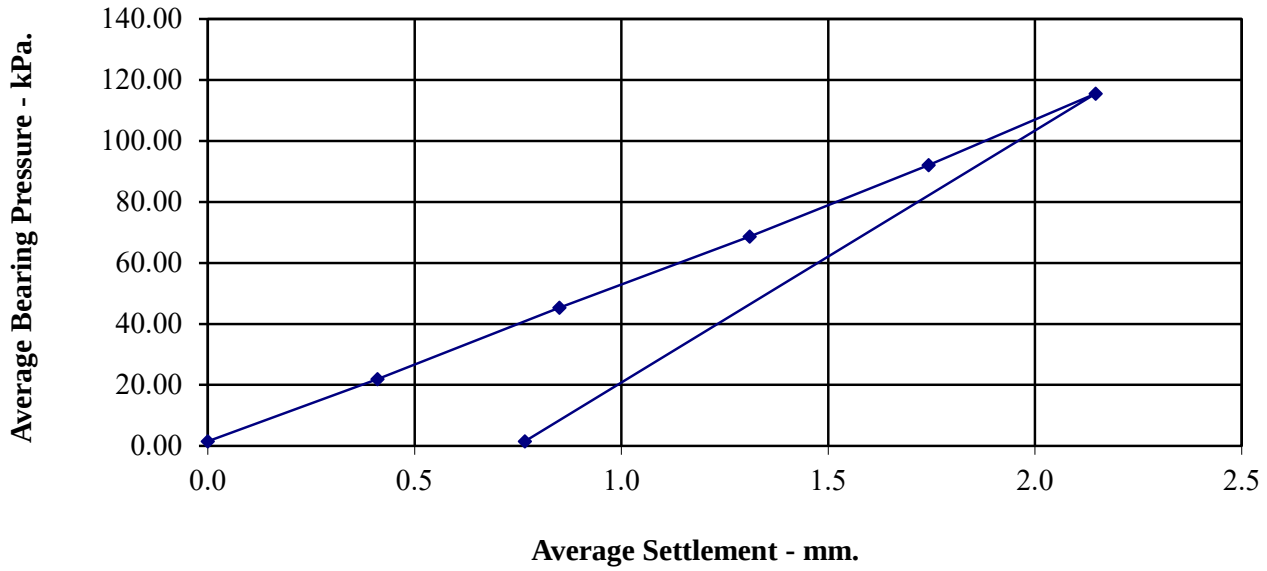
5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test:	**14-Nov-24**	**Test Ref:**	**Road 1-5**
Grid Ref:		**Depth (m):**	
Layer:		**Comments:**	

Maximum Applied Pressure (kPa):	**115.51**
Maximum Deformation (mm):	**2.15**
Plate Area (m2):	**0.2922**
Description:	**6F2**



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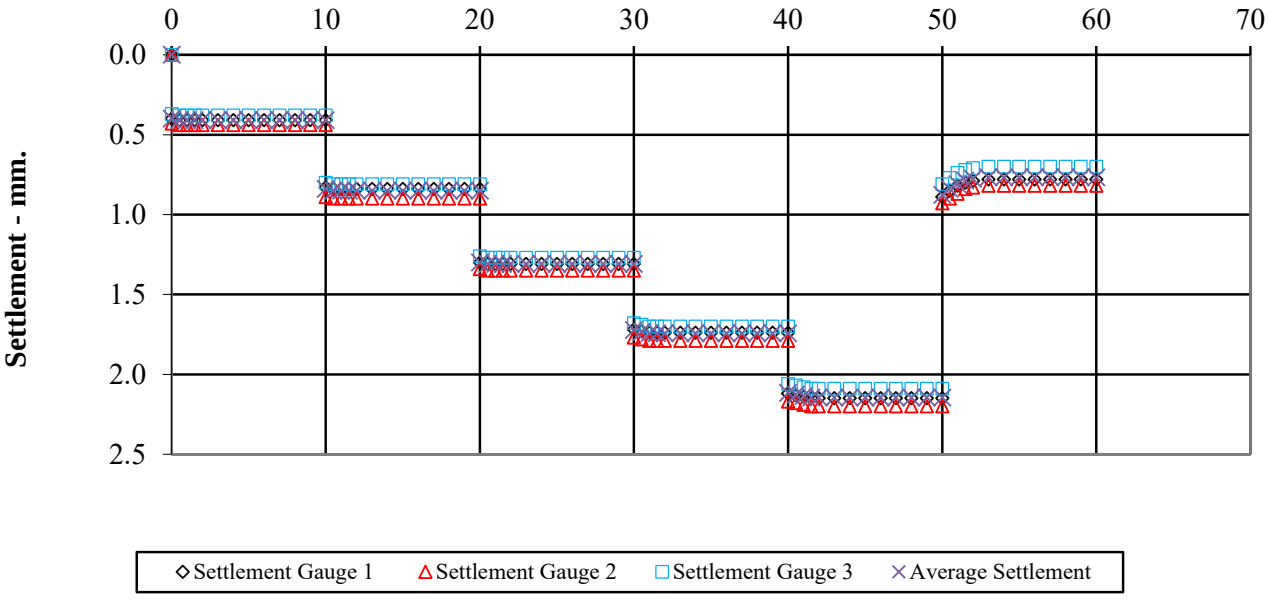


UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/8467
Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

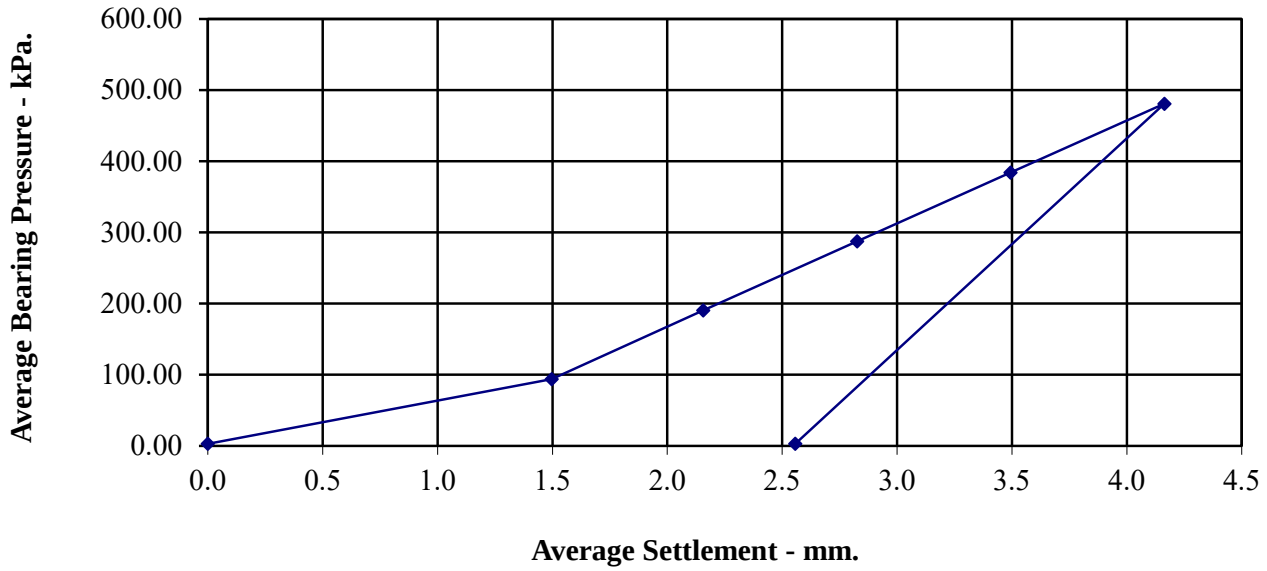
Date of Test	**14-Nov-24**	
Test Ref	**Road 1-5**	
Depth (m)		
Grid Ref		
Layer		
Comments		
Description	**6F2**	
Maximum Deflection	**2.15**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load at 1.25mm	**66**	**kN/m^2**
Plate diameter	**610**	**mm**
Conversion factor for plate diameter	**0.816**	
K_{762}(modulus of subgrade reaction) calculated using 1.25mm settlement	**42.9**	**kN/m^2/mm**
CBR Value	**6.5**	**%**

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test:	**14-Nov-24**	**Test Ref:**	**Road 1-6**
Grid Ref:		**Depth (m):**	
Layer:		**Comments:**	

Maximum Applied Pressure (kPa):	**480.92**
Maximum Deformation (mm):	**4.16**
Plate Area (m2):	**0.0707**
Description:	**6F2**



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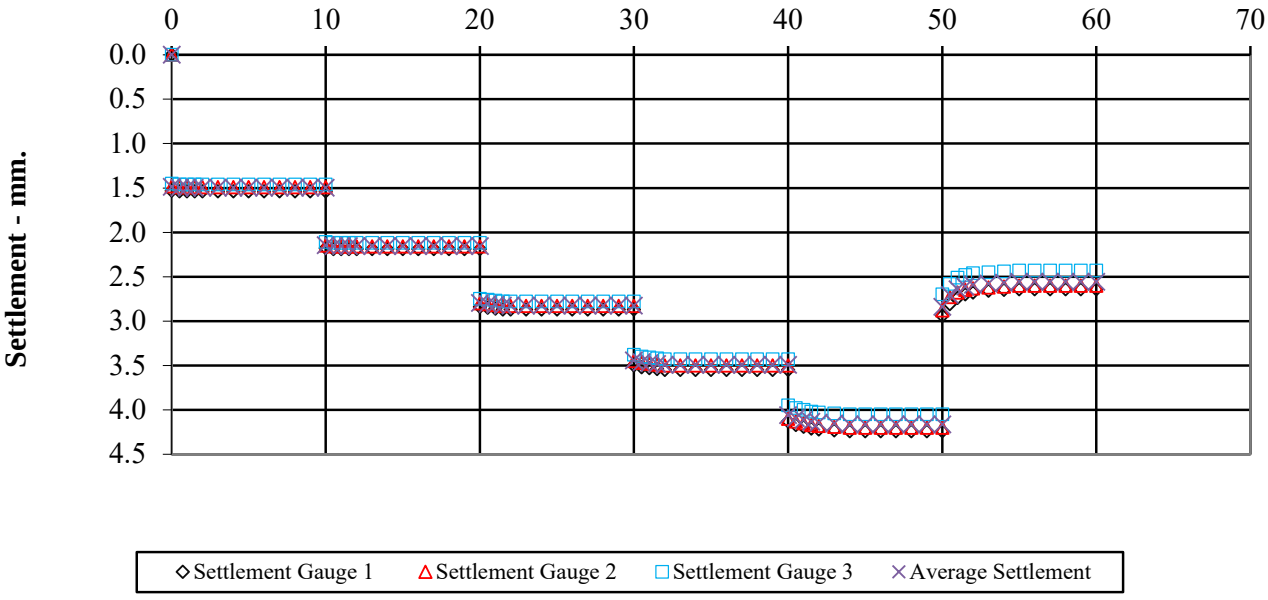


UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**Ivy Mills, Whitehaven**	**Contract No:** PSL24/8467 **Client Ref:**

Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

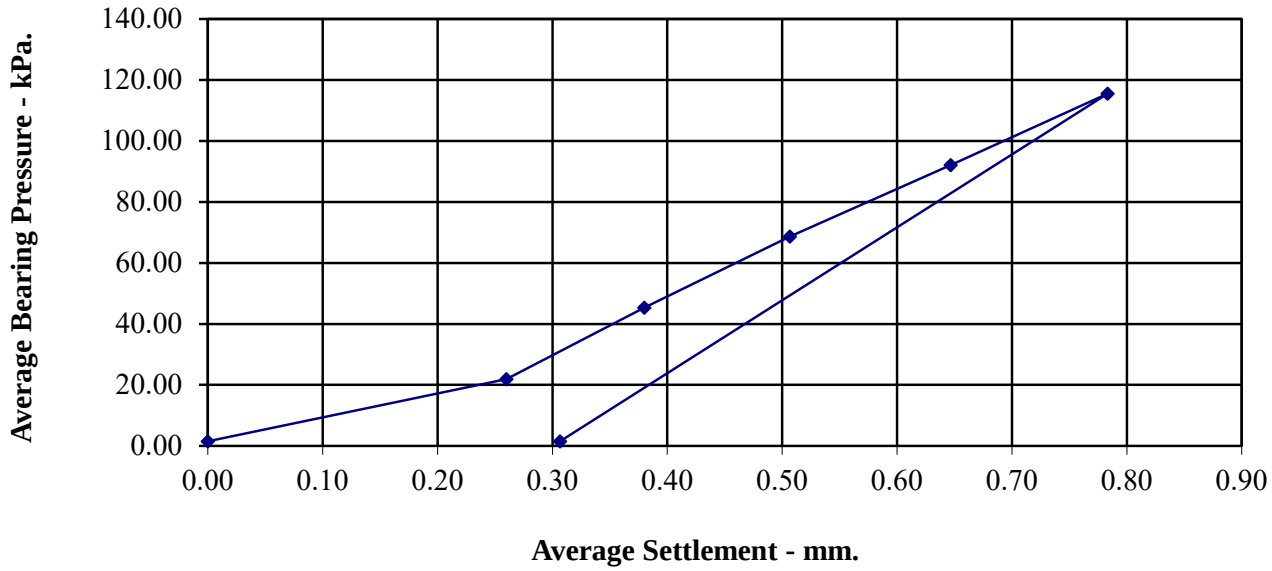
Date of Test	**14-Nov-24**	
Test Ref	**Road 1-6**	
Depth (m)		
Grid Ref		
Layer		
Comments		
Description	**6F2**	
Maximum Deflection	**4.16**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load at 1.25mm	**79**	**kN/m^2**
Plate diameter	**300**	**mm**
Conversion factor for plate diameter	**0.442**	
K_{762}(modulus of subgrade reaction) calculated using 1.25mm settlement	**27.9**	**kN/m^2/mm**
CBR Value	**3.1**	**%**

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test:	**14-Nov-24**	**Test Ref:**	**Road 2-1**
Grid Ref:		**Depth (m):**	
Layer:		**Comments:**	

Maximum Applied Pressure (kPa):	**115.51**
Maximum Deformation (mm):	**0.78**
Plate Area (m2):	**0.2922**
Description:	**6F2**



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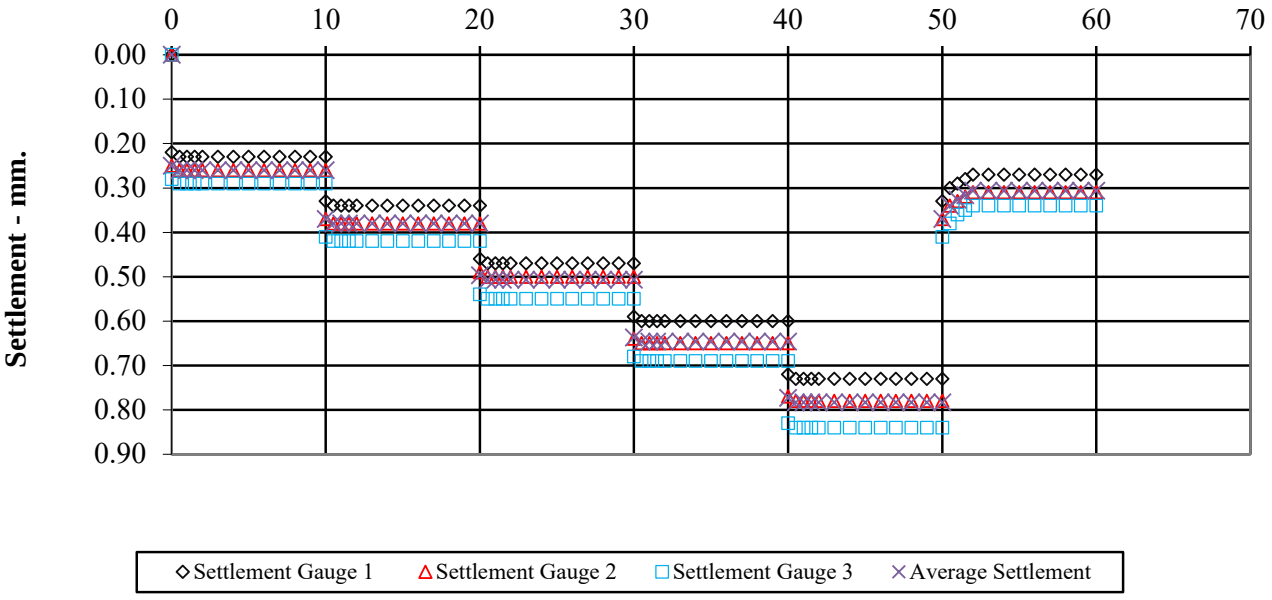


UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**Ivy Mills, Whitehaven**	**Contract No:** PSL24/8467 **Client Ref:**

Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

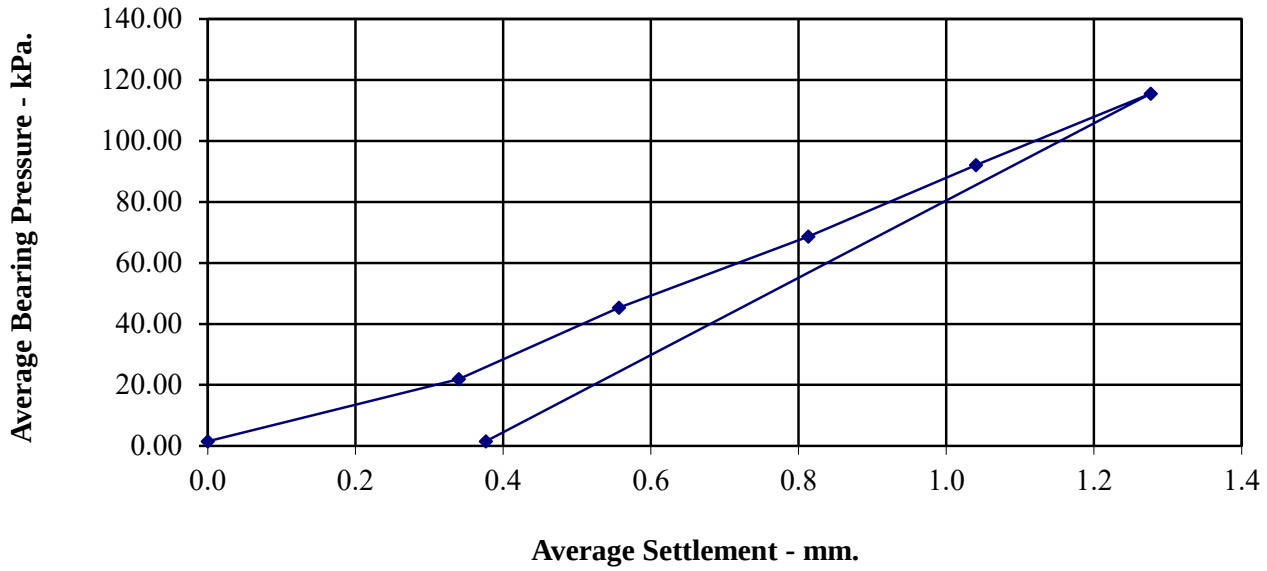
Date of Test	**14-Nov-24**	
Test Ref	**Road 2-1**	
Depth (m)		
Grid Ref		
Layer		
Comments		
Description	**6F2**	
Maximum Deflection	**0.78**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load at 0.78mm	**116**	**kN/m^2**
Plate diameter	**610**	**mm**
Conversion factor for plate diameter	**0.816**	
K_{762}(modulus of subgrade reaction) calculated using 1.25mm settlement	**> 75.5**	**kN/m^2/mm**
CBR Value	**> 17.3**	**%**

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test:	**14-Nov-24**	**Test Ref:**	**Road 2-2**
Grid Ref:		**Depth (m):**	
Layer:		**Comments:**	

Maximum Applied Pressure (kPa):	**115.51**
Maximum Deformation (mm):	**1.28**
Plate Area (m2):	**0.2922**
Description:	**6F2**



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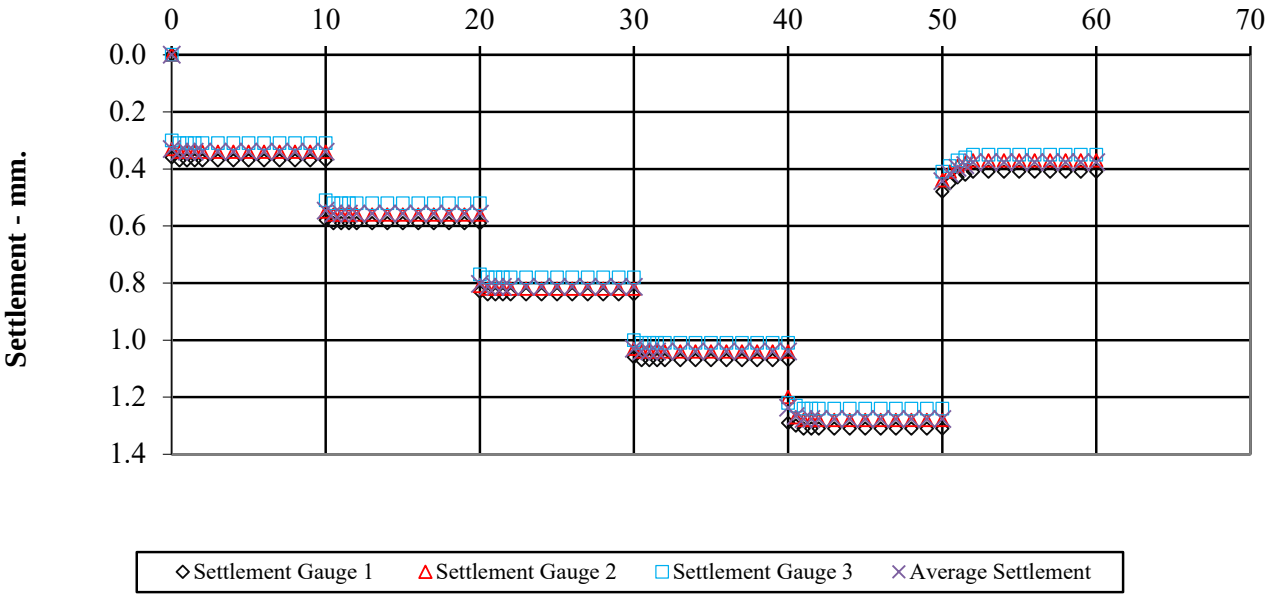


UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/8467
Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

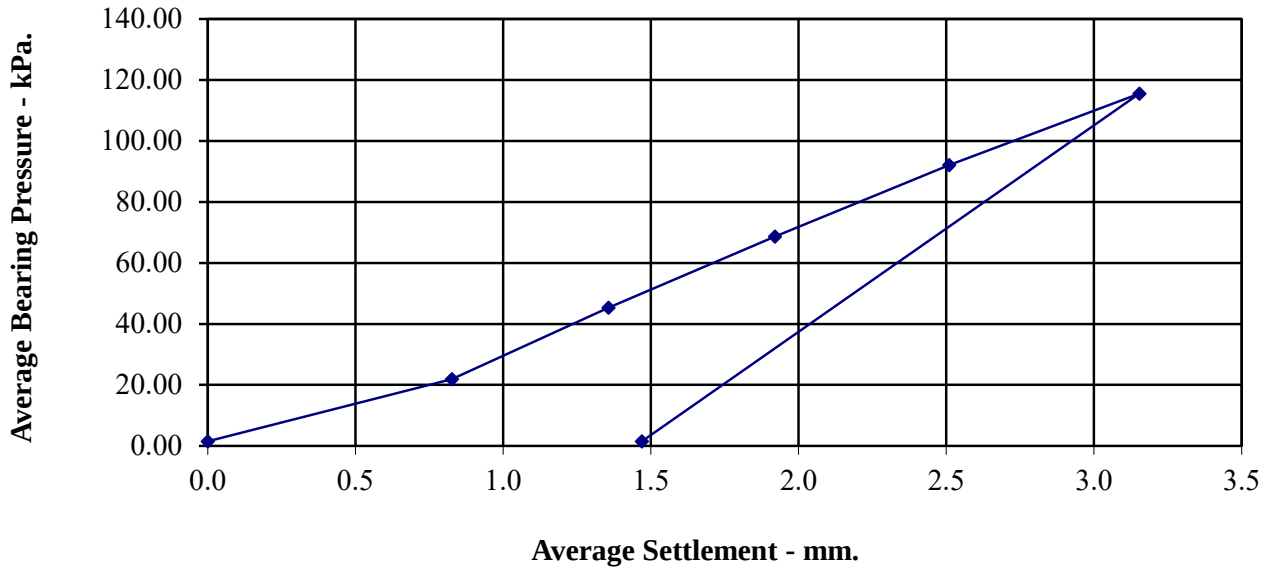
Date of Test	**14-Nov-24**	
Test Ref	**Road 2-2**	
Depth (m)		
Grid Ref		
Layer		
Comments		
Description	**6F2**	
Maximum Deflection	**1.28**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load at 1.25mm	**113**	**kN/m^2**
Plate diameter	**610**	**mm**
Conversion factor for plate diameter	**0.816**	
K_{762}(modulus of subgrade reaction) calculated using 1.25mm settlement	**73.7**	**kN/m^2/mm**
CBR Value	**16.6**	**%**

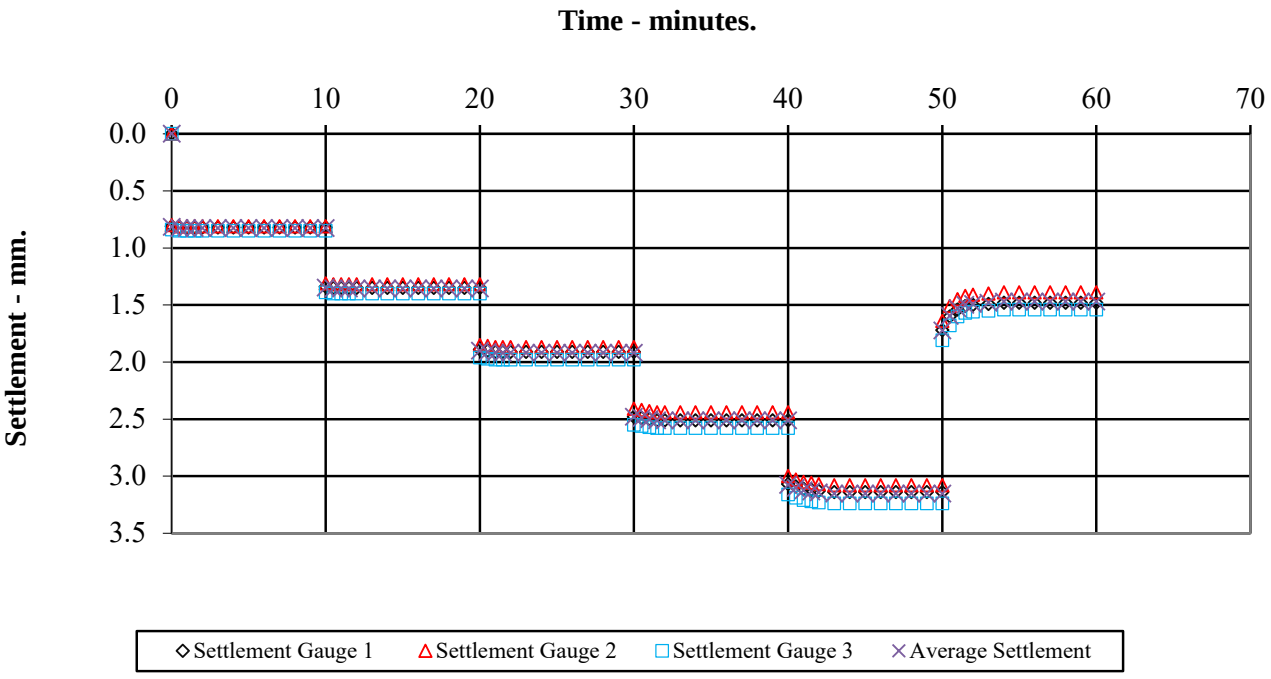
VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test:	**14-Nov-24**	**Test Ref:**	**Road 2-3**
Grid Ref:		**Depth (m):**	
Layer:		**Comments:**	

Maximum Applied Pressure (kPa):	**115.51**
Maximum Deformation (mm):	**3.15**
Plate Area (m2):	**0.2922**
Description:	**6F2**





UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/8467
Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

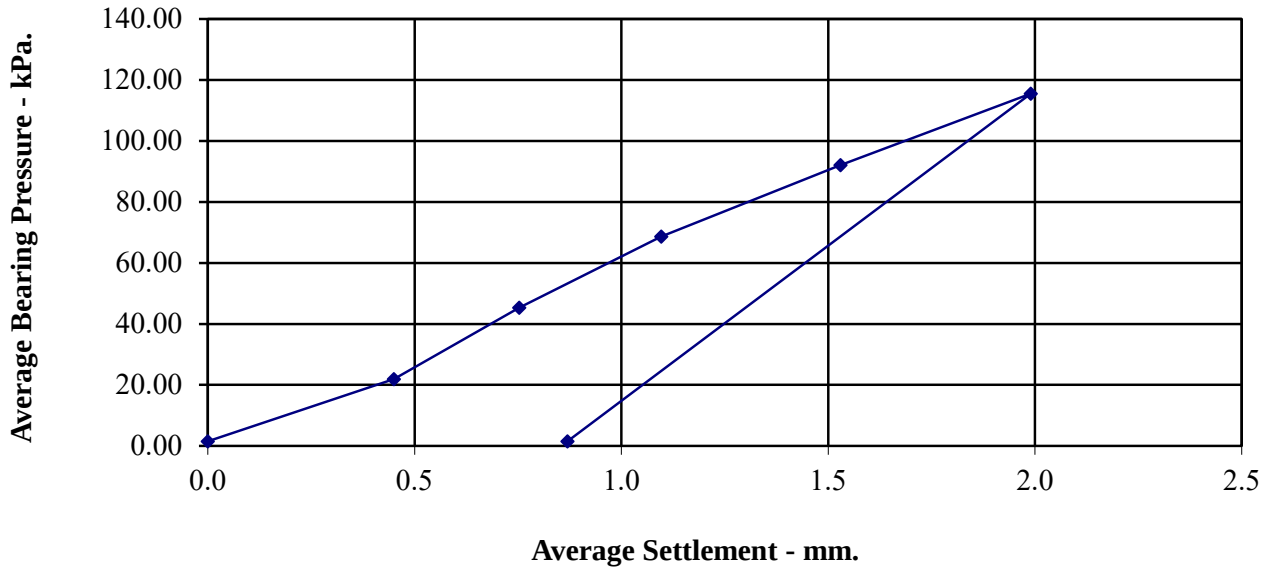
Date of Test	**14-Nov-24**	
Test Ref	**Road 2-3**	
Depth (m)		
Grid Ref		
Layer		
Comments		
Description	**6F2**	
Maximum Deflection	**3.15**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load at 1.25mm	**41**	**kN/m^2**
Plate diameter	**610**	**mm**
Conversion factor for plate diameter	**0.816**	
K_{762}(modulus of subgrade reaction) calculated using 1.25mm settlement	**26.5**	**kN/m^2/mm**
CBR Value	**2.8**	**%**

VERTICAL DEFORMATION TESTS.

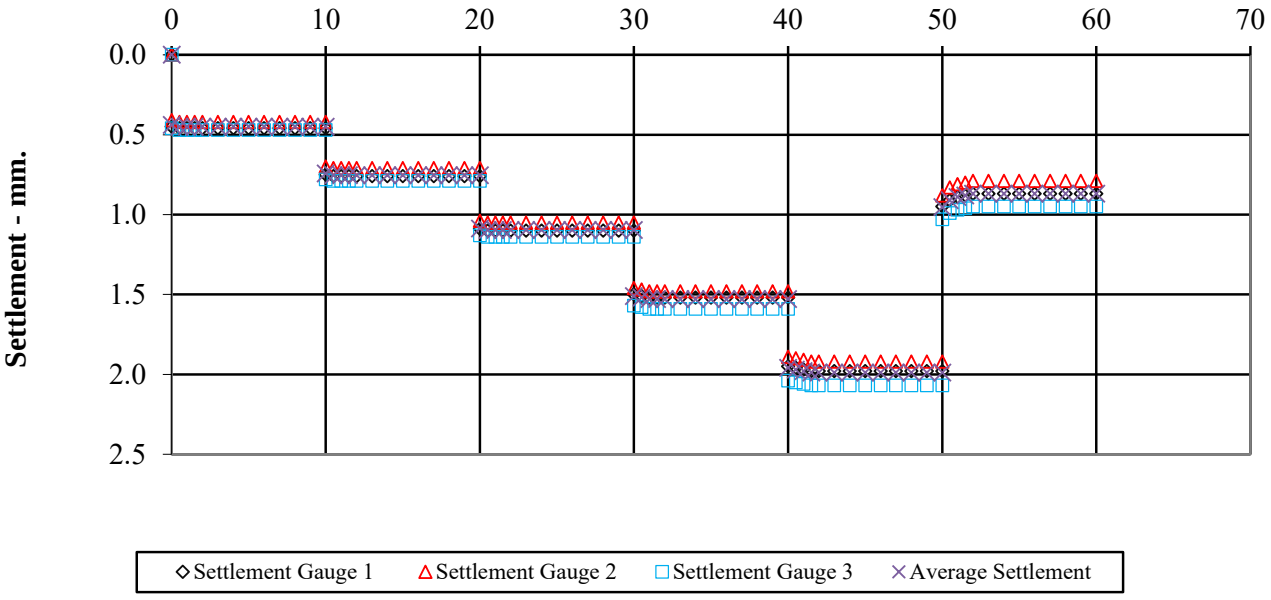
BS 1377 : Part 9 : 1990.

Date of Test:	**14-Nov-24**	**Test Ref:**	**Road 2-4**
Grid Ref:		**Depth (m):**	
Layer:		**Comments:**	

Maximum Applied Pressure (kPa):	**115.51**
Maximum Deformation (mm):	**1.99**
Plate Area (m2):	**0.2922**
Description:	**6F2**



Time - minutes.



UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Ivy Mills, Whitehaven

Contract No:
PSL24/8467
Client Ref:

Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	**14-Nov-24**	
Test Ref	**Road 2-4**	
Depth (m)		
Grid Ref		
Layer		
Comments		
Description	**6F2**	
Maximum Deflection	**1.99**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load at 1.25mm	**77**	**kN/m^2**
Plate diameter	**610**	**mm**
Conversion factor for plate diameter	**0.816**	
K_{762}(modulus of subgrade reaction) calculated using 1.25mm settlement	**50.3**	**kN/m^2/mm**
CBR Value	**8.6**	**%**

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Thorpe Park,
Leeds, LS15 8GB
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Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**31-Oct-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Plot 2**

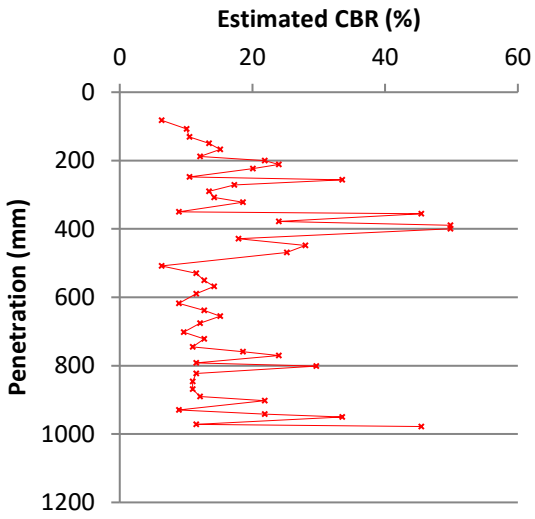
TRL Dynamic Cone Penetrometer Test Report

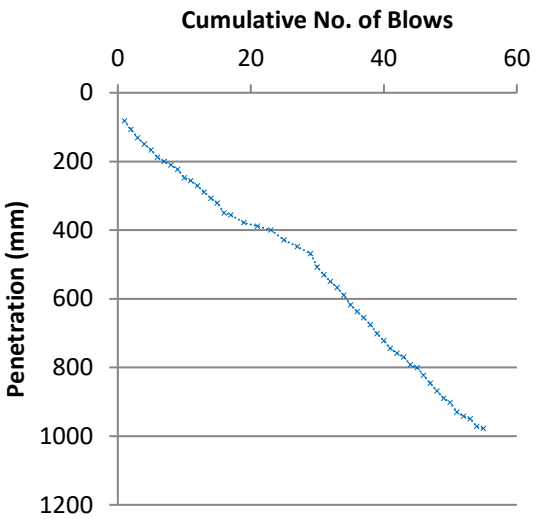
(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	43	0			
1	1	1	82	39	39	39	6.28
1	1	2	107	64	25	25	10.05
1	1	3	131	88	24	24	10.50
1	1	4	150	107	19	19	13.44
1	1	5	167	124	17	17	15.12
1	1	6	188	145	21	21	12.09
1	1	7	200	157	12	12	21.84
1	1	8	211	168	11	11	23.95
1	1	9	224	181	13	13	20.07
1	1	10	248	205	24	24	10.50
1	1	11	256	213	8	8	33.53
1	1	12	271	228	15	15	17.25
1	1	13	290	247	19	19	13.44
1	1	14	308	265	18	18	14.23
1	1	15	322	279	14	14	18.56
1	1	16	350	307	28	28	8.92
1	1	17	356	313	6	6	45.45
1	2	19	378	335	22	11	23.95
1	2	21	389	346	11	6	49.82
1	2	23	400	357	11	6	49.82
1	2	25	429	386	29	15	17.88
1	2	27	448	405	19	10	27.96
1	2	29	469	426	21	11	25.15
1	1	30	508	465	39	39	6.28
1	1	31	530	487	22	22	11.51
1	1	32	550	507	20	20	12.73
1	1	33	568	525	18	18	14.23
1	1	34	590	547	22	22	11.51
1	1	35	618	575	28	28	8.92
1	1	36	638	595	20	20	12.73
1	1	37	655	612	17	17	15.12
1	1	38	676	633	21	21	12.09
1	1	39	702	659	26	26	9.65
2	1	40	722	679	20	20	12.73
2	1	41	745	702	23	23	10.98
2	1	42	759	716	14	14	18.56
2	1	43	770	727	11	11	23.95
2	1	44	792	749	22	22	11.51
2	1	45	801	758	9	9	29.61
2	1	46	823	780	22	22	11.51
2	1	47	846	803	23	23	10.98
2	1	48	869	826	23	23	10.98
2	1	49	890	847	21	21	12.09
2	1	50	902	859	12	12	21.84
2	1	51	930	887	28	28	8.92
2	1	52	942	899	12	12	21.84
2	1	53	950	907	8	8	33.53
2	1	54	972	929	22	22	11.51
2	1	55	978	935	6	6	45.45

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)

Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)


Estimated CBR (%)
0
20
40
60
0
200
400
600
800
1000
1200
Penetration (mm)


Cumulative No. of Blows
0
20
40
60
0
200
400
600
800
1000
1200
Penetration (mm)

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Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**31-Oct-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Plot 6**

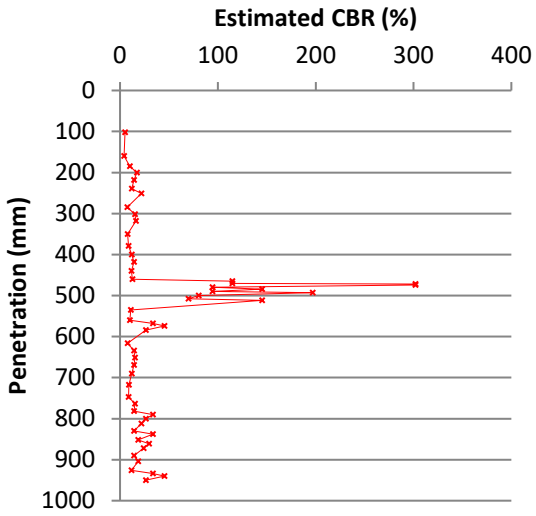
TRL Dynamic Cone Penetrometer Test Report

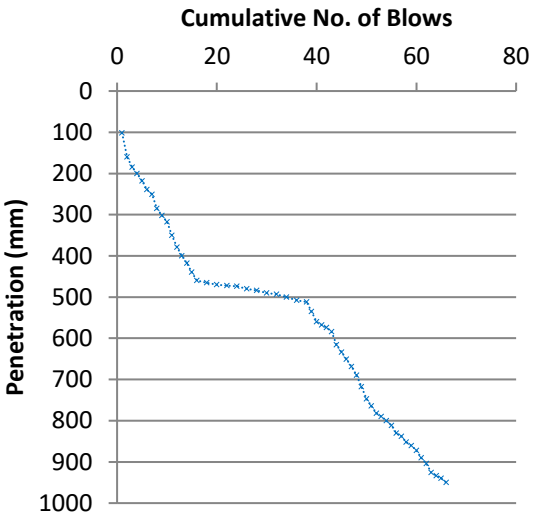
(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	55	0			
1	1	1	102	47	47	47	5.16
1	1	2	160	105	58	58	4.13
1	1	3	185	130	25	25	10.05
1	1	4	200	145	15	15	17.25
1	1	5	218	163	18	18	14.23
1	1	6	239	184	21	21	12.09
1	1	7	251	196	12	12	21.84
1	1	8	285	230	34	34	7.26
1	1	9	302	247	17	17	15.12
1	1	10	318	263	16	16	16.12
1	1	11	350	295	32	32	7.75
1	1	12	379	324	29	29	8.59
1	1	13	400	345	21	21	12.09
1	1	14	418	363	18	18	14.23
1	1	15	440	385	22	22	11.51
1	1	16	460	405	20	20	12.73
1	2	18	465	410	5	3	114.65
1	2	20	470	415	5	3	114.65
1	2	22	472	417	2	1	302.00
1	2	24	474	419	2	1	302.00
1	2	26	480	425	6	3	94.55
1	2	28	484	429	4	2	145.15
1	2	30	490	435	6	3	94.55
1	2	32	493	438	3	2	196.73
1	2	34	500	445	7	4	80.34
1	2	36	508	453	8	4	69.76
1	2	38	512	457	4	2	145.15
1	1	39	535	480	23	23	10.98
1	1	40	560	505	25	25	10.05
1	1	41	568	513	8	8	33.53
1	1	42	574	519	6	6	45.45
1	1	43	584	529	10	10	26.49
1	1	44	616	561	32	32	7.75
1	1	45	634	579	18	18	14.23
1	1	46	651	596	17	17	15.12
1	1	47	669	614	18	18	14.23
1	1	48	690	635	21	21	12.09
1	1	49	718	663	28	28	8.92
1	1	50	747	692	29	29	8.59
1	1	51	764	709	17	17	15.12
1	1	52	782	727	18	18	14.23
1	1	53	790	735	8	8	33.53
1	1	54	800	745	10	10	26.49
1	1	55	812	757	12	12	21.84
1	1	56	830	775	18	18	14.23
1	1	57	838	783	8	8	33.53

1	1	58	852	797	14	14	18.56
1	1	59	861	806	9	9	29.61
1	1	60	872	817	11	11	23.95
1	1	61	890	835	18	18	14.23
1	1	62	904	849	14	14	18.56
1	1	63	926	871	22	22	11.51
1	1	64	934	879	8	8	33.53
1	1	65	940	885	6	6	45.45
1	1	66	950	895	10	10	26.49

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





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t: 0113 2649960
e: info@thesiriusgroup.com
w: www.thesiriusgroup.com

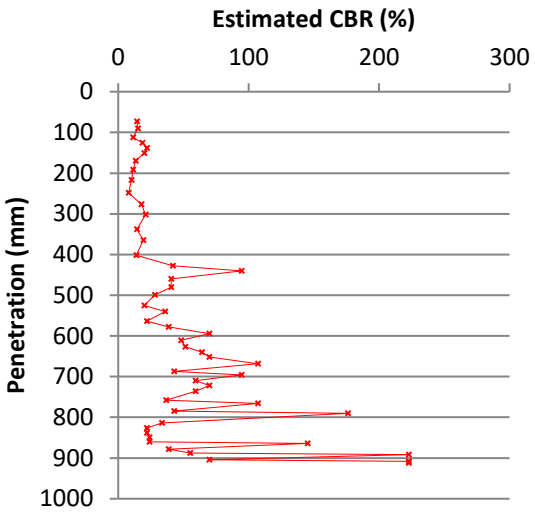
Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**31-Oct-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Plot 8**

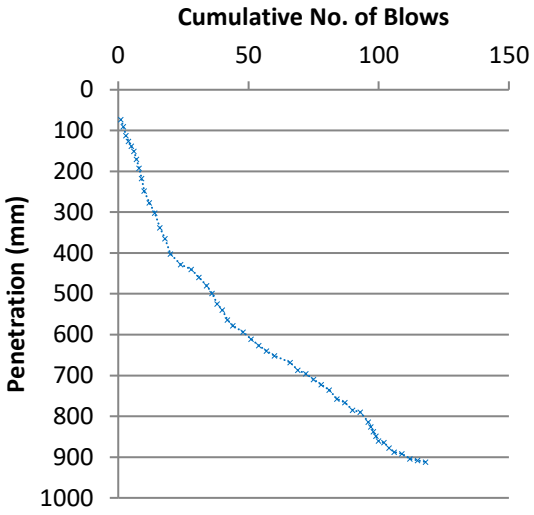
TRL Dynamic Cone Penetrometer Test Report

(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	55	0			
1	1	1	73	18	18	18	14.23
1	1	2	90	35	17	17	15.12
1	1	3	112	57	22	22	11.51
1	1	4	126	71	14	14	18.56
1	1	5	138	83	12	12	21.84
1	1	6	151	96	13	13	20.07
1	1	7	170	115	19	19	13.44
1	1	8	192	137	22	22	11.51
1	1	9	217	162	25	25	10.05
1	1	10	248	193	31	31	8.01
1	2	12	277	222	29	15	17.88
1	2	14	302	247	25	13	20.92
1	2	16	338	283	36	18	14.23
1	2	18	365	310	27	14	19.29
1	2	20	402	347	37	19	13.82
1	4	24	428	373	26	7	41.76
1	4	28	440	385	12	3	94.55
1	3	31	460	405	20	7	40.66
1	3	34	480	425	20	7	40.66
1	2	36	499	444	19	10	27.96
1	2	38	525	470	26	13	20.07
1	2	40	540	485	15	8	35.90
1	2	42	564	509	24	12	21.84
1	2	44	578	523	14	7	38.61
1	4	48	594	539	16	4	69.76
1	3	51	611	556	17	6	48.28
1	3	54	627	572	16	5	51.47
1	3	57	640	585	13	4	64.10
1	3	60	652	597	12	4	69.76
1	6	66	668	613	16	3	107.09
1	3	69	687	632	19	6	42.92
1	3	72	696	641	9	3	94.55
1	3	75	710	655	14	5	59.27
1	3	78	722	667	12	4	69.76
1	3	81	736	681	14	5	59.27
1	3	84	758	703	22	7	36.76
1	3	87	766	711	8	3	107.09
1	3	90	785	730	19	6	42.92
1	3	93	790	735	5	2	176.00
1	3	96	814	759	24	8	33.53
1	1	97	826	771	12	12	21.84
1	1	98	838	783	12	12	21.84
1	1	99	849	794	11	11	23.95
1	1	100	860	805	11	11	23.95
1	2	102	864	809	4	2	145.15
1	2	104	878	823	14	7	38.61
1	2	106	888	833	10	5	55.10
1	3	109	892	837	4	1	222.81
1	3	112	904	849	12	4	69.76
1	3	115	908	853	4	1	222.81
1	3	118	912	857	4	1	222.81

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





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Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**07-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Plot 12**

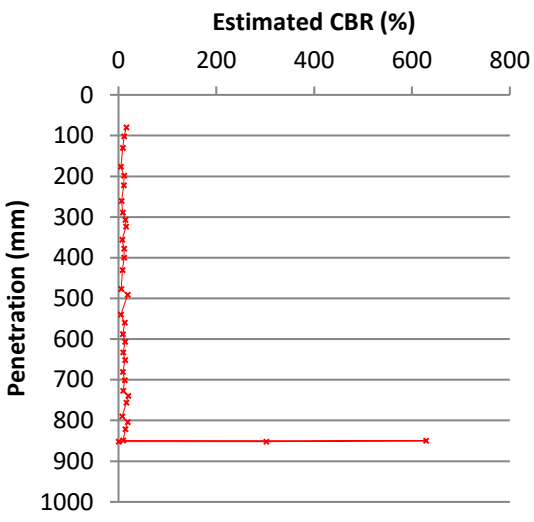
TRL Dynamic Cone Penetrometer Test Report

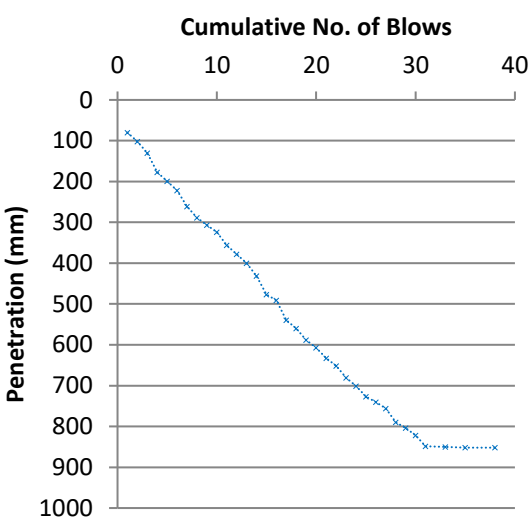
(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	64	0			
1	1	1	80	16	16	16	16.12
1	1	2	102	38	22	22	11.51
1	1	3	130	66	28	28	8.92
1	1	4	177	113	47	47	5.16
1	1	5	199	135	22	22	11.51
1	1	6	222	158	23	23	10.98
1	1	7	261	197	39	39	6.28
1	1	8	289	225	28	28	8.92
1	1	9	307	243	18	18	14.23
1	1	10	324	260	17	17	15.12
1	1	11	356	292	32	32	7.75
1	1	12	378	314	22	22	11.51
1	1	13	400	336	22	22	11.51
1	1	14	431	367	31	31	8.01
1	1	15	477	413	46	46	5.28
1	1	16	491	427	14	14	18.56
1	1	17	540	476	49	49	4.94
1	1	18	560	496	20	20	12.73
1	1	19	588	524	28	28	8.92
1	1	20	607	543	19	19	13.44
1	1	21	633	569	26	26	9.65
1	1	22	652	588	19	19	13.44
1	1	23	681	617	29	29	8.59
1	1	24	701	637	20	20	12.73
1	1	25	727	663	26	26	9.65
1	1	26	740	676	13	13	20.07
1	1	27	756	692	16	16	16.12
1	1	28	790	726	34	34	7.26
1	1	29	804	740	14	14	18.56
1	1	30	822	758	18	18	14.23
1	1	31	849	785	27	27	9.27
1	2	33	850	786	1	1	628.33
1	2	35	852	788	2	1	302.00
1	3	38	852	788	0	0	#NUM!

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)

Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)


Estimated CBR (%)
0
200
400
600
800
Penetration (mm)
0
100
200
300
400
500
600
700
800
900
1000


Cumulative No. of Blows
0
10
20
30
40
Penetration (mm)
0
100
200
300
400
500
600
700
800
900
1000

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Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**07-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Plot 13**

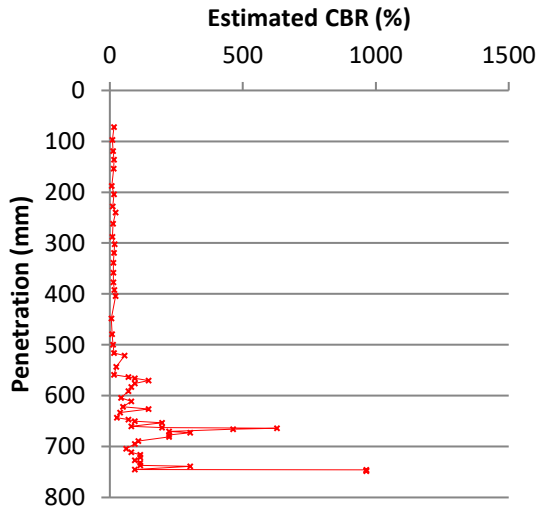
TRL Dynamic Cone Penetrometer Test Report

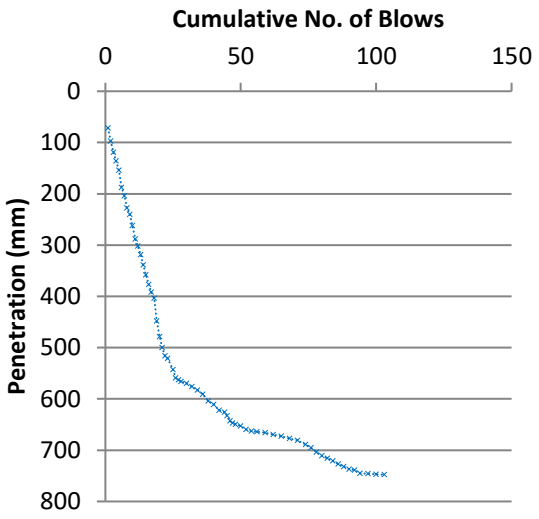
(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	56	0			
1	1	1	72	16	16	16	16.12
1	1	2	97	41	25	25	10.05
1	1	3	119	63	22	22	11.51
1	1	4	136	80	17	17	15.12
1	1	5	154	98	18	18	14.23
1	1	6	188	132	34	34	7.26
1	1	7	204	148	16	16	16.12
1	1	8	228	172	24	24	10.50
1	1	9	240	184	12	12	21.84
1	1	10	262	206	22	22	11.51
1	1	11	288	232	26	26	9.65
1	1	12	302	246	14	14	18.56
1	1	13	319	263	17	17	15.12
1	1	14	339	283	20	20	12.73
1	1	15	358	302	19	19	13.44
1	1	16	377	321	19	19	13.44
1	1	17	392	336	15	15	17.25
1	1	18	404	348	12	12	21.84
1	1	19	448	392	44	44	5.53
1	1	20	479	423	31	31	8.01
1	1	21	500	444	21	21	12.09
1	1	22	516	460	16	16	16.12
1	1	23	521	465	5	5	55.10
1	2	25	543	487	22	11	23.95
1	1	26	559	503	16	16	16.12
1	1	27	563	507	4	4	69.76
1	1	28	566	510	3	3	94.55
1	2	30	570	514	4	2	145.15
1	2	32	576	520	6	3	94.55
1	2	34	583	527	7	4	80.34
1	2	36	591	535	8	4	69.76
1	2	38	604	548	13	7	41.76
1	2	40	611	555	7	4	80.34
1	2	42	622	566	11	6	49.82
1	2	44	626	570	4	2	145.15
1	1	45	633	577	7	7	38.61
1	1	46	643	587	10	10	26.49
1	1	47	647	591	4	4	69.76
1	1	48	650	594	3	3	94.55
1	2	50	653	597	3	2	196.73
1	2	52	660	604	7	4	80.34
1	2	54	663	607	3	2	196.73
1	2	56	664	608	1	1	628.33
1	3	59	666	610	2	1	463.58
1	3	62	670	614	4	1	222.81
1	3	65	673	617	3	1	302.00

1	3	68	677	621	4	1	222.81
1	3	71	681	625	4	1	222.81
1	3	74	689	633	8	3	107.09
1	2	76	695	639	6	3	94.55
1	2	78	704	648	9	5	61.60
1	2	80	711	655	7	4	80.34
1	2	82	716	660	5	3	114.65
1	2	84	721	665	5	3	114.65
1	2	86	727	671	6	3	94.55
1	2	88	732	676	5	3	114.65
1	2	90	737	681	5	3	114.65
1	2	92	739	683	2	1	302.00
1	2	94	745	689	6	3	94.55
1	3	97	746	690	1	0	964.53
1	3	100	747	691	1	0	964.53
1	3	103	748	692	1	0	964.53

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





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Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**07-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Plot 19**

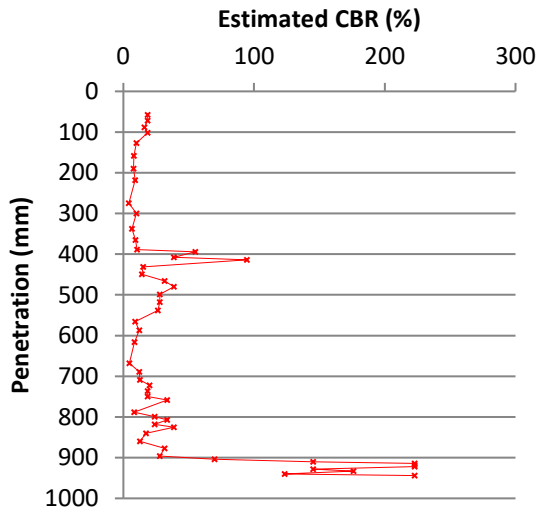
TRL Dynamic Cone Penetrometer Test Report

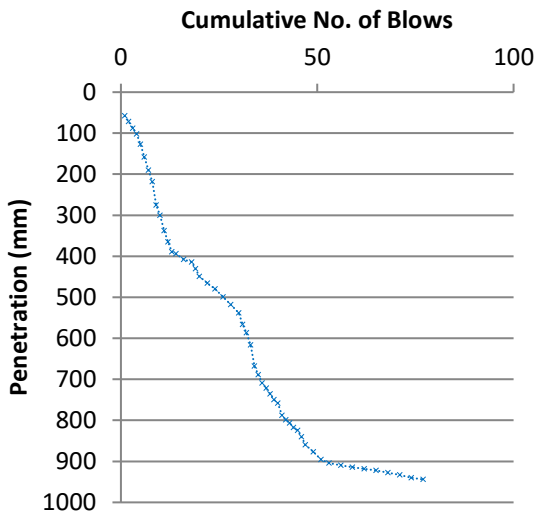
(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	44	0			
1	1	1	58	14	14	14	18.56
1	1	2	72	28	14	14	18.56
1	1	3	88	44	16	16	16.12
1	1	4	102	58	14	14	18.56
1	1	5	127	83	25	25	10.05
1	1	6	158	114	31	31	8.01
1	1	7	190	146	32	32	7.75
1	1	8	218	174	28	28	8.92
1	1	9	275	231	57	57	4.21
1	1	10	300	256	25	25	10.05
1	1	11	338	294	38	38	6.46
1	1	12	365	321	27	27	9.27
1	1	13	389	345	24	24	10.50
1	1	14	394	350	5	5	55.10
1	2	16	408	364	14	7	38.61
1	2	18	414	370	6	3	94.55
1	1	19	431	387	17	17	15.12
1	1	20	449	405	18	18	14.23
1	2	22	466	422	17	9	31.45
1	2	24	480	436	14	7	38.61
1	2	26	499	455	19	10	27.96
1	2	28	518	474	19	10	27.96
1	2	30	538	494	20	10	26.49
1	1	31	566	522	28	28	8.92
1	1	32	587	543	21	21	12.09
1	1	33	616	572	29	29	8.59
1	1	34	668	624	52	52	4.64
1	1	35	689	645	21	21	12.09
1	1	36	709	665	20	20	12.73
1	1	37	722	678	13	13	20.07
1	1	38	736	692	14	14	18.56
1	1	39	750	706	14	14	18.56
1	1	40	758	714	8	8	33.53
1	1	41	788	744	30	30	8.29
1	1	42	799	755	11	11	23.95
1	1	43	807	763	8	8	33.53
1	1	44	818	774	11	11	23.95
1	1	45	825	781	7	7	38.61
1	1	46	840	796	15	15	17.25
1	1	47	860	816	20	20	12.73
1	2	49	877	833	17	9	31.45
1	2	51	896	852	19	10	27.96
1	2	53	904	860	8	4	69.76
1	3	56	910	866	6	2	145.15
1	3	59	914	870	4	1	222.81
1	3	62	918	874	4	1	222.81

1	3	65	922	878	4	1	222.81
1	3	68	928	884	6	2	145.15
1	3	71	933	889	5	2	176.00
1	3	74	940	896	7	2	123.32
1	3	77	944	900	4	1	222.81

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





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Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**07-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Plot 20**

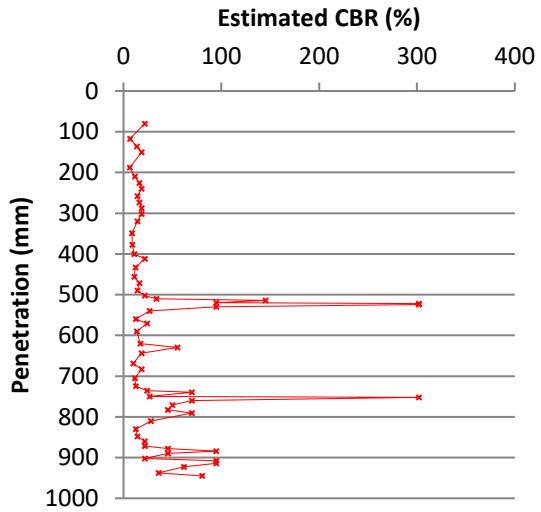
TRL Dynamic Cone Penetrometer Test Report

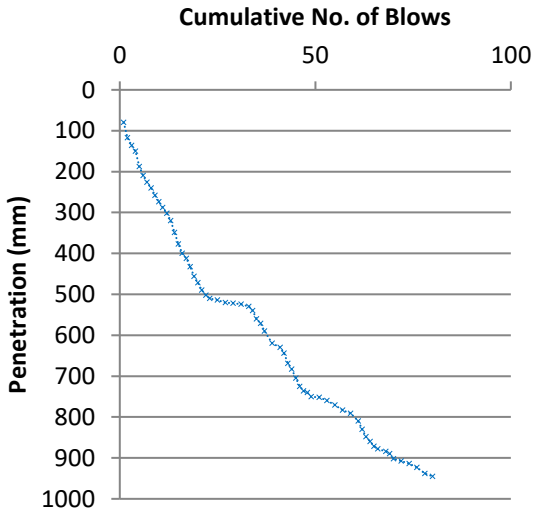
(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	68	0			
1	1	1	80	12	12	12	21.84
1	1	2	117	49	37	37	6.64
1	1	3	136	68	19	19	13.44
1	1	4	150	82	14	14	18.56
1	1	5	188	120	38	38	6.46
1	1	6	210	142	22	22	11.51
1	1	7	226	158	16	16	16.12
1	1	8	240	172	14	14	18.56
1	1	9	258	190	18	18	14.23
1	1	10	274	206	16	16	16.12
1	1	11	288	220	14	14	18.56
1	1	12	302	234	14	14	18.56
1	1	13	320	252	18	18	14.23
1	1	14	349	281	29	29	8.59
1	1	15	377	309	28	28	8.92
1	1	16	400	332	23	23	10.98
1	1	17	412	344	12	12	21.84
1	1	18	433	365	21	21	12.09
1	1	19	456	388	23	23	10.98
1	1	20	472	404	16	16	16.12
1	1	21	490	422	18	18	14.23
1	1	22	502	434	12	12	21.84
1	1	23	510	442	8	8	33.53
1	2	25	514	446	4	2	145.15
1	2	27	520	452	6	3	94.55
1	2	29	522	454	2	1	302.00
1	2	31	524	456	2	1	302.00
1	2	33	530	462	6	3	94.55
1	1	34	540	472	10	10	26.49
1	1	35	560	492	20	20	12.73
1	1	36	571	503	11	11	23.95
1	1	37	590	522	19	19	13.44
1	2	39	620	552	30	15	17.25
1	2	41	630	562	10	5	55.10
1	1	42	644	576	14	14	18.56
1	1	43	669	601	25	25	10.05
1	1	44	683	615	14	14	18.56
1	1	45	705	637	22	22	11.51
1	1	46	725	657	20	20	12.73
1	1	47	736	668	11	11	23.95
1	1	48	740	672	4	4	69.76
1	1	49	750	682	10	10	26.49
1	2	51	752	684	2	1	302.00
1	2	53	760	692	8	4	69.76
1	2	55	771	703	11	6	49.82
1	2	57	783	715	12	6	45.45

1	2	59	791	723	8	4	69.76
1	2	61	810	742	19	10	27.96
1	1	62	830	762	20	20	12.73
1	1	63	848	780	18	18	14.23
1	1	64	860	792	12	12	21.84
1	1	65	872	804	12	12	21.84
1	1	66	878	810	6	6	45.45
1	2	68	884	816	6	3	94.55
1	1	69	890	822	6	6	45.45
1	1	70	902	834	12	12	21.84
1	2	72	908	840	6	3	94.55
1	2	74	914	846	6	3	94.55
1	2	76	923	855	9	5	61.60
1	2	78	938	870	15	8	35.90
1	2	80	945	877	7	4	80.34

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





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Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**07-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Plot 24**

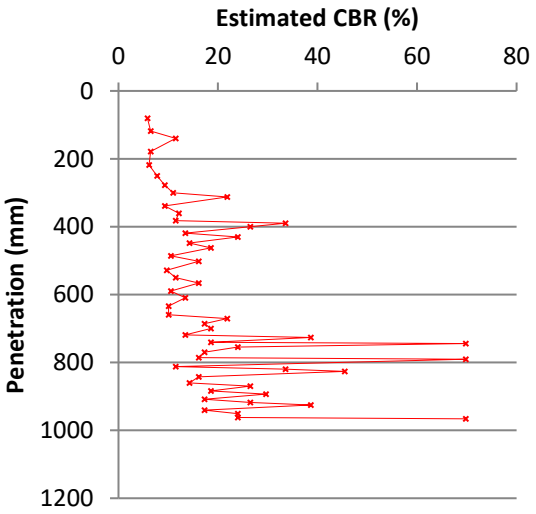
TRL Dynamic Cone Penetrometer Test Report

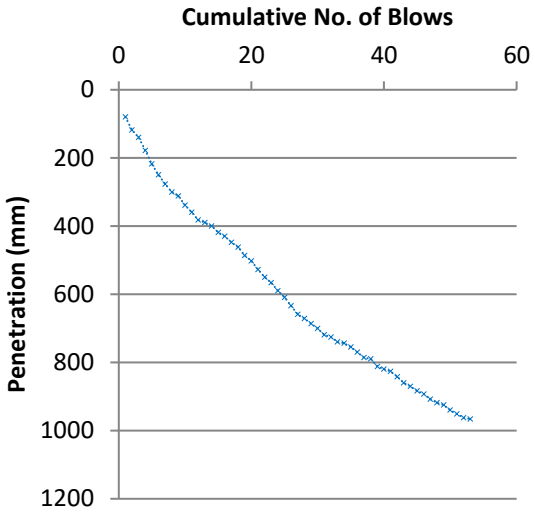
(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	38	0			
1	1	1	80	42	42	42	5.81
1	1	2	118	80	38	38	6.46
1	1	3	140	102	22	22	11.51
1	1	4	178	140	38	38	6.46
1	1	5	218	180	40	40	6.12
1	1	6	250	212	32	32	7.75
1	1	7	277	239	27	27	9.27
1	1	8	300	262	23	23	10.98
1	1	9	312	274	12	12	21.84
1	1	10	339	301	27	27	9.27
1	1	11	360	322	21	21	12.09
1	1	12	382	344	22	22	11.51
1	1	13	390	352	8	8	33.53
1	1	14	400	362	10	10	26.49
1	1	15	419	381	19	19	13.44
1	1	16	430	392	11	11	23.95
1	1	17	448	410	18	18	14.23
1	1	18	462	424	14	14	18.56
1	1	19	486	448	24	24	10.50
1	1	20	502	464	16	16	16.12
1	1	21	528	490	26	26	9.65
1	1	22	550	512	22	22	11.51
1	1	23	566	528	16	16	16.12
1	1	24	590	552	24	24	10.50
1	1	25	609	571	19	19	13.44
1	1	26	634	596	25	25	10.05
1	1	27	659	621	25	25	10.05
1	1	28	671	633	12	12	21.84
1	1	29	686	648	15	15	17.25
1	1	30	700	662	14	14	18.56
1	1	31	719	681	19	19	13.44
1	1	32	726	688	7	7	38.61
1	1	33	740	702	14	14	18.56
1	1	34	744	706	4	4	69.76
1	1	35	755	717	11	11	23.95
1	1	36	770	732	15	15	17.25
1	1	37	786	748	16	16	16.12
1	1	38	790	752	4	4	69.76
1	1	39	812	774	22	22	11.51
1	1	40	820	782	8	8	33.53
1	1	41	826	788	6	6	45.45
1	1	42	842	804	16	16	16.12
1	1	43	860	822	18	18	14.23
1	1	44	870	832	10	10	26.49
1	1	45	884	846	14	14	18.56
1	1	46	893	855	9	9	29.61

1	1	47	908	870	15	15	17.25
1	1	48	918	880	10	10	26.49
1	1	49	925	887	7	7	38.61
1	1	50	940	902	15	15	17.25
1	1	51	951	913	11	11	23.95
1	1	52	962	924	11	11	23.95
1	1	53	966	928	4	4	69.76

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





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Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**07-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Plot 26**

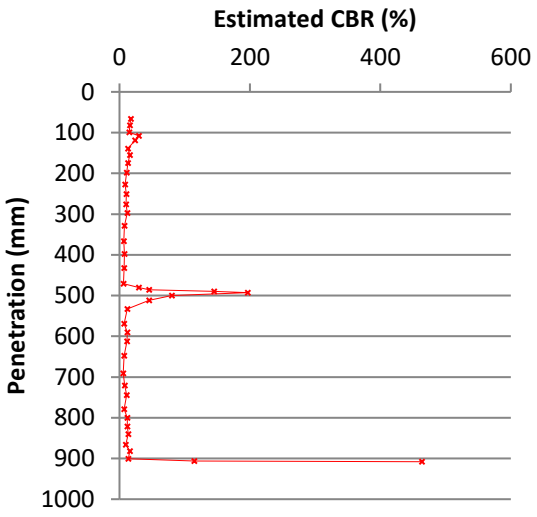
TRL Dynamic Cone Penetrometer Test Report

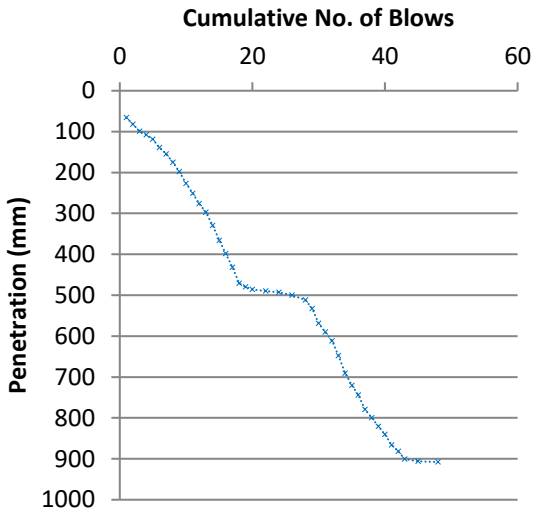
(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	51	0			
1	1	1	66	15	15	15	17.25
1	1	2	82	31	16	16	16.12
1	1	3	99	48	17	17	15.12
1	1	4	108	57	9	9	29.61
1	1	5	119	68	11	11	23.95
1	1	6	139	88	20	20	12.73
1	1	7	155	104	16	16	16.12
1	1	8	175	124	20	20	12.73
1	1	9	198	147	23	23	10.98
1	1	10	227	176	29	29	8.59
1	1	11	251	200	24	24	10.50
1	1	12	276	225	25	25	10.05
1	1	13	297	246	21	21	12.09
1	1	14	329	278	32	32	7.75
1	1	15	366	315	37	37	6.64
1	1	16	398	347	32	32	7.75
1	1	17	432	381	34	34	7.26
1	1	18	471	420	39	39	6.28
1	1	19	480	429	9	9	29.61
1	1	20	486	435	6	6	45.45
1	2	22	490	439	4	2	145.15
1	2	24	493	442	3	2	196.73
1	2	26	500	449	7	4	80.34
1	2	28	512	461	12	6	45.45
1	1	29	533	482	21	21	12.09
1	1	30	569	518	36	36	6.84
1	1	31	590	539	21	21	12.09
1	1	32	612	561	22	22	11.51
1	1	33	648	597	36	36	6.84
1	1	34	691	640	43	43	5.67
1	1	35	721	670	30	30	8.29
1	1	36	744	693	23	23	10.98
1	1	37	779	728	35	35	7.05
1	1	38	800	749	21	21	12.09
1	1	39	821	770	21	21	12.09
1	1	40	840	789	19	19	13.44
1	1	41	866	815	26	26	9.65
1	1	42	882	831	16	16	16.12
1	1	43	901	850	19	19	13.44
1	2	45	906	855	5	3	114.65
1	3	48	908	857	2	1	463.58

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)

Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)


Estimated CBR (%)
0
200
400
600
Penetration (mm)
0
100
200
300
400
500
600
700
800
900
1000


Cumulative No. of Blows
0
20
40
60
Penetration (mm)
0
100
200
300
400
500
600
700
800
900
1000

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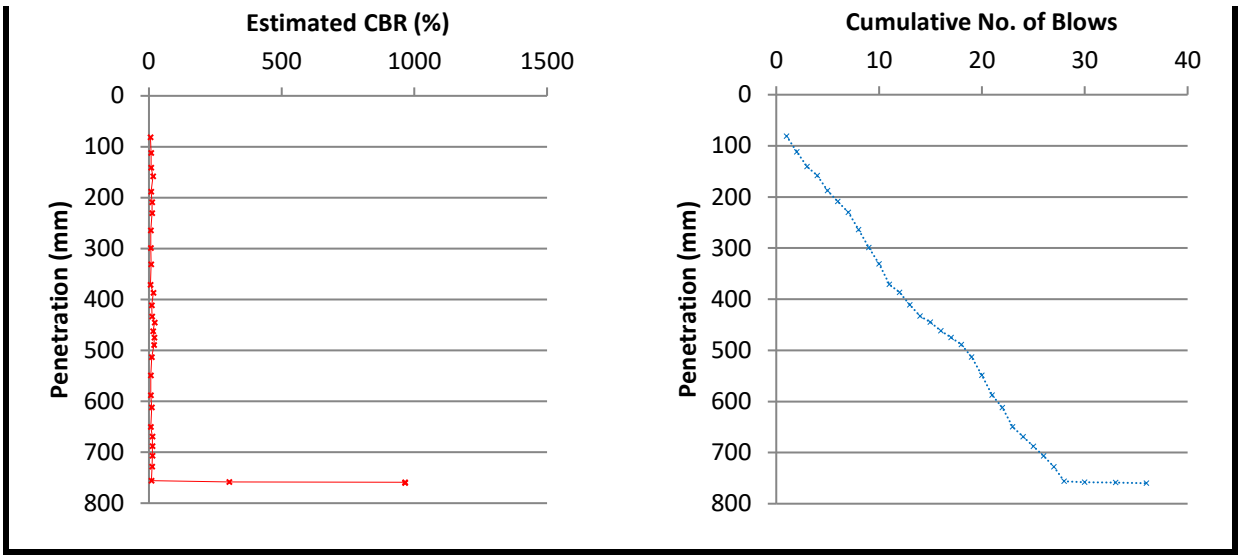
Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**14-Oct-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Plot 32**

TRL Dynamic Cone Penetrometer Test Report

(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	37	0			
1	1	1	81	44	44	44	5.53
1	1	2	112	75	31	31	8.01
1	1	3	141	104	29	29	8.59
1	1	4	158	121	17	17	15.12
1	1	5	188	151	30	30	8.29
1	1	6	209	172	21	21	12.09
1	1	7	230	193	21	21	12.09
1	1	8	264	227	34	34	7.26
1	1	9	299	262	35	35	7.05
1	1	10	331	294	32	32	7.75
1	1	11	371	334	40	40	6.12
1	1	12	387	350	16	16	16.12
1	1	13	411	374	24	24	10.50
1	1	14	433	396	22	22	11.51
1	1	15	445	408	12	12	21.84
1	1	16	462	425	17	17	15.12
1	1	17	475	438	13	13	20.07
1	1	18	489	452	14	14	18.56
1	1	19	513	476	24	24	10.50
1	1	20	549	512	36	36	6.84
1	1	21	588	551	39	39	6.28
1	1	22	612	575	24	24	10.50
1	1	23	650	613	38	38	6.46
1	1	24	669	632	19	19	13.44
1	1	25	688	651	19	19	13.44
1	1	26	707	670	19	19	13.44
1	1	27	728	691	21	21	12.09
1	1	28	756	719	28	28	8.92
1	2	30	758	721	2	1	302.00
1	3	33	759	722	1	0	964.53
1	3	36	760	723	1	0	964.53

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)


Estimated CBR (%)
0
500
1000
1500
Penetration (mm)
0
100
200
300
400
500
600
700
800
Cumulative No. of Blows
0
10
20
30
40
Penetration (mm)
0
100
200
300
400
500
600
700
800

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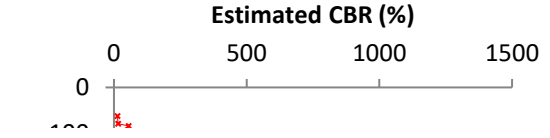
Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**14-Oct-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Plot 35**

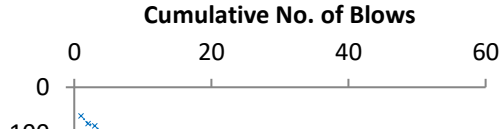
TRL Dynamic Cone Penetrometer Test Report

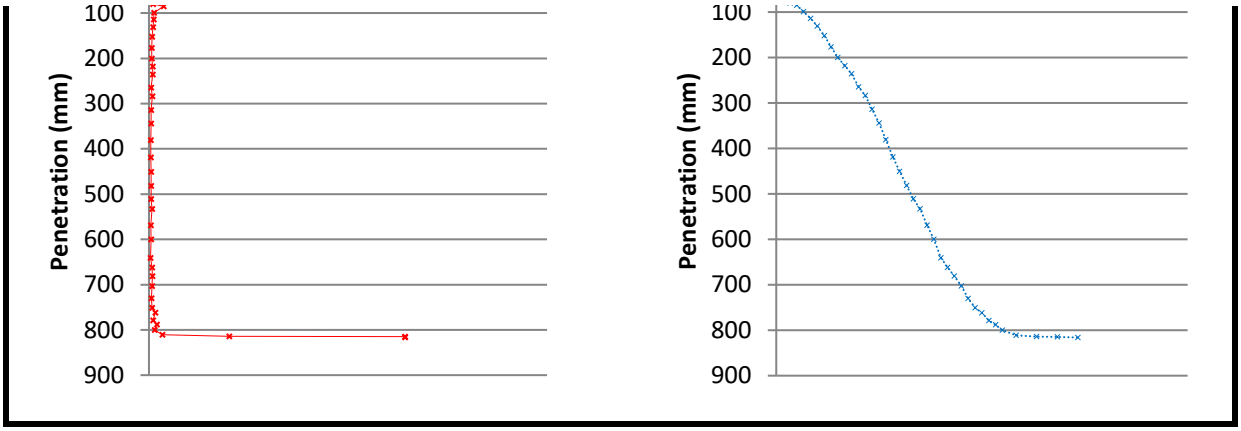
(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	44	0			
1	1	1	63	19	19	19	13.44
1	1	2	80	36	17	17	15.12
1	1	3	85	41	5	5	55.10
1	1	4	99	55	14	14	18.56
1	1	5	114	70	15	15	17.25
1	1	6	131	87	17	17	15.12
1	1	7	152	108	21	21	12.09
1	1	8	177	133	25	25	10.05
1	1	9	200	156	23	23	10.98
1	1	10	218	174	18	18	14.23
1	1	11	236	192	18	18	14.23
1	1	12	265	221	29	29	8.59
1	1	13	284	240	19	19	13.44
1	1	14	314	270	30	30	8.29
1	1	15	344	300	30	30	8.29
1	1	16	381	337	37	37	6.64
1	1	17	419	375	38	38	6.46
1	1	18	451	407	32	32	7.75
1	1	19	482	438	31	31	8.01
1	1	20	511	467	29	29	8.59
1	1	21	533	489	22	22	11.51
1	1	22	569	525	36	36	6.84
1	1	23	600	556	31	31	8.01
1	1	24	641	597	41	41	5.96
1	1	25	662	618	21	21	12.09
1	1	26	681	637	19	19	13.44
1	1	27	703	659	22	22	11.51
1	1	28	730	686	27	27	9.27
1	1	29	751	707	21	21	12.09
1	1	30	762	718	11	11	23.95
1	1	31	779	735	17	17	15.12
1	1	32	788	744	9	9	29.61
1	1	33	800	756	12	12	21.84
1	2	35	811	767	11	6	49.82
1	3	38	814	770	3	1	302.00
1	3	41	815	771	1	0	964.53
1	3	44	816	772	1	0	964.53

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)






Penetration (mm)
100
200
300
400
500
600
700
800
900
Penetration (mm)
100
200
300
400
500
600
700
800
900

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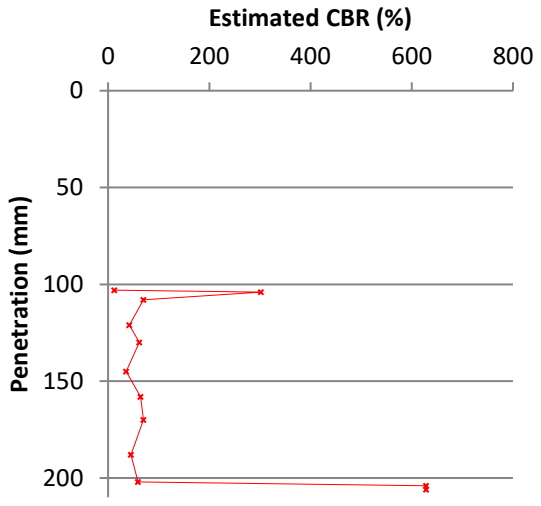
Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**14-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Road 1 - DCP01**

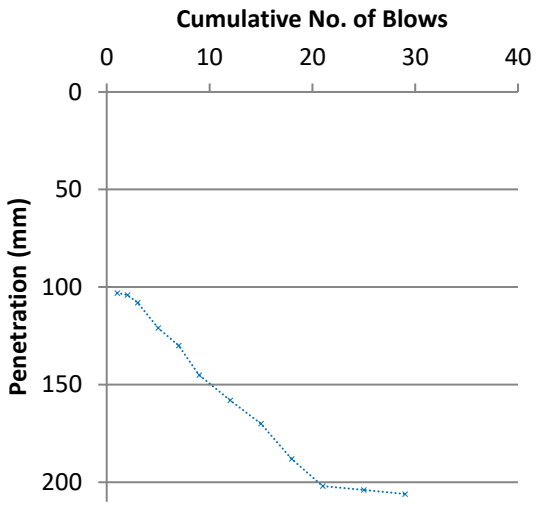
TRL Dynamic Cone Penetrometer Test Report

(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	82	0			
1	1	1	103	21	21	21	12.09
1	1	2	104	22	1	1	302.00
1	1	3	108	26	4	4	69.76
1	2	5	121	39	13	7	41.76
1	2	7	130	48	9	5	61.60
1	2	9	145	63	15	8	35.90
1	3	12	158	76	13	4	64.10
1	3	15	170	88	12	4	69.76
1	3	18	188	106	18	6	45.45
1	3	21	202	120	14	5	59.27
1	4	25	204	122	2	1	628.33
1	4	29	206	124	2	1	628.33

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





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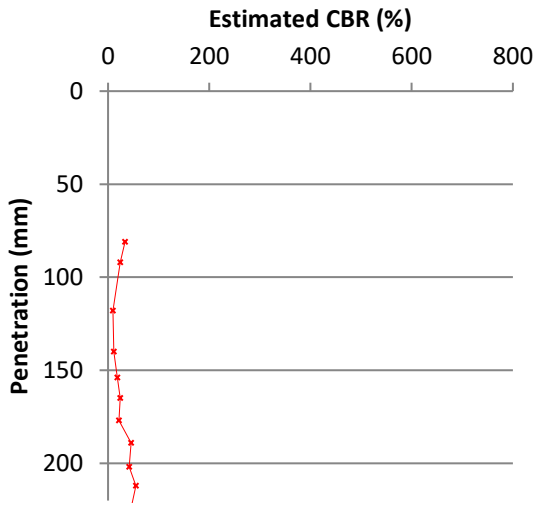
Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**14-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Road 1 - DCP02**

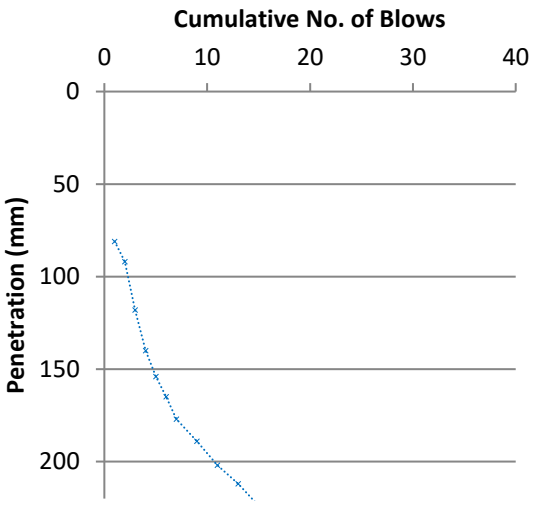
TRL Dynamic Cone Penetrometer Test Report

(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	73	0			
1	1	1	81	8	8	8	33.53
1	1	2	92	19	11	11	23.95
1	1	3	118	45	26	26	9.65
1	1	4	140	67	22	22	11.51
1	1	5	154	81	14	14	18.56
1	1	6	165	92	11	11	23.95
1	1	7	177	104	12	12	21.84
1	2	9	189	116	12	6	45.45
1	2	11	202	129	13	7	41.76
1	2	13	212	139	10	5	55.10
1	2	15	224	151	12	6	45.45
1	2	17	240	167	16	8	33.53
1	2	19	252	179	12	6	45.45
1	3	22	257	184	5	2	176.00
1	3	25	259	186	2	1	463.58
1	4	29	261	188	2	1	628.33

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





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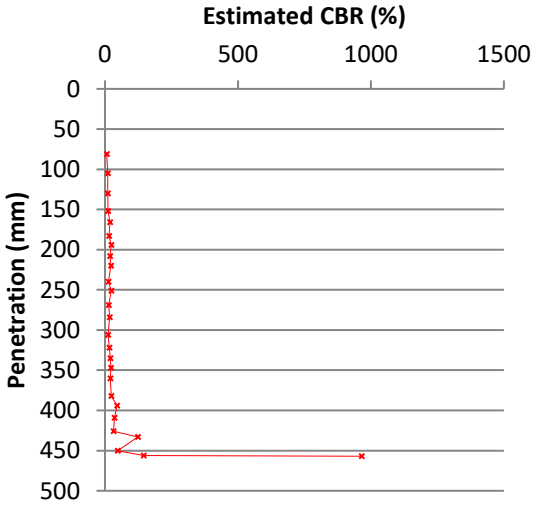
Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**14-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Road 1 - DCP03**

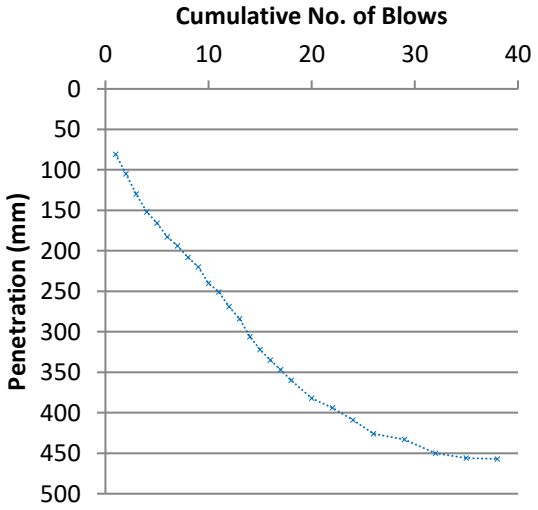
TRL Dynamic Cone Penetrometer Test Report

(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	43	0			
1	1	1	81	38	38	38	6.46
1	1	2	105	62	24	24	10.50
1	1	3	130	87	25	25	10.05
1	1	4	152	109	22	22	11.51
1	1	5	166	123	14	14	18.56
1	1	6	183	140	17	17	15.12
1	1	7	194	151	11	11	23.95
1	1	8	208	165	14	14	18.56
1	1	9	220	177	12	12	21.84
1	1	10	240	197	20	20	12.73
1	1	11	251	208	11	11	23.95
1	1	12	269	226	18	18	14.23
1	1	13	284	241	15	15	17.25
1	1	14	306	263	22	22	11.51
1	1	15	322	279	16	16	16.12
1	1	16	335	292	13	13	20.07
1	1	17	347	304	12	12	21.84
1	1	18	360	317	13	13	20.07
1	2	20	382	339	22	11	23.95
1	2	22	394	351	12	6	45.45
1	2	24	409	366	15	8	35.90
1	2	26	426	383	17	9	31.45
1	3	29	433	390	7	2	123.32
1	3	32	450	407	17	6	48.28
1	3	35	456	413	6	2	145.15
1	3	38	457	414	1	0	964.53

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





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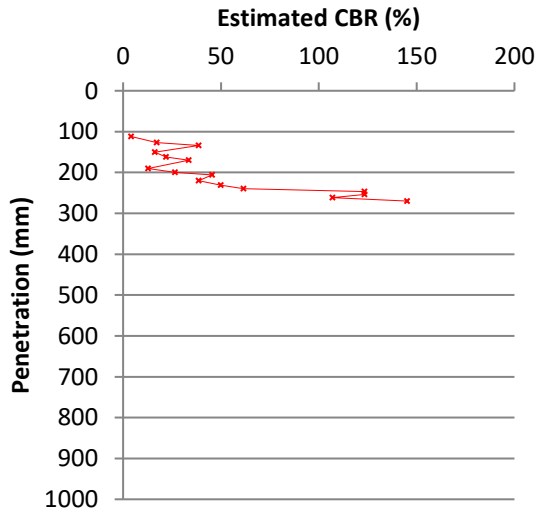
Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**14-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Road 1 - DCP04**

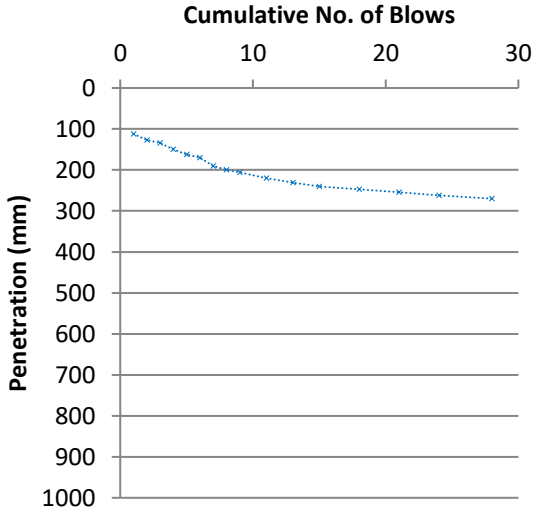
TRL Dynamic Cone Penetrometer Test Report

(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	54	0			
1	1	1	112	58	58	58	4.13
1	1	2	127	73	15	15	17.25
1	1	3	134	80	7	7	38.61
1	1	4	150	96	16	16	16.12
1	1	5	162	108	12	12	21.84
1	1	6	170	116	8	8	33.53
1	1	7	190	136	20	20	12.73
1	1	8	200	146	10	10	26.49
1	1	9	206	152	6	6	45.45
1	2	11	220	166	14	7	38.61
1	2	13	231	177	11	6	49.82
1	2	15	240	186	9	5	61.60
1	3	18	247	193	7	2	123.32
1	3	21	254	200	7	2	123.32
1	3	24	262	208	8	3	107.09
1	4	28	270	216	8	2	145.15

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





Sirius
4245 Park Approach,
Thorpe Park,
Leeds, LS15 8GB
t: 0113 2649960
e: info@thesiriusgroup.com
w: www.thesiriusgroup.com

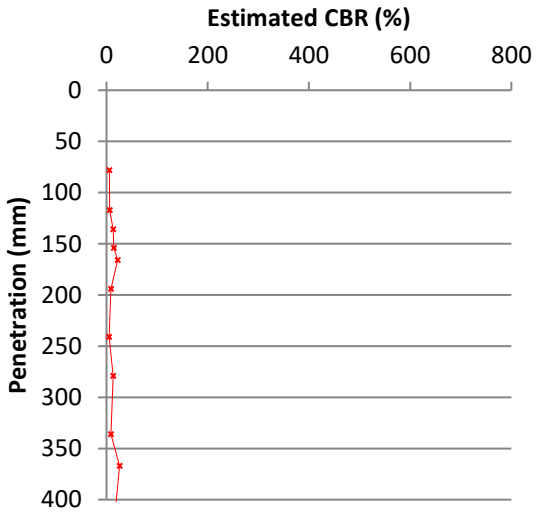
Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**14-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Road 2 - DCP01**

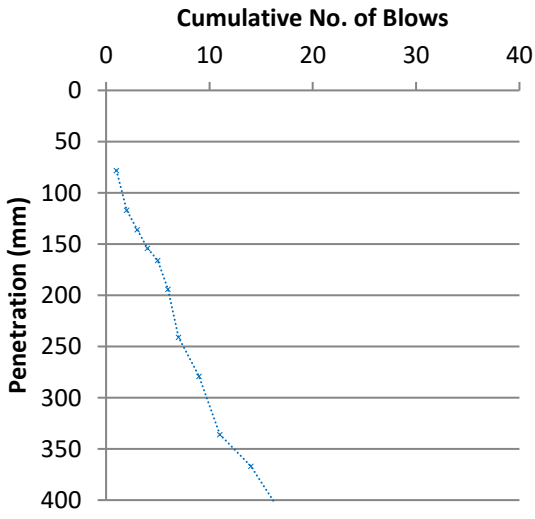
TRL Dynamic Cone Penetrometer Test Report

(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	35	0			
1	1	1	78	43	43	43	5.67
1	1	2	117	82	39	39	6.28
1	1	3	136	101	19	19	13.44
1	1	4	154	119	18	18	14.23
1	1	5	166	131	12	12	21.84
1	1	6	194	159	28	28	8.92
1	1	7	241	206	47	47	5.16
1	2	9	279	244	38	19	13.44
1	2	11	336	301	57	29	8.75
1	3	14	367	332	31	10	25.58
1	3	17	413	378	46	15	16.86
1	3	20	457	422	44	15	17.67
1	4	24	512	477	55	14	18.92
1	4	28	536	501	24	6	45.45
1	4	32	540	505	4	1	302.00
1	4	36	542	507	2	1	628.33

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





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Leeds, LS15 8GB
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e: info@thesiriusgroup.com
w: www.thesiriusgroup.com

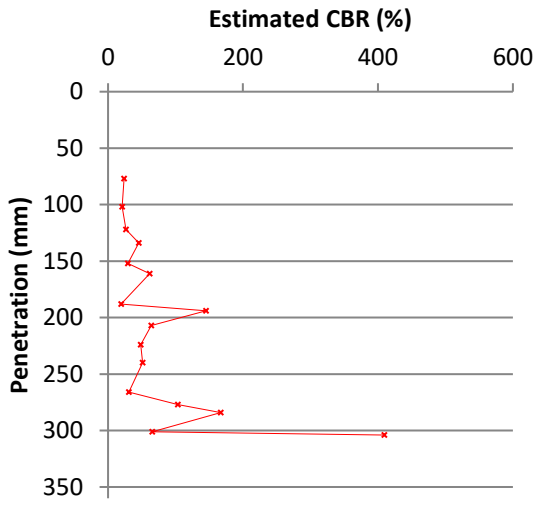
Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**14-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Road 2 - DCP02**

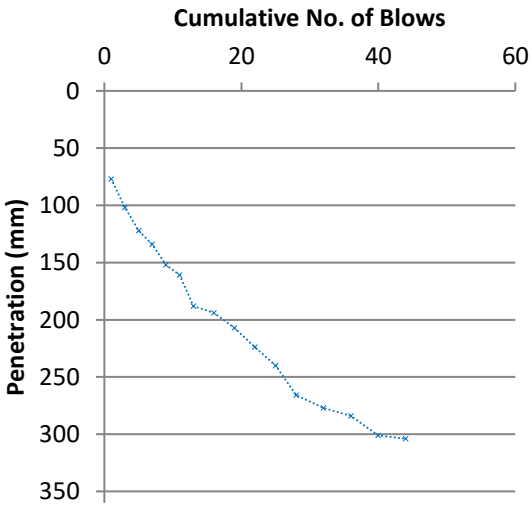
TRL Dynamic Cone Penetrometer Test Report

(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	66	0			
1	1	1	77	11	11	11	23.95
1	2	3	102	36	25	13	20.92
1	2	5	122	56	20	10	26.49
1	2	7	134	68	12	6	45.45
1	2	9	152	86	18	9	29.61
1	2	11	161	95	9	5	61.60
1	2	13	188	122	27	14	19.29
1	3	16	194	128	6	2	145.15
1	3	19	207	141	13	4	64.10
1	3	22	224	158	17	6	48.28
1	3	25	240	174	16	5	51.47
1	3	28	266	200	26	9	30.81
1	4	32	277	211	11	3	103.66
1	4	36	284	218	7	2	167.15
1	4	40	301	235	17	4	65.43
1	4	44	304	238	3	1	409.32

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





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e: info@thesiriusgroup.com
w: www.thesiriusgroup.com

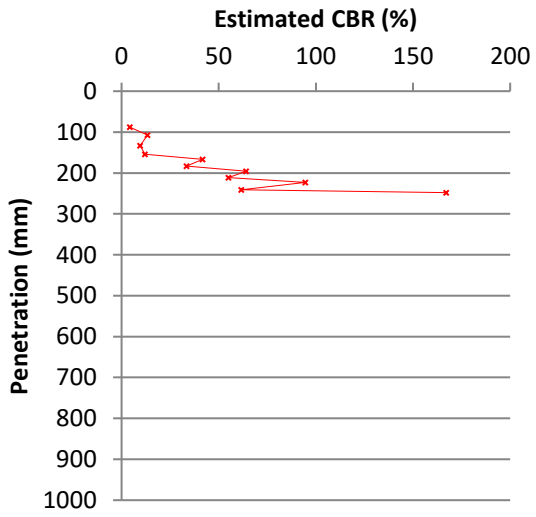
Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**14-Nov-24**
Checked by:	**JC**
Material description:	**Engineered fill**
Test location (& ref):	**Road 2 - DCP03**

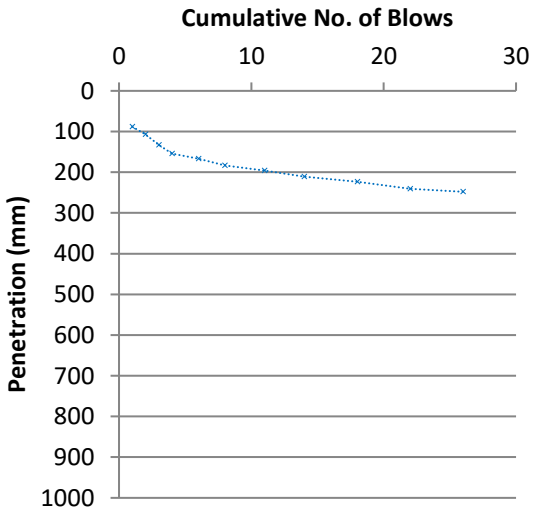
TRL Dynamic Cone Penetrometer Test Report

(in-situ measurement of the structural properties of unbound materials)

Layer No.	No. of blows	Cumulative No. of blows	Penetration depth (mm)	Actual penetration depth (mm)	Depth tested (mm)	Pen rate (mm/blow)	Approx. CBR (%)*
Zero reading		0	32	0			
1	1	1	88	56	56	56	4.29
1	1	2	107	75	19	19	13.44
1	1	3	133	101	26	26	9.65
1	1	4	154	122	21	21	12.09
1	2	6	167	135	13	7	41.76
1	2	8	183	151	16	8	33.53
1	3	11	196	164	13	4	64.10
1	3	14	211	179	15	5	55.10
1	4	18	223	191	12	3	94.55
1	4	22	241	209	18	5	61.60
1	4	26	248	216	7	2	167.15

*Calculation of CBR: estimated from the following TRL relationship: Log10(CBR) = 2.48 - 1.057 x Log10 (mm/blow)
Ref - Interin Advice Note 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD25)





Sirius
Suite 10a, Stone Cross Place,
Stone Cross Lane North,
Warrington, WA3 2SH
t: 01942 718551
e: info@thesiriusgroup.com
w: www.thesiriusgroup.com

Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**10/10/2024**
Checked by:	**J.C**

Hand Shear Vane Test Report - 19mm Vane

Test Location & Depth	Material Description	Vane Reading
Plot 3	Engineered Fill	86
		90
		96

Sirius
Suite 10a, Stone Cross Place,
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w: www.thesiriusgroup.com

Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**24/10/2024**
Checked by:	**J.C**

Hand Shear Vane Test Report - 19mm Vane

Test Location & Depth	Material Description	Vane Reading
Plot 17	Engineered Fill	94
		88
		100

Sirius
Suite 10a, Stone Cross Place,
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Warrington, WA3 2SH
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w: www.thesiriusgroup.com

Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**31/10/2024**
Checked by:	**J.C**

Hand Shear Vane Test Report - 19mm Vane

Test Location & Depth	Material Description	Vane Reading
Plot 9	Engineered Fill	98
		90
		90

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Suite 10a, Stone Cross Place,
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w: www.thesiriusgroup.com

Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**07/11/2024**
Checked by:	**J.C**

Hand Shear Vane Test Report - 19mm Vane

Test Location & Depth	Material Description	Vane Reading
Plot 13	Engineered Fill	92
		88
		96
Plot 19	Engineered Fill	94
		100
		88
Plot 21	Engineered Fill	90
		90
		88
Plot 25	Engineered Fill	76
		84
		86
Plot 35	Engineered Fill	88
		94
		98
Plot 31	Engineered Fill	86
		90
		92

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w: www.thesiriusgroup.com

Site Name:	**Ivy Mills, Whitehaven**
Project Number:	**SR4798**
Date tested (by):	**14/11/2024**
Checked by:	**J.C**

Hand Shear Vane Test Report - 19mm Vane

Test Location & Depth	Material Description	Vane Reading
Plot 27	Engineered Fill	66
		74
		88
Plot 22	Engineered Fill	80
		70
		66
Plot 11	Engineered Fill	68
		84
		60
Plot 16	Engineered Fill	74
		86
		86
Plot 24	Engineered Fill	88
		90
		80
Plot 5	Engineered Fill	74
		74
		82

APPENDIX F

CHEMICAL TESTING CERTIFICATES

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	24-31621-1
Initial Date of Issue:	07-Oct-2024
Re-Issue Details:	
Client	Sirius Geotechnical Ltd
Client Address:	Suite 10a Stone Cross Place Stone Cross Lane North Warrington WA3 2SH
Contact(s):	William Fitzpatrick
Project	SR4798 Ivy Mills

Quotation No.:		**Date Received:**	30-Sep-2024
Order No.:	PO/A14592/SR4798/WF	**Date Instructed:**	30-Sep-2024
No. of Samples:	1		
Turnaround (Wkdays):	6	**Results Due:**	07-Oct-2024
Date Approved:	04-Oct-2024		

Approved By:

Details: David Smith, Technical Director

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

Results - Soil

Project: SR4798 Ivy Mills

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-31621
Quotation No.:				**Chemtest Sample ID.:**		1874222
				Client Sample ID.:		ASP1
				Sample Type:		SOIL
				Date Sampled:		25-Sep-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
Moisture		N	2030	%	0.020	5.3
Soil Colour		N	2040		N/A	Brown
Other Material		N	2040		N/A	Stones
Soil Texture		N	2040		N/A	Sand
Naphthalene		M	2700	mg/kg	0.10	0.41
Acenaphthylene		M	2700	mg/kg	0.10	2.3
Acenaphthene		M	2700	mg/kg	0.10	0.57
Fluorene		M	2700	mg/kg	0.10	0.41
Phenanthrene		M	2700	mg/kg	0.10	5.4
Anthracene		M	2700	mg/kg	0.10	5.2
Fluoranthene		M	2700	mg/kg	0.10	48
Pyrene		M	2700	mg/kg	0.10	56
Benzo[a]anthracene		M	2700	mg/kg	0.10	48
Chrysene		M	2700	mg/kg	0.10	51
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	2.0
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	40
Benzo[a]pyrene		M	2700	mg/kg	0.10	93
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	72
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	20
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	79
Coronene		N	2700	mg/kg	0.10	< 0.10
Total Of 17 PAH's		N	2700	mg/kg	2.0	520

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	

Report Information

Key

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

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.
Any comments or interpretations are outside the scope of UKAS accreditation.
The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.
Uncertainty of measurement for the determinands tested are available upon request .
None of the results in this report have been recovery corrected.
All results are expressed on a dry weight basis.

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

For all other tests the samples were dried at ≤ 30°C prior to analysis.
All Asbestos testing is performed at the indicated laboratory .
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

Sample Deviation Codes

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

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.
All water samples will be retained for 14 days from the date of receipt.
Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

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

Report Information

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

Clean Up Codes

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

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

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

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	24-31625-1
Initial Date of Issue:	07-Oct-2024
Re-Issue Details:	
Client	Sirius Geotechnical Ltd
Client Address:	Suite 10a Stone Cross Place Stone Cross Lane North Warrington WA3 2SH
Contact(s):	William Fitzpatrick
Project	SR4798 Ivy Mills

Quotation No.:		**Date Received:**	30-Sep-2024
Order No.:	PO/A14592/SR4798/WF	**Date Instructed:**	30-Sep-2024
No. of Samples:	3		
Turnaround (Wkdays):	6	**Results Due:**	07-Oct-2024
Date Approved:	03-Oct-2024		

Approved By:

Details: David Smith, Technical Director

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

Results - Soil

Project: SR4798 Ivy Mills

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-31625	24-31625	24-31625
Quotation No.:				**Chemtest Sample ID.:**		1874230	1874231	1874232
				Client Sample ID.:		SP1	SP1 (1)	SP1 (2)
				Sample Type:		SOIL	SOIL	SOIL
				Date Sampled:		25-Sep-2024	25-Sep-2024	25-Sep-2024
				Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type		U	2192		N/A	Fibres/Clumps	Fibres/Clumps	Fibres/Clumps
Asbestos Identification		U	2192		N/A	Chrysotile	Chrysotile	Chrysotile

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	

Report Information

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For all other tests the samples were dried at ≤ 30°C prior to analysis.
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Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

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C - Sample not received in appropriate containers
D - Broken Container
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Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.
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Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

DW - Drinking Water
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NA - Not Applicable

Report Information

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

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

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

2183

Amended Report

Report No.:	24-31625-2		
Initial Date of Issue:	07-Oct-2024	**Date of Re-Issue:**	10-Oct-2024
Re-Issue Details:	This report has been revised and directly supersedes 24-31625-1 in its entirety		
Client	Sirius Geotechnical Ltd		
Client Address:	Suite 10a Stone Cross Place Stone Cross Lane North Warrington WA3 2SH		
Contact(s):	William Fitzpatrick		
Project	SR4798 Ivy Mills		
Quotation No.:		**Date Received:**	30-Sep-2024
Order No.:	PO/A14592/SR4798/WF	**Date Instructed:**	30-Sep-2024
No. of Samples:	3		
Turnaround (Wkdays):	13	**Results Due:**	16-Oct-2024
Date Approved:	10-Oct-2024		

Approved By:

Details: David Smith, Technical Director

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

Results - Soil

Project: SR4798 Ivy Mills

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-31625	24-31625	24-31625
Quotation No.:				**Chemtest Sample ID.:**		1874230	1874231	1874232
				Client Sample ID.:		SP1	SP1 (1)	SP1 (2)
				Sample Type:		SOIL	SOIL	SOIL
				Date Sampled:		25-Sep-2024	25-Sep-2024	25-Sep-2024
				Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type		U	2192		N/A	Fibres/Clumps	Fibres/Clumps	Fibres/Clumps
Asbestos Identification		U	2192		N/A	Chrysotile	Chrysotile	Chrysotile
Asbestos by Gravimetry		U	2192	%	0.001	<0.001	<0.001	<0.001
Total Asbestos		U	2192	%	0.001	<0.001	<0.001	<0.001

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	

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D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

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All water samples will be retained for 14 days from the date of receipt.
Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

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

Report Information

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

Clean Up Codes

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

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

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

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	24-31626-1
Initial Date of Issue:	07-Oct-2024
Re-Issue Details:	
Client	Sirius Geotechnical Ltd
Client Address:	Suite 10a Stone Cross Place Stone Cross Lane North Warrington WA3 2SH
Contact(s):	William Fitzpatrick
Project	SR4798 Ivy Mills

Quotation No.:		**Date Received:**	30-Sep-2024
Order No.:	PO/A14592/SR4798/WF	**Date Instructed:**	30-Sep-2024
No. of Samples:	3		
Turnaround (Wkdays):	6	**Results Due:**	07-Oct-2024
Date Approved:	04-Oct-2024		

Approved By:

Details: David Smith, Technical Director

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

Results - Soil

Project: SR4798 Ivy Mills

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-31626	24-31626	24-31626
Quotation No.:				**Chemtest Sample ID.:**		1874234	1874235	1874236
				Client Sample ID.:		SP2	SP2 (1)	SP2 (2)
				Sample Type:		SOIL	SOIL	SOIL
				Date Sampled:		25-Sep-2024	25-Sep-2024	25-Sep-2024
				Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type		U	2192		N/A	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	

Report Information

Key

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

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Sample Retention and Disposal

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Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

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

Report Information

PL - Prepared Leachate
PW - Processed Water
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TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

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

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
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2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

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customerservices@chemtest.com

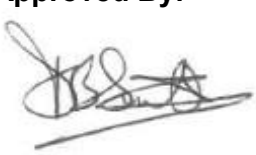
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	24-32996-1
Initial Date of Issue:	16-Oct-2024
Re-Issue Details:	
Client	Sirius Geotechnical Ltd
Client Address:	4250 (Downstairs) Thorpe Park Park Approach Leeds West Yorkshire LS15 8GB
Contact(s):	Alastair Cook Jack Clarke
Project	SR4798 Ivy Mills

Quotation No.:		**Date Received:**	11-Oct-2024
Order No.:	PO/A14614/SR4798/JC	**Date Instructed:**	11-Oct-2024
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	17-Oct-2024
Date Approved:	16-Oct-2024		

Approved By:



Details: David Smith, Technical Director

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

Results - Soil

Project: SR4798 Ivy Mills

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-32996
Quotation No.:				**Chemtest Sample ID.:**		1879444
				Sample Location:		TP207
				Sample Type:		SOIL
				Top Depth (m):		1.60
				Date Sampled:		04-Oct-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
Moisture		N	2030	%	0.020	29
Soil Colour		N	2040		N/A	Brown
Other Material		N	2040		N/A	Stones
Soil Texture		N	2040		N/A	Sand
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	< 0.10
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	0.23
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	< 0.25
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	26
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00	95
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	110
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00	640
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	120
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00	870
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	990
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	4.3
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	1.3
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	0.30
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	5.9
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	41
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	89
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	40
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	41
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00	3.4
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00	210
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00	210
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	5.9
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00	1100
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00	1200
Benzene		M	2760	µg/kg	1.0	< 1.0
Toluene		M	2760	µg/kg	1.0	3.1
Ethylbenzene		M	2760	µg/kg	1.0	6.9
m & p-Xylene		M	2760	µg/kg	1.0	16
o-Xylene		M	2760	µg/kg	1.0	10
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0	< 1.0
PCB 28		U	2815	mg/kg	0.010	< 0.010
PCB 52		U	2815	mg/kg	0.010	< 0.010
PCB 101		U	2815	mg/kg	0.010	< 0.010

Results - Soil

Project: SR4798 Ivy Mills

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-32996
Quotation No.:				**Chemtest Sample ID.:**		1879444
				Sample Location:		TP207
				Sample Type:		SOIL
				Top Depth (m):		1.60
				Date Sampled:		04-Oct-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
PCB 118		U	2815	mg/kg	0.010	< 0.010
PCB 153		U	2815	mg/kg	0.010	< 0.010
PCB 138		U	2815	mg/kg	0.010	< 0.010
PCB 180		U	2815	mg/kg	0.010	< 0.010
Total PCBs (7 Congeners)		N	2815	mg/kg	0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	

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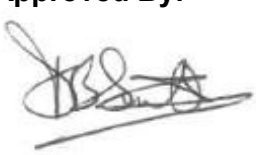
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	24-34168-1
Initial Date of Issue:	28-Oct-2024
Re-Issue Details:	
Client	Sirius Geotechnical Ltd
Client Address:	4250 (Downstairs) Thorpe Park Park Approach Leeds West Yorkshire LS15 8GB
Contact(s):	Alastair Cook Jack Clarke
Project	SR4798 Ivy Mills, Whitehaven

Quotation No.:		**Date Received:**	22-Oct-2024
Order No.:	PO/A14691/SR4798/JC	**Date Instructed:**	22-Oct-2024
No. of Samples:	7		
Turnaround (Wkdays):	5	**Results Due:**	28-Oct-2024
Date Approved:	28-Oct-2024		

Approved By:



Details: David Smith, Technical Director

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Results - Soil

Project: SR4798 Ivy Mills, Whitehaven

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-34168	24-34168	24-34168	24-34168	24-34168	24-34168	24-34168
Quotation No.:				**Chemtest Sample ID.:**		1883858	1883859	1883860	1883861	1883862	1883863	1883864
				Client Sample ID.:		SP105 - ES1	SP105 - ES2	SP105 - ES3	SP107 - ES1	SP107 - ES2	SP107 - ES3	Invasive SP
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Date Sampled:		17-Oct-2024	17-Oct-2024	17-Oct-2024	17-Oct-2024	17-Oct-2024	17-Oct-2024	17-Oct-2024
				Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type		U	2192		N/A	-	-	-	-	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020							38
Soil Colour		N	2040		N/A							Brown
Other Material		N	2040		N/A							Stones, Roots and Wood
Soil Texture		N	2040		N/A							Clay
pH at 20C		M	2010		4.0							7.4
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010							0.017
Sulphate (Total)		U	2430	%	0.010							0.21
Arsenic		M	2455	mg/kg	0.5							59
Cadmium		M	2455	mg/kg	0.10							0.97
Chromium		M	2455	mg/kg	0.5							47
Copper		M	2455	mg/kg	0.50							190
Mercury		M	2455	mg/kg	0.05							0.22
Nickel		M	2455	mg/kg	0.50							30
Lead		M	2455	mg/kg	0.50							150
Selenium		M	2455	mg/kg	0.25							1.1
Zinc		M	2455	mg/kg	0.50							270
Chromium (Hexavalent)		N	2490	mg/kg	0.50							< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05							< 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05							< 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05							< 0.05
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10							< 0.10
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05							< 0.05
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25							< 0.25
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00							< 2.0
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00							< 1.0
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00							< 2.0
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00							24
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00							< 10
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00							26
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00							26
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05							< 0.05
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05							< 0.05
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05							< 0.05
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25							< 0.25
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00							< 1.0
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00							< 1.0

Results - Soil

Project: SR4798 Ivy Mills, Whitehaven

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-34168	24-34168	24-34168	24-34168	24-34168	24-34168	24-34168
Quotation No.:				**Chemtest Sample ID.:**		1883858	1883859	1883860	1883861	1883862	1883863	1883864
				Client Sample ID.:		SP105 - ES1	SP105 - ES2	SP105 - ES3	SP107 - ES1	SP107 - ES2	SP107 - ES3	Invasive SP
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Date Sampled:		17-Oct-2024	17-Oct-2024	17-Oct-2024	17-Oct-2024	17-Oct-2024	17-Oct-2024	17-Oct-2024
				Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00							< 2.0
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00							7.1
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00							2.0
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00							7.7
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00							< 10
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50							< 0.50
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00							34
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00							36
Total Organic Carbon		M	2625	%	0.20							5.6
Naphthalene		M	2700	mg/kg	0.10							< 0.10
Acenaphthylene		M	2700	mg/kg	0.10							< 0.10
Acenaphthene		M	2700	mg/kg	0.10							< 0.10
Fluorene		M	2700	mg/kg	0.10							< 0.10
Phenanthrene		M	2700	mg/kg	0.10							0.58
Anthracene		M	2700	mg/kg	0.10							0.14
Fluoranthene		M	2700	mg/kg	0.10							0.59
Pyrene		M	2700	mg/kg	0.10							0.59
Benzo[a]anthracene		M	2700	mg/kg	0.10							0.62
Chrysene		M	2700	mg/kg	0.10							0.37
Benzo[b]fluoranthene		M	2700	mg/kg	0.10							0.36
Benzo[k]fluoranthene		M	2700	mg/kg	0.10							0.26
Benzo[a]pyrene		M	2700	mg/kg	0.10							0.33
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10							0.10
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10							0.15
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10							0.36
Total Of 16 PAH's		M	2700	mg/kg	2.0							4.5
Benzene		M	2760	µg/kg	1.0							< 1.0
Toluene		M	2760	µg/kg	1.0							< 1.0
Ethylbenzene		M	2760	µg/kg	1.0							< 1.0
m & p-Xylene		M	2760	µg/kg	1.0							< 1.0
o-Xylene		M	2760	µg/kg	1.0							< 1.0
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0							< 1.0
Total Phenols		M	2920	mg/kg	0.10							< 0.10

Results - Single Stage WAC

Project: SR4798 Ivy Mills, Whitehaven

						Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	24-34168							
Chemtest Sample ID:	1883864							
Sample Ref:								
Sample ID:	Invasive SP							
Sample Location:								
Top Depth(m):								
Bottom Depth(m):								
Sampling Date:	17-Oct-2024							
Determinand	**SOP**	**HWOL Code**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625		M	%	5.6	3	5	6
Loss On Ignition	2610		M	%	14	--	--	10
Total BTEX	2760		M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	EH_CU_1D_Total	M	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800		N	mg/kg	< 2.0	100	--	--
pH at 20C	2010		M		7.4	--	>6	--
Acid Neutralisation Capacity	2015		N	mol/kg	0.0070	--	To evaluate	To evaluate
Eluate Analysis				**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455		U	0.0015	0.015	0.5	2	25
Barium	1455		U	0.032	0.32	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	0.0017	0.018	0.5	10	70
Copper	1455		U	0.0042	0.042	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.0012	0.012	0.5	10	30
Nickel	1455		U	0.0014	0.014	0.4	10	40
Lead	1455		U	0.0034	0.034	0.5	10	50
Antimony	1455		U	0.0010	0.010	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	0.83	8.3	4	50	200
Chloride	1220		U	1.0	10	800	15000	25000
Fluoride	1220		U	0.26	2.6	10	150	500
Sulphate	1220		U	2.0	20	1000	20000	50000
Total Dissolved Solids	1020		N	65	650	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	6.6	66	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	5.6

Waste Acceptance Criteria

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

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	RE PW PL LE DW FW
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	RE PW PL SW DW FW
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	PL SW FW
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	
2010	pH Value of Soils	pH at 20°C	pH Meter	
2015	Acid Neutralisation Capacity	Acid Reserve	Titration	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.	
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	

Report Information

Key

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

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

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

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

All results are expressed on a dry weight basis.

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

For all other tests the samples were dried at ≤ 30°C prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

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

Sample Deviation Codes

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

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

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

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

DW - Drinking Water

GW - Ground Water

LE - Land Leachate

NA - Not Applicable

Report Information

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

Clean Up Codes

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

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

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

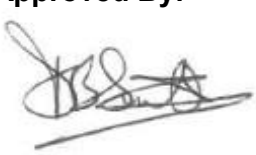
eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	24-35102-1
Initial Date of Issue:	03-Nov-2024
Re-Issue Details:	
Client	Sirius Geotechnical Ltd
Client Address:	4250 (Downstairs) Thorpe Park Park Approach Leeds West Yorkshire LS15 8GB
Contact(s):	Alastair Cook Jack Clarke
Project	SR4798 Ivy Mills

Quotation No.:		**Date Received:**	29-Oct-2024
Order No.:	PO/A14757/SR4798/JC	**Date Instructed:**	29-Oct-2024
No. of Samples:	2		
Turnaround (Wkdays):	5	**Results Due:**	04-Nov-2024
Date Approved:	03-Nov-2024		

Approved By:



Details: David Smith, Technical Director

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

Results - Soil

Project: SR4798 Ivy Mills

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-35102	24-35102
Quotation No.:				**Chemtest Sample ID.:**		1887125	1887126
				Client Sample ID.:		TS SP	TP207 HS
				Sample Type:		SOIL	SOIL
				Date Sampled:		24-Oct-2024	24-Oct-2024
				Asbestos Lab:		DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type		U	2192		N/A	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	32	17

Results - Single Stage WAC

Project: SR4798 Ivy Mills

						Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	24-35102							
Chemtest Sample ID:	1887125							
Sample Ref:								
Sample ID:	TS SP							
Sample Location:								
Top Depth(m):								
Bottom Depth(m):								
Sampling Date:	24-Oct-2024							
Determinand	**SOP**	**HWOL Code**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625		M	%	4.1	3	5	6
Loss On Ignition	2610		M	%	11	--	--	10
Total BTEX	2760		M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	EH_CU_1D_Total	M	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800		N	mg/kg	< 2.0	100	--	--
pH at 20C	2010		M		7.4	--	>6	--
Acid Neutralisation Capacity	2015		N	mol/kg	0.013	--	To evaluate	To evaluate
Eluate Analysis				**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455		U	0.0021	0.021	0.5	2	25
Barium	1455		U	0.017	0.17	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	0.0013	0.013	0.5	10	70
Copper	1455		U	0.0046	0.046	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.0010	0.010	0.5	10	30
Nickel	1455		U	0.0015	0.016	0.4	10	40
Lead	1455		U	0.0030	0.031	0.5	10	50
Antimony	1455		U	0.0010	0.011	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	0.008	0.083	4	50	200
Chloride	1220		U	< 1.0	< 10	800	15000	25000
Fluoride	1220		U	0.22	2.2	10	150	500
Sulphate	1220		U	2.5	25	1000	20000	50000
Total Dissolved Solids	1020		N	46	460	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	4.9	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	6.5

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: SR4798 Ivy Mills

						Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	24-35102							
Chemtest Sample ID:	1887126							
Sample Ref:								
Sample ID:	TP207 HS							
Sample Location:								
Top Depth(m):								
Bottom Depth(m):								
Sampling Date:	24-Oct-2024							
Determinand	**SOP**	**HWOL Code**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625		M	%	0.83	3	5	6
Loss On Ignition	2610		M	%	4.4	--	--	10
Total BTEX	2760		M	mg/kg	0.26	6	--	--
Total PCBs (7 Congeners)	2815		M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	EH_CU_1D_Total	M	mg/kg	820	500	--	--
Total (Of 17) PAH's	2800		N	mg/kg	13	100	--	--
pH at 20C	2010		M		10.3	--	>6	--
Acid Neutralisation Capacity	2015		N	mol/kg	0.0040	--	To evaluate	To evaluate
Eluate Analysis				**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455		U	0.0061	0.061	0.5	2	25
Barium	1455		U	0.040	0.40	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	0.0010	0.0099	0.5	10	70
Copper	1455		U	0.0066	0.066	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.0025	0.025	0.5	10	30
Nickel	1455		U	0.0025	0.025	0.4	10	40
Lead	1455		U	0.0065	0.065	0.5	10	50
Antimony	1455		U	0.0026	0.026	0.06	0.7	5
Selenium	1455		U	0.0010	0.010	0.1	0.5	7
Zinc	1455		U	0.010	0.095	4	50	200
Chloride	1220		U	< 1.0	< 10	800	15000	25000
Fluoride	1220		U	0.79	7.9	10	150	500
Sulphate	1220		U	13	130	1000	20000	50000
Total Dissolved Solids	1020		N	51	510	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	5.6	56	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	3.2

Waste Acceptance Criteria

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

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	RE PW PL LE DW FW
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	RE PW PL SW DW FW
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	PL SW FW
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	
2010	pH Value of Soils	pH at 20°C	pH Meter	
2015	Acid Neutralisation Capacity	Acid Reserve	Titration	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	

Report Information

Key

U	UKAS accredited
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I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

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Uncertainty of measurement for the determinands tested are available upon request .
None of the results in this report have been recovery corrected.
All results are expressed on a dry weight basis.

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

For all other tests the samples were dried at ≤ 30°C prior to analysis.
All Asbestos testing is performed at the indicated laboratory .
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
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Water Sample Category Key for Accreditation

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

Report Information

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RE - Recreational Water
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UL - Unspecified Liquid

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MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

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

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	24-35904-1
Initial Date of Issue:	07-Nov-2024
Re-Issue Details:	
Client	Sirius Geotechnical Ltd
Client Address:	4250 (Downstairs) Thorpe Park Park Approach Leeds West Yorkshire LS15 8GB
Contact(s):	Alastair Cook Jack Clarke
Project	SR4798 Ivy Mills, Whitehaven
Quotation No.:	
Order No.:	PO/A14812/SR4798/JC
No. of Samples:	2
Turnaround (Wkdays):	5
Date Approved:	07-Nov-2024
Approved By:	
Details:	David Smith, Technical Director

Date Received:	05-Nov-2024
Date Instructed:	05-Nov-2024
Results Due:	11-Nov-2024

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

Results - Soil

Project: SR4798 Ivy Mills, Whitehaven

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-35904	24-35904
Quotation No.:				**Chemtest Sample ID.:**		1890238	1890239
				Client Sample ID.:		SP107 ES4	SP107 ES5
				Sample Type:		SOIL	SOIL
				Date Sampled:		31-Oct-2024	31-Oct-2024
				Asbestos Lab:		DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type		U	2192		N/A	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	

Report Information

Key

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

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Any comments or interpretations are outside the scope of UKAS accreditation.
The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.
Uncertainty of measurement for the determinands tested are available upon request .
None of the results in this report have been recovery corrected.
All results are expressed on a dry weight basis.

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

For all other tests the samples were dried at ≤ 30°C prior to analysis.
All Asbestos testing is performed at the indicated laboratory .
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

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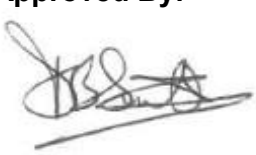
Email: info@chemtest.com

Final Report

Report No.:	24-36761-1
Initial Date of Issue:	14-Nov-2024
Re-Issue Details:	
Client	Sirius Geotechnical Ltd
Client Address:	4250 (Downstairs) Thorpe Park Park Approach Leeds West Yorkshire LS15 8GB
Contact(s):	Alastair Cook Jack Clarke
Project	SR4798 Ivy Mills

Quotation No.:		**Date Received:**	11-Nov-2024
Order No.:	PO/A14893/SR4798/JC	**Date Instructed:**	11-Nov-2024
No. of Samples:	3		
Turnaround (Wkdays):	5	**Results Due:**	15-Nov-2024
Date Approved:	14-Nov-2024		

Approved By:



Details: David Smith, Technical Director

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

Results - Soil

Project: SR4798 Ivy Mills

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-36761	24-36761	24-36761
Quotation No.:				**Chemtest Sample ID.:**		1893570	1893571	1893572
Order No.: PO/A14893/SR4798/JC				Client Sample Ref.:		ES	ES2	ES3
				Client Sample ID.:		TP207 SP	TS SP	TS SP
				Sample Type:		SOIL	SOIL	SOIL
				Date Sampled:		07-Nov-2024	07-Nov-2024	07-Nov-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Moisture		N	2030	%	0.020	22	28	29
Soil Colour		N	2040		N/A	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones and Roots	Stones and Roots	Stones and Roots
Soil Texture		N	2040		N/A	Clay	Clay	Clay
pH at 20C		M	2010		4.0	8.9	7.5	7.4
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.19	< 0.010	< 0.010
Sulphate (Total)		U	2430	%	0.010	0.46	0.21	0.22
Arsenic		M	2455	mg/kg	0.5	18	20	20
Cadmium		M	2455	mg/kg	0.10	0.14	0.31	0.36
Chromium		M	2455	mg/kg	0.5	32	22	27
Copper		M	2455	mg/kg	0.50	30	38	46
Mercury		M	2455	mg/kg	0.05	0.13	0.18	0.20
Nickel		M	2455	mg/kg	0.50	28	25	31
Lead		M	2455	mg/kg	0.50	47	89	99
Selenium		M	2455	mg/kg	0.25	1.9	1.2	1.4
Zinc		M	2455	mg/kg	0.50	60	110	130
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon		M	2625	%	0.20	1.6	4.7	3.6
Naphthalene		M	2700	mg/kg	0.10	0.82	< 0.10	< 0.10
Acenaphthylene		M	2700	mg/kg	0.10	2.4	< 0.10	< 0.10
Acenaphthene		M	2700	mg/kg	0.10	3.2	< 0.10	< 0.10
Fluorene		M	2700	mg/kg	0.10	3.1	< 0.10	< 0.10
Phenanthrene		M	2700	mg/kg	0.10	3.8	0.43	0.44
Anthracene		M	2700	mg/kg	0.10	1.5	< 0.10	< 0.10
Fluoranthene		M	2700	mg/kg	0.10	1.9	0.61	0.55
Pyrene		M	2700	mg/kg	0.10	2.0	0.65	0.54
Benzo[a]anthracene		M	2700	mg/kg	0.10	0.82	0.22	0.18
Chrysene		M	2700	mg/kg	0.10	1.9	0.93	0.92
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	1.1	0.41	0.35
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	0.77	0.54	0.70
Benzo[a]pyrene		M	2700	mg/kg	0.10	0.76	0.41	0.30
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	0.49	0.23	0.16
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	0.32	0.18	0.22
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	0.67	0.25	0.15
Total Of 16 PAH's		M	2700	mg/kg	2.0	26	4.9	4.5
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

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customerservices@chemtest.com

Sirius Remediation Ltd

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f. 0191 378 1537

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Century Way
Thorpe Park
Leeds
LS15 8GB

t. 0113 264 9960
f. 0113 264 9962

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N

Existing infrastructure and associated easements

Existing infrastructure and associated easements

Existing infrastructure and associated easements

Existing wall retained

TPD

TP03

TPF

TP207

TP06

Tree protection area

Tree protection area

NOTES

- Phase boundary
- Contours (0.5m)
- +120.00 Spot level on natural strata
- +120.00 Proposed finished ground level
- Assumed line of water main
- Inaccessible areas within overall site boundary
- Manually excavated hand pit (taken from 'GEO2019-3886: Exploratory Hole Location Plan - Ivy Mills, Hensingham', produced by GEO Enviromental Engineering Ltd)
- Trial pit (location taken from 'C8049/03 Exploratory Hole Location Plan', produced by Sirius Geotechnical Ltd)
- Trial pit excavated during remedial works

Note:
-Proposed phase boundary and proposed remediated platform levels based on information from External Works, 'GHC-IM-C-12-01 External Works Plan Rev A' & 'GHC-IM-C-P2-12-01 External Works Plan', produced by Site Infrastructure Services
-Surveyed information based on Ordnance Survey Grid & Datum (Trimble GPS System OSTN15 Transformation) using Trimble VRSnow network.

REVISION		BY	DATE
0	As Issued	JH	13/12/24
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

SIRIUS REMEDIATION LTD
Suite 10a,
Stone Cross Place,
Stone Cross Lane,
North Lowton,
Warrington
www.thesiriusgroup.com
TEL: 01942 718 551

CLIENT

Gleeson Homes Ltd

SITE

Ivy Mills, Whitehaven

DRAWING TITLE

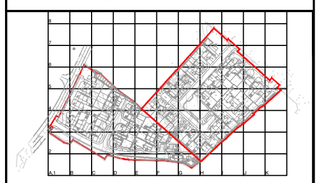
Composite Base of Excavation Survey

DRAWING NO.	REVISION NO.
SR4798-VR-03	0
DRAWN BY	APPROVED BY
JH	AC
DATE	SCALE	PAPER SIZE
December 2024	1:500	A2

NOTES

- Phase boundary
- Plate bearing test location (610mm plate)
- Plate bearing test location (300mm plate)

Note:
-Proposed phase boundary and proposed remediated platform levels based on information from **External Works,** 'GHC-IM-C-12-01 External Works Plan Rev A' & 'GHC-IM-C-P2-12-01 External Works Plan', produced by Site Infrastructure Services
-Existing topographical survey taken from 'Gleeson Homes - Ivy Mill - Whitehaven - Topographical Survey 14-080219_TS01' & 'Gleeson Homes - Cleator Moor Rooad - Whitehaven - Topographical Survey 02' merged with the updated topographical survey titled 'DTCE GH Ivy Mills 030624'
-25m grid spacing



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0	As Issued	JH	13/12/24
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

SIRIUS
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Stone Cross Place,
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Warrington
www.thesiriusgroup.com
TEL: 01942 718 551

CLIENT

Gleeson Homes Ltd

SITE

Ivy Mills,
Whitehaven

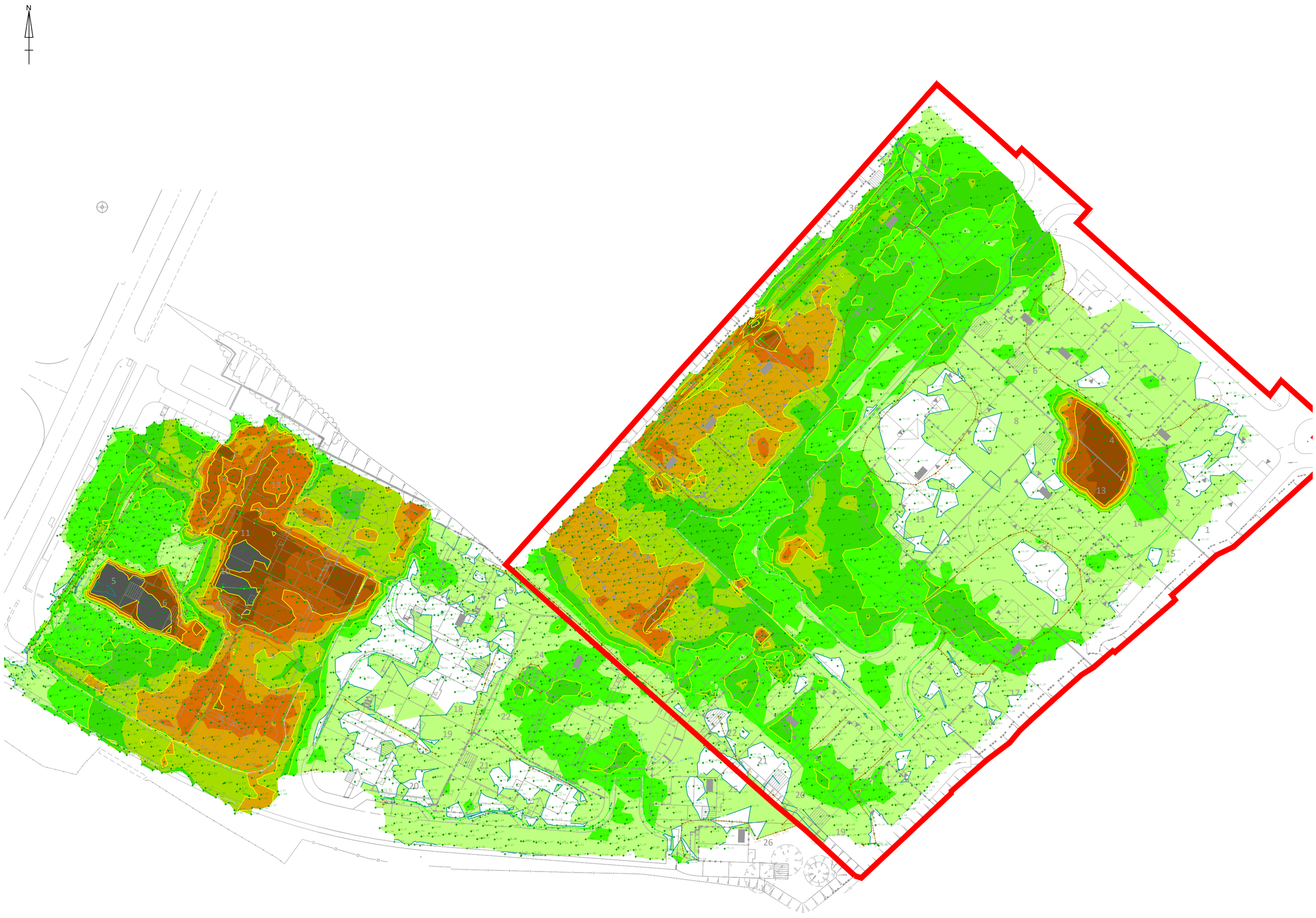
DRAWING TITLE

Plate Bearing Test Location Plan

DRAWING NO.	REVISION NO.
SR4798/VR/05	0

DRAWN BY	APPROVED BY
JH	AC

DATE	SCALE	PAPER SIZE
December 2024	1:500	A2



NOTES

Phase boundary

Contours (0.25m)

+21.00 Thickness of Fill Placed from Base of Excavation Survey to As Built Survey

Fill Depth Ranges (m)

4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

Note:
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REVISION		BY	DATE
0	>>	>>	>>
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

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FAX: 0113 264 9962

CLIENT

Gleeson Homes Ltd

SITE

**Ivy Mills,
Whitehaven**

DRAWING TITLE

Depth of Fill Placed from Composite Base of Excavation Survey to As Built Survey

DRAWING NO.	REVISION NO.
SR4798-0	0

DRAWN BY	APPROVED BY
DT	CW

DATE	SCALE	PAPER SIZE
January 2025	1:500	A2

GEO Environmental Engineering Ltd

Geotechnical and Environmental Consultants
&
Drilling Experts

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