GEOENVIRONMENTAL SITE INVESTIGATION REPORT

PHASE II SITE INVESTIGATION

OF LAND AT

SOLAR FARM,

WREXHAM

Prepared for:-

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1.0 INTRODUCTION

1.1 Instruction

1.1.1 GeoCon Site Investigations Ltd (GeoCon) have been commissioned by Innova Renewables Developments Limited to undertake a Phase II Geoenvironmental Site Investigation on land at Solar Farm, Wrexham.

1.1.2 It is understood that this is required following the results of a Phase I Preliminary Risk Assessment carried out by GeoCon Site Investigations in December 2023 referenced GSI 2006 MP PI Report V1 which should be referred to in conjunction with this report.

1.1.3 This report is therefore provided to establish the potential for contamination at the site as a result of current and historic land uses both on site and within influencing distance of the site, to understand the type nature and extent of contamination present, and, to identify the ground conditions and provide details of the engineering properties of the underlying soils and rocks encountered with subsequent recommendations on suitable foundation solutions for the proposed development.

1.1.4 This report is written in accordance with the guidance set out in Land Contamination Risk Management (LCRM), Guiding Principles for Land Contamination (GPLC) 1 – 3, and the National Planning Policy Framework (NPPF).

1.2 Scope of Works

1.2.1 Prior to commencing the site works the proposed scope of investigation was as follows, however the proposed scope will be subject to change dependent upon site conditions, access, restrictions and obstructions. The actual works undertaken following the completion of the site works and any on site amendments are detailed in section 3.0.

- Four days dynamic sample boreholes to a nominal depth of up to 5.00m bgl or refusal.
- Three days TRL DCP tests to provide CBR values for the proposed access roads and car parking areas at the site.
- Insitu environmental and geotechnical sampling, and insitu geotechnical testing.
- Full supervision of all works by engineering geologist including sampling and detailed geotechnical descriptions to BS5930, EN ISO 14688-1 EN ISO 14688-2 and EN ISO 14689 of all strata types encountered within the exploratory holes.
- A suite of chemical laboratory analysis.
- A suite of geotechnical laboratory analysis.
- Production of an interpretative report including Generic Quantitative Risk Assessment (GQRA) and updated Conceptual Site Model (CSM), and geotechnical assessment.

1.3 Previous Investigations

1.3.1 A Phase I Preliminary Risk Assessment referenced GSI 2006 MP PI Report V1, dated December 2023 was produced by GeoCon Site Investigations and the findings are summarised below.

1.3.2 The following preliminary risks were identified by GeoCon:

- Site end users from contaminated soils – Low Risk
- Site end users from inhalation of vapours – Low to Moderate Risk
- Site end users from inhalation of gas – Low to Moderate Risk

- Controlled waters – Low to Moderate Risk

1.3.3 The following assessment should be made in full reference to this report.

1.4 Reliance and Limitations

1.4.1 This report has been prepared using published information and information provided by the Client and their professional advisers which has been made available to GeoCon at the time of writing only. GeoCon accepts no liability for any changes resulting from new information which has become available since this time.

1.4.2 This report is provided for the sole use of the client and their professional advisors and is confidential to them unless agreed otherwise in writing. This report may only be used and relied on once the work has been paid for in full.

1.4.3 GeoCon owes no duty of care and has no liability to any third party who is not authorised by GeoCon to use this report. Any unauthorised third parties using information contained in this report do so at their own risk.

1.4.4 This assessment has been carried out to determine the potential risks posed to future end users, along with other key receptors, resulting from potential contamination at the site, based on the proposed development. Should any revisions in the development proposals result in a change any assessment parameters detailed in this report, a re-assessment of the risk should be carried out.

1.4.5 Whilst this report may reference observations made regarding the presence of features/ issues such as invasive species, ACM, site drainage and evidence of structural abnormalities, this report does not constitute specialist surveys on these matters. Should further specialist surveys be carried out in this regard, the findings of these should be reported to GeoCon so that we may determine if this has any impact on the findings of this report.

1.4.6 The assessment and interpretation of the factual data obtained as part of this Phase II Site Investigation has been undertaken in accordance with standard consulting practice and with current national and international guidance.

1.4.7 This report presents the observations made during the Phase II Site Investigation and the factual data obtained. The conclusions and recommendations in this report are limited to those which can be made based on the findings of the survey and information provided by third parties. GeoCon assumes all third party data to be true and correct. No responsibility can be accepted by GeoCon for inaccuracies in the information provided by any other party.

1.4.8 This report is written in the context of an agreed scope of works and should not be used in a different context. Furthermore, new information, improved practices, and changes in legislation may require the reinterpretation of the report in whole or in part after its original issue. GeoCon reserve the right to alter their conclusions and recommendations in the light of further information that may become available. This report is provided for the sole use of the client and their professional advisers and is confidential to them unless agreed otherwise in writing.

1.4.9 Ground conditions can be variable and change rapidly, especially in areas of Made Ground, however it is assumed that the ground conditions encountered and observed are typical and representative of the site as a whole. Most specifically with regard to this limited investigation, the ground conditions have been determined from a limited number of exploratory holes formed across the site, therefore only a small percentage of the total area of the site has been investigated. Interpolation between exploratory holes has enabled a general picture of the subsurface conditions to be produced. Conclusions drawn from the ground investigation should be read in this context. GeoCon cannot accept responsibility for any situations resulting from locally unforeseen ground conditions occurring between exploratory holes.

1.4.10 In addition, subsurface conditions including contaminant concentrations and groundwater levels may vary spatially with time. This factor should be given due consideration in the event that the information contained within this report is used after any significant period of time has elapsed.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

2.1.1 The site is located at land adjacent to Williams Farm Solar, Wrexham, at approximate National Grid Reference NGR: 337930:348420 (centre of the site).

2.1.2 A site location plan is presented as Drawing No. GSI 2006/01 in Appendix A.

2.2 Site Description

2.2.1 The site is an irregular shaped piece of land with an approximate area of 9.63Ha. The site begins to the west with a narrow corridor of land stretching eastwards from the entrance of the site. The site become wider to the east and opens up to the north and east and south.

2.2.2 The topography of the site generally slopes towards the north and the river channel on the northern boundary with localised undulations present.

2.2.3 The site is predominantly undeveloped agricultural grazing land, with small derelict bricked buildings located in the eastern portion of the site which have become overgrown with vegetation and rubble. Small amounts of fly tipping is present in small localised areas on the site including timber, plastics and car tyres. The structures on site show evidence of connected electric and power, and manhole covers along the connecting perimeter of site. An electric substation is present on the site boundary to the adjacent Solar Farm. Overhead power lines are in the west of site. The access track in the east of site is of poor condition. Ground conditions during the site walkover indicated soft and boggy ground with the most impacted area identified in the north of site located closer to the River Clywedog. The river at the northern extents has mature trees present along the low banks of the river channel. Standing surface water was also present towards this area.

2.2.4 An approximate distribution of the surface covering is given below in Table 2.1: Site Surface Covering.

Table 2.1: Site Surface Covering

Type of Surface Cover	Distribution (%)
Soft Ground (grassed and landscaped areas)	85
Hardstanding	0
Roadways	5
Buildings	10
Water (ponds, streams)	0

2.2.5 The site is bound by the River Clywedog northwest, fence line, hedges and established trees to the east. The south and west of site is bound by the adjacent fence line of Williams Solar Farm.

2.2.6 Access to the site is via unnamed road off the east of Bedwell Road.

2.2.7 A selection of photographs from the site walkover are presented as GSI 2006/02 in Appendix A.

2.3 Surrounding Area

2.3.1 The current surrounding land use to the site is generally grassland and agricultural properties in all directions, with the solar farm present adjacent to the site to the immediate south, and the meandering River channel to the north.

2.3.2 The topography of the surrounding area is sloping down towards the north; contour maps show a slight decline in elevation to the west.

2.4 Future Site Usage

2.4.1 It is currently proposed to construct additional extension to the preexisting solar farm development adjacent to the site, referenced WR-EX-258-06-01 and contained with Appendix A. The development contains a number of structures in Field 1B and 1C, with access roadway infrastructure proposed and the open areas of the site populated with rows of solar panels installed.

2.4.2 This assessment has been carried out with reference to this proposed development plan as provided by the client, any changes to the proposed development may result in this assessment requirement updating.

3.0 GROUND INVESTIGATION

3.1 General

3.1.1 The intrusive investigation was carried out between 20th and 23rd February 2024.

3.1.2 The ground investigation has been carried out in accordance with BS5930 and the UK Specification for Ground Investigation Second Edition 2012.

3.1.3 All strata descriptions were undertaken in accordance with BS5930 Amendment 1; EN ISO 14688 -1; EN ISO 14688 -2; and EN ISO 14689.

3.1.4 The actual ground investigation comprised the formation of:

- Eighteen dynamic sampling boreholes.
- Two days CBR testing using the TRL DCP method.
- Provision of on site UXO clearance engineer.
- Insitu geotechnical and geoenvironmental testing and sampling.
- Full supervision of all works by engineering geologist including sampling and detailed geotechnical descriptions to BS5930, EN ISO 14688-1 EN ISO 14688-2 and EN ISO 14689 of all strata types encountered within the exploratory holes.
- A suite of geotechnical laboratory analysis.
- A suite of chemical laboratory analysis.
- Production of an interpretative report.

3.1.5 The ground investigation was carried out to determine the geotechnical and geoenvironmental properties of the soils and rock beneath the site for a proposed residential development at the site.

3.1.6 The locations of the exploratory holes were specified by GeoCon and were positioned to gain key information beneath the site in relation to the proposed development.

3.1.7 All locations were checked against buried service location plans and then scanned with a Cable Avoidance Tool (CAT) and Genny prior to excavation, and a permit to dig was then issued. Each location was then continued by hand down to a minimum of 1.20mbgl to clear any buried services or other subsurface obstructions. All locations were then checked again with a Cable Avoidance Tool (CAT) at the base of the hand excavated inspection pit by GeoCon prior to commencement of drilling.

3.1.8 All access permissions were arranged by Client prior to the ground investigation commencing.

3.1.9 An exploratory hole location plan is presented in Appendix A as drawing number GSI 2006/02.

3.2 Dynamic Sample Boreholes

3.2.1 Eighteen dynamic sample boreholes were drilled at the site, referenced WS01 – WS18, to depths of between 0.70m to 5.00mbgl.

3.2.2 The dynamic sample boreholes were drilled using a tracked dynamic sample rig in order to facilitate geoenvironmental sampling and to gain an understanding of the environmental and geotechnical properties of the soils and rock beneath the site.

3.2.3 The dynamic sample boreholes were drilled using 100mm diameter barrel reducing in size with depth. to achieve the target depths.

3.2.4 All dynamic sample borehole logs are presented in Appendix B.

3.3 CBR Testing (by TRL DCP method)

3.3.1 A series of TRL DCP probe holes were undertaken along the lines of the proposed roads. The TRL DCP consists of an 8kg mass falling through 575mm onto an anvil, which drives a 20mm diameter 60° cone into the ground. The number of blows required to drive the cone through measured increments are recorded. The results of the TRL DCP tests are presented as graphs of the number of blows and CBR values versus depth.

3.3.2 The TRL DCP testing results are presented in Appendix C.

3.4 UXO Borehole Clearance

3.4.1 All boreholes were surveyed by a UXO Borehole Specialist to assist with drilling by way of down-borehole clearance. No anomalies were detected on any of the exploratory hole locations and therefore the risk of encountering UXO is considered to have been reduced to low as reasonably practical.

3.4.2 The UXO Borehole Clearance Report is presented in Appendix D.

3.5 Sampling and Insitu Testing

3.5.1 The environmental and geotechnical sampling regime and insitu testing regime included the following:

- Environmental samples for subsequent chemical analysis were taken from each strata type, with a minimum of three samples taken from the upper 1.00 m, then at 1.00 m intervals in Made Ground with a minimum of one sample from the natural strata.
- Small disturbed samples taken from each strata type and then at 1.00 m intervals thereafter.
- Bulk disturbed samples taken at 1.00 m intervals to a depth of 5.00 mbgl, then 1.50 m intervals thereafter
- Insitu Standard Penetration Tests (SPTs) were carried out at 1.00 m intervals down to 5.00 mbgl and at 1.50 m intervals thereafter in granular soils to collate insitu strength information (relative density) for the soils beneath the site.

3.5.2 Soil samples were collected for environmental and geotechnical analysis by the engineering geologist on site based on physical and visual inspection in addition to standard sampling.

3.5.3 All samples were stored in pre-chilled cool-boxes prior to immediate dispatch to laboratory. Where there has been a delay in transporting the samples to the laboratory, samples have been kept in a cool dark storage unit inside cool boxes packed with ice, which is regularly replaced to maintain sample quality.

3.5.4 The environmental samples were subsequently transported to a chemical laboratory in plastic tubs, glass jars and soils vials. The geotechnical samples were subsequently transported to a geotechnical laboratory in prepared bulk bags and plastic tubs.

3.6 Backfill

3.6.1 All exploratory holes were backfilled with arisings and made level at the surface to a similar condition as prior to the work.

3.7 Groundwater

3.7.1 Where groundwater was encountered a waiting period of 20 minutes was allowed to monitor any change (rise or fall) in the levels of each groundwater strike.

3.8 Laboratory testing

3.8.1 Chemical laboratory testing was subsequently carried out on selected samples of soil. Further details of the chemical laboratory testing are given within section 5.0 – Chemical Testing and Results.

3.8.2 All chemical laboratory testing has been scheduled by GeoCon.

3.8.3 Geotechnical laboratory testing was subsequently carried out on selected samples of soil. Further details of the geotechnical laboratory testing are given within section 7.0 – Geotechnical Testing and Results.

3.8.4 All geotechnical laboratory testing has been scheduled by GeoCon.

3.9 Restrictions

3.9.1 It should be noted that a section of the northern area of the site, closest to the river, could not be access during this phase of exploratory works due to flooding from the river.

4.0 GROUND CONDITIONS

4.1 Published Geology

4.1.1 The British Geological Survey shows the site to be underlain by the geological succession outlined below.

Table 4.1: Published Geology

Geology	Description /strata	BGS General Description (Lexicon)
Artificial	Landscaped Ground	Artificially Modified Ground
Superficial	Till and Alluvium	Gravel, Sand, Clay and Silt
Bedrock	Kinnerton Sandstone Formation	Sandstone

4.2 General

4.2.1 A generalised summary of the ground conditions encountered, depths to base, and thickness recorded from the exploratory hole records is presented below in Table 4.2: Summary of Ground Conditions.

Table 4.2: Summary of Ground Conditions

Geology / Strata	Depth (mbgl)				Thickness (m)		Locations encountered
	Top		Base		Min	Max	
	Min	Max	Min	Max			
Topsoil	0.00	-	0.20	0.70	0.20	0.70	All locations
Made Ground	0.00	-	0.70	-	0.70	-	WS02 & WS16
Clay	0.20	3.40	1.10	5.00	0.90	4.80	All locations
Gravel	0.80	4.00	1.50	5.00	0.70	4.20	WS02, WS03, WS04, WS09, WS11, WS12, WS13, WS14, WS15, WS17 & WS18
Sand	1.80	3.90	2.40	5.00	0.60	3.20	WS02, WS07, WS14 & WS17
Groundwater	**Strike depth (mbgl)**		**Rest Level (mbgl)**		**Locations encountered**		
	Min	**Max**	**Min**	**Max**			
Strike	0.30	2.40	0.30	2.40	WS01, WS02, WS03, WS04, WS07, WS09, WS10, WS11, WS12, WS13, WS14, WS15, *WS17 & WS18*.		

4.2.2 The general ground conditions encountered have been summarised below.

4.2.3 Detailed strata descriptions are presented on the dynamic sample borehole logs, Appendix B.

4.3 Made Ground

4.3.1 Made Ground was encountered in WS02 and WS16 from ground level to a maximum depth of 0.70mbgl, and described as gravelly clay with fragments of glass, plastic, brick and concrete within WS02, and a concrete obstruction within WS16.

4.4 Topsoil

4.4.1 Topsoil was encountered in in all locations from ground level to a maximum depth of 0.70mbgl and generally comprised sandy gravelly clay with abundant rootlets.

4.5 Superficial Deposits

4.5.1 Clay deposits were encountered in WS01, and WS03 to WS18 directly beneath the topsoil to depths of between 1.10 and 5.00mbgl, and generally comprised firm sandy gravelly clay.

4.5.2 Gravel deposits were encountered underlaying the cohesive deposits in WS02 to WS04, WS09 to WS15, and WS17 to WS18 and were proven to depths of between 1.50 and 5.00mbgl, and generally comprised medium dense to dense clayey sandy gravel.

4.5.3 Sand deposits were encountered in WS02, WS07, WS14 and WS17 and were encountered to depths of between 2.40 and 5.00mbgl, and generally comprised medium dense to dense clayey gravelly sand.

4.5.4 These soils are considered to represent the Till and Alluvium superficial deposits.

4.6 Bedrock

4.6.1 Bedrock was not encountered during this ground investigation.

4.7 Groundwater

4.7.1 Groundwater was encountered in 14 of the 18 exploratory holes formed across the site. Further details are as follows:

- WS01 – strike at 1.70mbgl remaining stable after 20 minutes.
- WS02 – strike at 1.60mbgl remaining stable after 20 minutes.
- WS03 – strike at 1.50mbgl remaining stable after 20 minutes.
- WS04 – strike at 1.70mbgl remaining stable after 20 minutes.
- WS07 – strike at 2.40mbgl remaining stable after 20 minutes.
- WS09 – strike at 1.80mbgl remaining stable after 20 minutes.
- WS10 – strike at 1.00mbgl remaining stable after 20 minutes.
- WS11– strike at 1.70mbgl remaining stable after 20 minutes.
- WS12 – strike at 0.40mbgl remaining stable after 20 minutes.
- WS13 – strike at 0.40mbgl remaining stable after 20 minutes.
- WS14 – strike at 0.30mbgl remaining stable after 20 minutes.
- WS15 – strike at 0.40mbgl remaining stable after 20 minutes.
- WS17 – strike at 1.80mbgl remaining stable after 20 minutes.
- WS18 – strike at 1.60mbgl remaining stable after 20 minutes.

4.8 Groundwater Monitoring

4.8.1 GeoCon have not been commissioned to carry out any groundwater monitoring at the site.

4.9 Obstructions

4.9.1 It should be noted that WS16 could not be drilled due to a concrete obstruction at 0.70mbgl.

4.10 Contamination

4.10.1 No visual or olfactory evidence of contamination was encountered or observed during this ground investigation, in particular no obvious visual or olfactory evidence of mobile contamination was observed during the ground investigation.

5.0 CHEMICAL TESTING AND RESULTS

5.1 General

5.1.1 All samples were sent to a UKAS accredited chemical testing laboratory, and MCERTS were used where available. The analytical strategy focussed on a general suite of potential contaminants and the analytical suites are summarised in Table 5.1: Summary of Chemical Testing Suite. Chemical results have been screened against current guideline values where applicable for a commercial end use.

5.1.2 All chemical testing results are presented in Appendix E.

Table 5.1: Summary of Chemical Testing Suite

Testing	Comment	No. of soil samples analysed
General heavy metals and inorganics suite including: Arsenic, cadmium, chromium, copper, cyanide, lead, mercury, nickel, phenol, selenium, zinc, pH, and water soluble sulphate	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	12
Speciated PAH	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	8
TPH CWG	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	8
VOC's	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	8
SVOC's	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	8
PCB's	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	8
Asbestos Screen	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	8
WAC	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	4

5.2 Chemical Testing Results

5.2.1 Only detectable concentrations of contaminants reported above the laboratory detection limits are presented overleaf below in Total Organic Carbon (TOC) was analysed in all three samples from the site. The results of the TOC recorded values between 0.20 and 5.20%. From this Soil Organic Matter (SOM has been calculated at values of between 0.34 and 8.97. Therefore, a worst case scenario of 1% SOM has been used where appropriate in the chemical assessment below.

5.2.2 Table 5.2: Summary of Soil Chemical Testing Results. All other samples recorded contaminant concentrations below laboratory detection limits.

5.2.3 Total Organic Carbon (TOC) was analysed in all three samples from the site. The results of the TOC recorded values between 0.20 and 5.20%. From this Soil Organic Matter (SOM has been calculated at values of between 0.34 and 8.97. Therefore, a worst case scenario of 1% SOM has been used where appropriate in the chemical assessment below.

Table 5.2: Summary of Soil Chemical Testing Results

Determinand	No. Of samples analysed	Screening value (mg/kg) (where applicable)	Determinand concentration range (mg/kg)		No of Samples exceeding screening value
			Min	Max	
Cyanide (total)	12	373	BD	BD	0
Phenols - Total by HPLC	12	760	BD	BD	0
Arsenic	12	640	6.20	12.00	0
Cadmium	12	190	BD	3.60	0
Copper	12	68000	7.10	43.00	0
Chromium	12	8600	13.00	39.00	0
Hexvalent Chromium	12	33	BD	BD	0
Lead	12	6000	15.00	1000.00	0
Mercury	12	58	BD	BD	0
Nickel	12	980	15.00	43.00	0
Selenium	12	12000	BD	BD	0
Zinc	12	730000	39.00	730.00	0
Acenaphthene	12	84000	BD	BD	0
Acenaphthylene	12	83000	BD	BD	0
Anthracene	12	520000	BD	0.12	0
Benzo(a)anthracene	12	170	BD	BD	0
Benzo(a)pyrene	12	35	BD	0.27	0
Benzo(b)fluoranthene	12	44	BD	0.36	0
Benzo(ghi)perylene	12	3900	BD	0.19	0
Benzo(k)fluoranthene	12	1200	BD	0.11	0
Chrysene	12	350	BD	0.22	0
Dibenzo(ah)anthracene	12	3.5	BD	0.07	0
Fluoranthene	12	23000	BD	0.35	0
Fluorene	12	63000	BD	0.07	0
Indeno(123-cd)pyrene	12	500	BD	0.17	0
Naphthalene	12	190	BD	BD	0
Phenanthrene	12	2200	BD	0.12	0
Pyrene	12	54000	BD	0.33	0
TPH: Total Aliphatic	8	-	BD	29.27	0
TPH: Total Aromatic	8	-	BD	28.00	0

BD = Below Detection

5.2.4 Twelve samples were analysed for asbestos screen. No fibres were detected in any of the samples.

6.0 GENERIC QUANTITATIVE RISK ASSESSMENT (GQRA)

6.1 Criteria for interpretation

6.1.1 The regime for contaminated land was set out in Part IIA of the Environmental Protection Act (EPA) 1990, as inserted by S.57 of The Environment Act 1995 and came into effect in England on 1st April 2000 as The Contaminated Land (England) Regulations 2000 (SI 2000/227). These regulations were subsequently updated with the provision of The Contaminated Land (England) Regulations 2006 (SI 2006/1380), which consolidated the previous regulations and amendments and added in provisions regarding radioactive contaminated land. These regulations came into force on 4th August 2006. This modified the wording for "Contaminated Land" under Part IIA of the EPA. Section 78A (2) defines contaminated land as "land which appears to be in such a condition, by reason of substances in, on or under the land, that:

- significant harm is being caused, or there is a significant possibility of significant harm being caused (SPOSH);

Human Health Receptors

6.1.2 An initial Generic Quantitative Risk Assessment (GQRA) for human health has been undertaken by comparison of the soil analytical results with published guidance criteria. These can be classified as Generic Assessment Criteria (GAC) or Soil Screening Values (SSV's) and are widely referred to by consultants, Regulatory Authorities and other professionals within the industry and include the following:

- Land Quality Management (LQM) Chartered Institute of Environmental Health (CIEH) have published a series of GACs / SSV's via the CLEA v1.06 software which are applicable to the UK for common determinands.
- Defra Category 4 Screening Levels 2014 (C4SL's) for assessment of land affected by contamination.
- Current published Soil Guideline Values (SGVs) published by the Environmental Agency (EA).
- Contaminated Land: Applications in Real Environments (CL:AIRE) 'The Soil Generic Assessment Criteria for Human Health Risk Assessment' GAC's via the CLEA v1.06 software (updated version of the v1.04 update after the release of LQM GAC's).

6.1.3 It should be noted that the above guidance criteria are generally restricted with depth i.e. the values quoted with reference to human health are generally only applicable in the top 1.00m of soil and do not (dependant on the conceptual site model and conditions identified on site) necessarily identify significant harm.

6.2 Risk to Human Health

6.2.1 All chemical determinands recorded levels below the relevant screening criteria (where available) for a commercial end use.

6.2.2 It is understood that the proposed development comprises an extension of the pre-existing solar farm adjacent to the site.

6.2.3 Therefore, a pollutant linkage is not considered to be present and the risk to human end users are considered to be **very low** at this stage.

6.2.4 Risks to construction workers are considered to be **very low**. All construction workers should wear appropriate Personal Protective Equipment (PPE) including latex gloves and dust masks. Provisions should be made for water on site to 'damp down' any dust in dry conditions.

6.2.5 Risks to neighbours / general public are considered to be **very low**. Provisions should be made for water on site to 'damp down' any dust in dry conditions.

6.2.6 Should any erroneous materials or previously unidentified contamination be encountered during construction then further sampling and analysis may be required.

6.2.7 The above recommendations should be agreed in principle with the Local Planning Authority prior to development to avoid any delays or complications at a later stage.

6.3 Risk to Controlled Waters

Groundwater

6.3.1 The Environmental Agency aquifer classification scheme indicates that the superficial aquifers designation for the site are classed as Secondary A and Secondary A Undifferentiated Aquifers and the bedrock aquifer designation for the site is classed as a Principal Aquifer.

6.3.2 There are no public drinking water abstractions within 1000m of the site, but located within two Source Protection Zones (SPZ) – Zone II Outer Protection Zone, and a Zone III total catchment. Zone 1 Inner Protection Zone is indicated 308m northeast.

6.3.3 Therefore, based on the above information, the results of the soil testing, the generally permeable geology beneath the site, and considering that natural attenuation, dilution and dispersion will take place, the risks to groundwater and drinking waters are considered to be **Very low** at this stage.

Surface Water

6.3.4 The nearest surface watercourse to the site is the River Clywedog located adjacent to site along the northern boundary, flowing west to east.

6.3.5 Given the results of the soil testing, the distance of the surface water receptor to the site, and considering that natural attenuation, dilution and dispersion will take place, the risks to surface waters are considered to be **very low** at this stage.

6.4 Ground Gas Risk Assessment

General

6.4.1 There are no landfill sites or other waste associated sites within 250m of the site boundary. There are seventeen areas of potentially infilled land with the closest regarding a pond feature on site and potentially backfilled in 1961.

6.4.2 Made Ground was also encountered beneath the site in two localised areas and was encountered to depths of up to 0.70mbgl.

6.4.3 Considering the limited potential for ground gas generation identified, and the proposed use as a solar farm, the potential risk of ground gas is Very Low.

6.5 Plants and Native grasses

6.5.1 Any plants that may be grown at the site in areas of landscaping may potentially be at risk from phytotoxic elements in any artificial soils beneath the site. Guideline screening values are currently available for copper, nickel and zinc which are considered to be the most harmful to plant life.

6.5.2 All three chemical Determinands recorded levels below the relevant phytotoxic screening criteria. In addition, all plant growth appeared normal during the site walkover. Given the above and the generally

low potential for contamination and the results of the wider soil analysis, the risks to plants and native grasses are considered to be very low.

6.6 Buried Services and Utilities

6.6.1 Any organic contamination present in the soils or groundwater beneath the site would pose a risk of premature failure to below ground services via chemical reaction. Based on the chemical analysis carried out during this ground investigation, the risks to buried services and pipelines are considered to be **low.**

6.6.2 It is the responsibility of the utility providers to confirm the risk status and determine what materials should be used in the provision of any newly proposed buried services and utilities based on the results of the chemical analysis with this report. A copy of this report should therefore be provided to the utility contractors.

6.6.3 It is recommended that prior to the placement of any newly proposed buried services, that adequate testing of the soils of which the pipes / cables will be laid in is carried out to determine the suitability of those soils for the utility provider's equipment.

6.7 Updated Conceptual Site Model (CSM)

6.7.1 Following the results of the site investigation and above assessment, an updated Conceptual Site Model (CSM) has been produced overleaf as Table 6.3: Updated Conceptual Site Model (CSM).

Table 6.3: Updated Conceptual Site Model (CSM)

Potential Sources	Contaminants of Concern	Potential Pathway	Potential Receptor	Potential Pollutant Linkage	Probability	Consequence	Risk Classification	Action / Mitigation / Justification
Made Ground both on site and within influencing distance of the site Current and former land uses both on site and within influencing distance of the site	Heavy metals, sulphates and inorganics PAH's Asbestos	Ingestion Inhalation Dermal Contact	**Human health** Including current site users, future site users	Considered potentially active	Unlikely	Mild	**Very Low**	Results of the site investigation confirm that all determinands analysed recorded levels below the relevant screening criteria. Therefore, no further action is required
			Human health Construction workers	Considered potentially active	Unlikely	Mild	**Very Low**	Construction personnel to adhere to standard PPE guidelines and hygienic site practices to control risk.
			Human health Neighbouring residents	Considered potentially active	Unlikely	Mild	**Very Low**	Results of the site investigation confirm that all determinands analysed recorded levels below the relevant screening criteria. Therefore, no further action is required.
Landfill sites Potentially infilled Land (ponds, quarries, reservoirs etc) Made Ground Natural organic soils Fuel Stations (on and off-site sources)	Hazardous ground gases including CO_2, CH_4 CO, H_2S Vapours	Inhalation Explosion	**Human health** Including current site users, future site users, neighbouring residents and constructions workers **Buildings** Confined Spaces	Considered inactive	Unlikely	Severe	**Very Low**	Given the proposed development consisting of an extension of the adjacent solar farm, with no enclosed or confined spaces being included, it is considered that there is no active pathway to suture site end users, and limited ground gas potential identified within these assessments. No further action required

Potential Sources	Contaminants of Concern	Potential Pathway	Potential Receptor	Potential Pollutant Linkage	Probability	Consequence	Risk Classification	Action / Mitigation / Justification
Made Ground on site Current and former land uses on site	Heavy metals, sulphates and inorganics	Lateral and vertical migration and leaching of contaminants into local groundwater	**Underlying Aquifer** (Potable water)	Considered potentially active	Unlikely	Mild	**Very low**	Given the encountered ground conditions, lack of made ground and the results of the chemical testing, it is considered a very low risk to the receptor.
Made Ground on site Current and former land uses on site	Heavy metals, sulphates and inorganics PAH's	Lateral and vertical migration and leaching of contaminants into surface water bodies via permeable strata and features.	Local **water courses** and associated flora and fauna	Considered potentially active	Unlikely	Mild	**Very Low**	Given the encountered ground conditions, lack of made ground and the results of the chemical testing, it is considered a very low risk to the receptor.
Made Ground beneath the site Current and former site uses	Phytotoxic elements	Plant uptake	**Plants and vegetation**	Considered potentially active	Unlikely	Minor	**Very low**	Results of the site investigation confirm that all determinands analysed recorded levels below the relevant phytotoxic screening levels. Therefore, no further action is required.

7.0 GEOTECHNICAL TESTING AND RESULTS

7.1 In-situ Testing

7.1.1 In-situ Standard Penetration Tests (SPTs) were undertaken in accordance with BS1377 (1990) within the window sample boreholes. A summary of the insitu testing is given below in Table 7.1: Insitu Geotechnical Testing:

Table 7.1: Insitu Geotechnical Testing

Strata	Depth Range (mbgl) vs SPT N Value	Locations Encountered
Clay	1.20 – 5.00: N = 1 – 50	All locations
Sand	2.00 – 5.00: N = 8 – 22	WS02, WS17 and WS18
Gravel	2.00 – 4.00: N = 12 – 22	WS09, WS10, WS12, WS13, WS14 and WS15

NR = Not Recorded In This Strata

7.2 Laboratory Testing

7.2.1 A programme of geotechnical laboratory testing was undertaken in accordance with BS1377 (1990) 'Methods of tests for soils for civil engineering purposes. All samples were sent to a UKAS accredited geotechnical testing laboratory. The geotechnical testing regime has been summarised below in Table 7.2: Geotechnical Laboratory Analysis.

Table 7.2: Geotechnical Laboratory Analysis

BS 1377 Test Number	Test Description	Quantity Analysed
BS 1377 1990: Part 2. Clause 3.2	Moisture content	12
BS 1377 1990: Part 2. Clause 4.3, 5.3 & 5.4	Atterberg Limits	12
BS 1377 1990: Part 3. Clause 5.3 & BRE CP2/79	BRE SD 1	12

7.2.2 The results of the geotechnical testing are presented in Appendix G.

Plasticity Index

7.2.3 Atterberg limit testing was carried out on selected samples of cohesive soils taken from the site to establish the plasticity index of the clay beneath the site. The results of this testing is presented below in Table 7.3: Atterberg Limits Testing Results.

Table 7.3: Atterberg Limits Testing Results

Test	Range
Moisture Content (%)	11 - 32
Liquid Limit (%)	23 - 46
Plastic Limit (%)	14 - 22
Plasticity Index (%)	9 - 24
Modified plasticity index (%)	7 - 23

7.2.4 Based on these results the clay beneath the site can be classed as low to intermediate plasticity.

7.2.5 Chapter 4.2 'Building near Trees' of the NHBC standards indicates that from the testing results, the modified plasticity index is between 7 and 23% and therefore, the clay beneath the site is of low to medium volume change potential.

BRE SD 1

7.2.6 12 soil samples were analysed for BRE SD 1 reduced suite to assess the risk to buried concrete at the site, which includes total sulphate, water soluble sulphate, pH and total sulphur. The results of the testing are summarised below.

Table 7.4: Summary of BRE SD 1 Results

Test	Soil Test - Results Range
Total sulphate (%)	<0.01 – 0.04
Water soluble sulphate (mg/l)	11 - 100
Total sulphur (%)	<0.01 – 0.08
pH	6.5 – 8.6
Total Potential Sulphate (%)	0.03 – 0.24
Potential amount of Oxidisable Sulphate Present (%)	0.01 – 0.04

7.2.7 Design/mix of buried concrete should be undertaken in accordance with the "Aggressive Chemical Environment for Concrete" (ACEC) classification, of BRE Special Digest 1:2005 (Concrete in Aggressive Ground).

7.2.8 The above results indicate that pyrite is likely to be present within the soils beneath the site.

8.0 GEOTECHNICAL ASSESSMENT

8.1 General

8.1.1 It is understood that the proposed development comprises an extension to the pre-existing solar farm development adjacent to the site with associated solar panels and access roadways. New buildings are proposed in the footprint of existing ruined structures on site (near locations WS04 to WS07 and WS11), with smaller ancillary buildings to the southeast of site (WS01 to WS03). Solar panels will be installed in rows across the open fields on site.

8.1.2 The recommendations given below assume that ground levels intended for the redevelopment will be similar to those existing at present. If ground levels are subject to significant change as part of the proposed development, then the recommendations in this report may require reinterpretation.

8.2 Geotechnical Model

8.2.1 Eighteen dynamic sample boreholes were advanced across the site on a basis of targeting proposed structures and as a general coverage assessment of the site as a whole.

8.2.2 The ground conditions encountered within the exploratory holes are summarised below.

Table 8.1: Summary of Ground Conditions

Stratum	Depth Range to Base of Stratum (mbgl) (Thickness Range)	Relative Density / Undrained Shear Strength	Notes
Made Ground and Topsoil			
Made Ground and Topsoil	0.00m to 0.70 (0.00 to 0.70)	None recorded	Made Ground was encountered in WS02 and WS16 comprising slightly gravelly sandy Clay and sandy Gravel. Topsoil was encountered in all boreholes, with topsoil reworked in WS02 and WS16
Natural Strata			
Cohesive Deposits (Clay)	0.20m to 5.00 (0.90 to 4.80))	<u>Strength from Field Description</u> Soft to Stiff <u>Strength from In-situ Field Testing</u> SPT 'N' values recorded: 1.20: N = 0 - 20 2.00: N = 2 - 41 3.00: N = 1 - 32 4.00: N = 18 - 26 5.00: N = 19 - 30	Clay was encountered within all locations across the site and mainly comprised slightly gravelly sandy Clay. Soil density is poor in the north nearest the River. Moisture Contents: 11 – 32% Liquid Limits: 23 – 46% Plastic Limits: 14 – 22% Plasticity Indices*: 9.00 – 24.00% Consistency Index: 0.20 – 1.3% The Atterberg Limit tests indicate that the cohesive soil is of low to intermediate plasticity, of medium volume change potential (NHBC classification), and on the basis of the consistency index has a range of very soft to very stiff consistency. Low SPT ranges are present in upper 2.0m in WS12, WS13, WS15, WS18 and are not representative of eastern / main site area ground conditions.

Granular Deposits (Sands and Gravel)	0.80m – 5.00 (0.7 to 4.20)	Strength from Field Description Loose to Medium Dense Strength from In-situ Field Testing SPT 'N' values recorded: 1.20: N = 3 - 8 2.00: N = 4 - 22 3.00: N = 8 - 22 4.00: N = 15 - 30 5.00: N = 16 - 30	Till and Alluvium deposits were encountered within WS02, WS03, WS04, and WS09 to WS15 and comprised clayey sandy Gravel.
* - Corrected for fines content in accordance with NHBC Chapter 4.2.			

NR = Not Recorded In This Strata

8.3 Foundations

Shallow Foundations

8.3.1 As per the proposed development plan, this foundation discussion relates to Field 1b and Field 1C where the new proposed structures reside. The site investigation locations within these areas have been used for the foundation discussion (WS01 – WS08).

8.3.2 Where Made Ground is either not present or present only at shallow depths, it would be possible to adopt strip or spread foundations in the underlying firm cohesive soils, which generally consists o*f* firm gravelly sandy Clay. It is considered that this material will provide a suitable bearing stratum, provided that the foundations are placed within a single soil type, and generally described as being present in a firm (or higher) insitu condition. It is considered that strip or spread foundations constructed within this material at a minimum depth of 1.20mbgl could be designed assuming an allowable increase in load given below in Table 8.2.

Table 8.2: Allowable increase in stress

Foundation Parameter	Strip Footings (m)			Spread Foundation (m)		
Foundation Width (m)	0.60	1.00	1.50	1.00	2.00	3.00
Foundation Depth (m)	1.20			1.20		
Allowable Increase in Stress (kN/m^2)	175	160	155	250	230	220

8.3.3 The allowable increase in stress given above assumes a factor of safety of 3 against general shear failure, with cohesion of 75kN/m^2 at the foundation depths. Settlements at the above loading intensities should remain within tolerable limits (<25mm) for the type of structure proposed provided that the underlying soils are carefully inspected immediately final trimming has taken place. Should any soft or weak material be encountered they should be locally removed and replaced with lean-mix concrete or compacted granular soil.

8.3.4 Once excavated, the formation may be subject to heave, which may result in settlement when the new foundation loads are applied. The designer should ensure that any settlement would remain within serviceable limits for the new and existing structures.

8.3.5 It is recommended that foundations are placed in one soil type to avoid any differential settlement. If this is not possible due to the varying depth of cohesive and granular soils, then foundations would need to be locally deepened and placed within the clays or suitably reinforced if spanning across soil types. Foundations would need to be designed by a suitably structural engineer.

8.3.6 Foundation depths may need to be increased where they are within influencing distance of trees. Heave precautions may also be required.

8.3.7 Areas of soft material may require ground improvement in the form of dynamic compaction or dig and replace to improve bearing capacity of shallow soils in locations along the northern boundary and

nearest the River (WS10, WS12 to WS16); or an alternative foundation solution may require consideration in these areas.

8.4 Floor Slabs

8.4.1 In accordance with BS 8103-1; and based on proven ground conditions it is recommended that suspended floor slabs are used at this site due to the potential for heave / shrinkage from the underlying cohesive soils immediately beneath the site.

8.5 Concrete

8.5.1 A review of the pH and sulphate concentrations indicates that all concrete used in the foundations at this site should be designed to "Design Sulphate Class" DS-1, and the "Aggressive Chemical Environment for Concrete" (ACEC) class AC-1.

8.6 Groundwater and Excavations

8.6.1 Groundwater is likely to represent a particular problem to the construction of the proposed development at this site. However, it should be recognized that slight seepages and minor water entries may combine in any long trench excavations to create a significant volume of water which may cause local problems during the construction phase. Any minor groundwater seepages or significant standing water within excavations made upon this site may be removed by using a simple form of de-watering. Such a system could include the excavation of sumps from which the water could be pumped. Advice on Groundwater Control is given in CIRIA Report No 515 – Groundwater Control Design and Practice.

8.6.2 Foundation excavations should be feasible using conventional plant.

8.6.3 The stability of the excavation faces cannot be guaranteed, thus temporary support to the excavation faces may become necessary. Alternatively, subject to space constraints, excavations could be battered back to a suitable angle of repose. However, if there is a requirement to protect nearby structures or services, appropriate supports may still be required. Advice on excavation support is given in CIRIA Report No 97 – Trenching Practice.

8.7 Road Pavement

8.7.1 Any new pavements will require assessment of the existing sub grade in terms of its California Bearing Ratio (CBR) to facilitate the actual pavement design.

8.7.2 TRL DCP testing has been undertaken on all proposed roadways and pathways. Results can be found in Appendix C.

8.8 Existing structures

8.8.1 Any existing structures and foundations if found should be grubbed up and replaced with a suitable engineered granular backfill and should be compacted in layers.

9.0 OTHER POTENTIAL DEVELOPMENT CONSIDERATIONS

9.1 Waste Soils Characterisation

9.1.1 Any excavation works may potentially produce waste soils for which appropriate waste management will be required. Any soils requiring removal and disposal from site would require appropriate classification testing prior to disposal and the results would need to be confirmed with the landfill operator. Isolated hotspots if encountered may need to be taken off as Non-Hazardous or Hazardous waste. Any off-site disposal of soil requires careful management and due consideration of appropriate legislation, guidance and Duty of Care responsibilities.

9.1.2 Waste Acceptance Criteria (WAC) testing has been carried out four samples of any materials requiring disposal from site. The results of the WAC testing should be presented to the landfill operator for their confirmation of waste category.

9.2 Imported Fill

9.2.1 Any imported fill will be subject to specific quality requirements, particularly in any proposed areas of landscaping. Allowance should be made for the testing of imported fill materials prior to emplacement to ensure suitability should the materials be delivered with no testing certification.

9.3 Construction Activities

9.3.1 Due consideration should be given to the suppression of noise, dust and vibration emissions from the site during construction.

9.4 Material Re-Use

9.4.1 Any site won soils / materials may be available for reuse across the site subject to the appropriate classification, analysis and engineered solution.

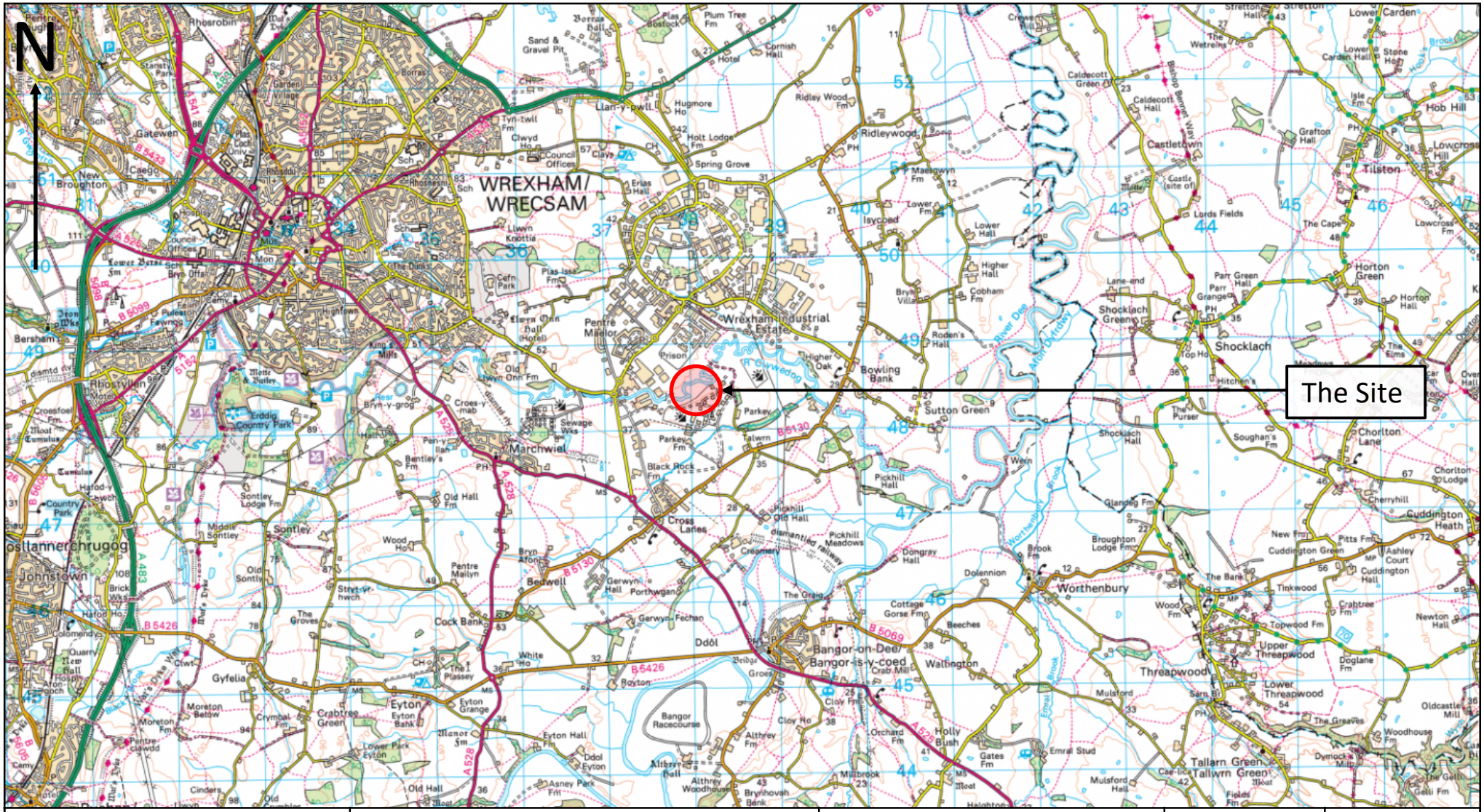
9.4.2 Any natural topsoil or Made Ground topsoil may be suitable for reuse across the site in any proposed landscaped areas subject to appropriate chemical testing.

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APPENDIX A

DRAWINGS



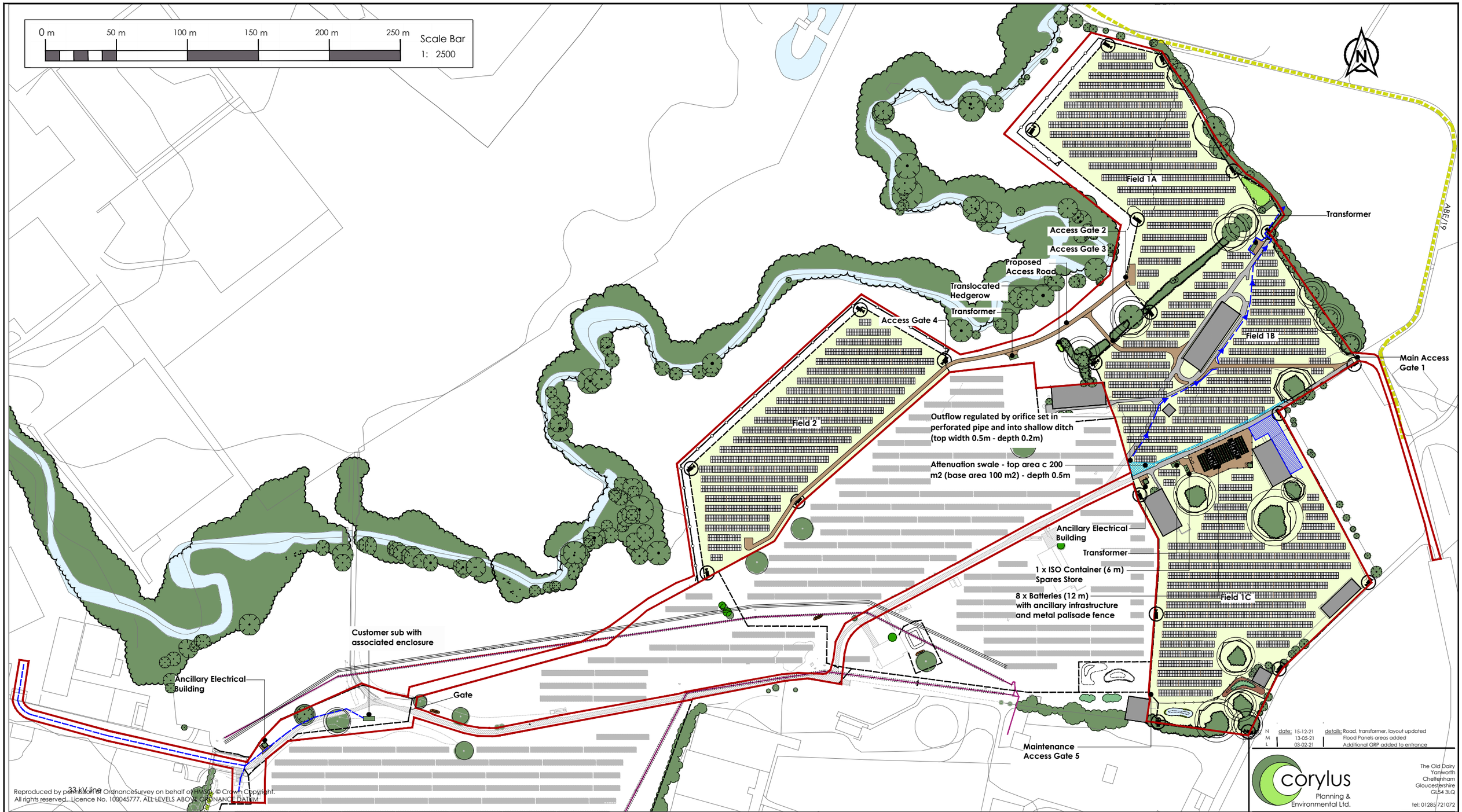
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PROJECT ID	DRAWING NUMBER	SCALE
GSI 2006 Solar Farm, Wrexham	GSI 2006/01	N.T.S
TITLE	**DATE**	**DRAWN BY**
Site Location Plan	December 2023	MP



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PROJECT ID	DRAWING NUMBER	SCALE
GSI 2006 Solar Farm, Wrexham	GSI 2006/02	N.T.S
TITLE	**DATE**	**DRAWN BY**
Exploratory Hole Location Plan	February 2024	EW



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Key:

- Planning Application Boundary
- Soil Storage area
- Existing Building
- Cable route
- Shallow ditch
- Soil Bund
- Exising Hedgerow
- Proposed Planting
- Public Right of Way
- Deer fencing
- CCTV
- Attenuation Swale
- Battery store
- Proposed Access Road
- Existing site roads
- Palisade fence

rev:	date:	details:
K	02-02-21	RPZ updated, PV panels, pond and battery store updated.
J	28-01-21	Battery store and access + transform / ISO container relocated. Pond and cable route adjusted.
i	19-01-21	(JLB)Annotations removed, customer control updated.
H	16-12-20	(JLB)Tables changed to 2 x portrait arrangement
G	26-11-20	(JLB) Services removed, swales added & other updates
F	12-11-20	(JLB) Red line, cable & planting updated
E	12-11-20	(JLB) Red line, Road & Layout updated
D	19-10-20	(JLB) Red line and Eco enhancements added
C	12-10-20	(JLB) Road alignment adjusted
B	02-10-20	(JLB) Substation moved away from gas main
A	15-09-20	(JLB)Layout Amended

rev:	date:	details:
N	15-12-21	Road, transformer, layout updated
M	13-05-21	Flood Panels areas added
L	03-02-21	Additional GRP added to entrance

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The Old Dairy
Yanworth
Cheltenham
Gloucestershire
GL54 3LQ
tel: 01285 721072

client:
Novus R S Ltd

project:
Solar Park to the north of Maelor Gasworks

title:
Design Layout

scale:	date:	drawn by :	checked by:	size:
1:2500	06/08/20	JLB		A3

Project ref :	dwg no:	rev:
258	WR-EX-258-06-1	N

APPENDIX B

DYNAMIC SAMPLE BOREHOLE LOGS

GeoCon Site Investigations Ltd
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Hawk Green, Marple, Stockport, Greater Manchester. SK6 7JW
Tel: 0161 713 0174 Email: info@geoconsiteinvestigations.com Web: www.geoconsiteinvestigations.com

Borehole ID

WS01

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 20/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 20/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Sampling & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.10	ES1				TOPSOIL: Soft dark brown sandy CLAY with abundant rootlets.		
0.10	ES2		0.20		Stiff slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to medium of chert.		
0.40	ES3						
0.80	D4						
1.00							
1.20	D5						
1.20	SPT	N = 16					
			1.70		Very stiff brown mottled grey sandy CLAY.		
2.00	D6						
2.00	SPT	N = 31					
3.00	SPT	N = 21			*Becoming stiff at 3.20m bgl.*		
4.00	SPT	N = 18					
5.00	SPT	N = 25	5.00				

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100
4.00	5.00	70	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 1.70m bgl. Borehole backfilled with arisings.

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Borehole ID

WS02

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 20/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 20/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Sampling & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES1				MADE GROUND: Soft dark brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of glass, plastic, brick and concrete. Sand is fine to coarse.		
			0.40		Firm light brown mottled grey slightly sandy gravelly CLAY. Gravel is subrounded to rounded fine to medium of chert and quartz.		
0.60	ES2						
1.00	D3						
1.20	SPT	N = 18					
			1.60			▼	
1.65	D4		1.70		Light brown very sandy GRAVEL. Gravel is subrounded fine to medium of chert and quartz.		
2.00	SPT	N = 41			Very stiff brown mottled grey slightly sandy gravelly CLAY. Gravel is subrounded to rounded fine to medium of chert and quartz.		
2.50	D5						
			2.70		Light brown very sandy GRAVEL. Gravel is rounded fine to medium of chert and quartz.		
			2.90		Stiff brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is rounded fine to medium of chert and quartz.		
3.00	SPT	N = 29					
			3.30		Medium dense light brown slightly clayey gravelly fine tot coarse SAND. Gravel is rounded fine to medium of chert and quartz.		
4.00	SPT	N = 19					
5.00	SPT	N = 20	5.00				

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100
4.00	5.00	70	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 1.60m bgl. Borehole backfilled with arisings.

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Borehole ID

WS03

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 20/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 20/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Depth	Sampling & Insitu Testing: Depth (m)	Type	Results	Depth	Legend	Strata Description	Water Strike	Well
	0.10	ES1		0.20		TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to medium of chert.		
	0.40	ES2				Soft light brown mottled grey slightly sandy gravelly CLAY. Gravel is subrounded o rounded fine to coarse of chert and quartz.		
1.00	1.00	D3						
	1.20	SPT	N = 16	1.50			▼	
				1.60		Brown very sandy clayey GRAVEL. Gravel is subangular to subrounded fine to medium of chert and quartz.		
	1.90	D4				Firm brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded fine to medium of chert and quartz.		
2.00	2.00	SPT	N = 20					
						Becoming gravelly at 2.70m bgl.		
	2.90	D5						
3.00	3.00	SPT	N = 32					
4.00	4.00	SPT	N = 26					
5.00	5.00	SPT	N = 20	5.00				

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100
4.00	5.00	79	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 1.50m bgl. Borehole backfilled with arisings.

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Borehole ID

WS04

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 20/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 20/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Sampling & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES1		0.30		TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.		
0.40	ES2				Soft brown sandy slightly gravelly CLAY. Gravel is subrounded fine to medium of chert and quartz.		
1.00	D3						
1.20	SPT	N = 13					
			1.70		Brown very sandy GRAVEL. Gravel is subrounded fine to coarse of chert and quartz.		
1.90	D4		1.90		Stiff brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded fine to medium of chert and quartz.		
2.00	SPT	N = 35					
2.90	D5						
3.00	SPT	N = 28					
4.00	SPT	N = 23					
5.00	SPT	N = 19	5.00				

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100
4.00	5.00	70	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 1.70m bgl. Borehole backfilled with arisings.

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Borehole ID

WS05

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 21/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 21/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Samplng & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES1		0.30		TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.		
0.40	ES2				Firm brown sandy slightly gravelly CLAY. Gravel is subrounded fine to coarse of chert and quartz.		
1.00	D3						
1.20	SPT	N = 14					
			1.50		Stiff brown mottled grey slightly gravelly sandy CLAY. Gravel is rounded fine of chert and quartz.		
1.90	D4						
2.00	SPT	N = 25					
2.90	D5						
3.00	SPT	N = 26					
4.00	SPT	N = 25	4.00				
5.00							

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No groundwater was encountered. Borehole backfilled with arisings.

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Borehole ID

WS06

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006		Easting:		Start Date: 21/02/2024	
Project Name: Wrexham Solar Farm		Northing:		End Date: 21/02/2024	
Client: Innova	Hole Type: DS	Level:	Logged By: EW	Scale: 1:30	Page Number: Page1 of 1

Depth	Sampling & Insitu Testing: Depth (m)	Type	Results	Depth	Legend	Strata Description	Well
	0.20	ES1				TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.	
	0.20	ES2		0.30			
	0.40	ES3				Firm light brown slightly gravelly sandy CLAY. Gravel is subrounded fine to medium of chert and quartz.	
1.00	1.00	D4					
	1.20	SPT	N = 18				
				1.70		Stiff brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is subrounded fine of chert and quartz.	
	1.90	D5					
2.00	2.00	SPT	N = 32				
	2.90	D6					
3.00	3.00	SPT	N = 29			*Becoming firm at 3.00m bgl.*	
4.00	4.00	SPT	N = 25			*Becoming stiff at 4.00m bgl.*	
5.00				5.00			

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No groundwater was encountered. Borehole backfilled with arisings.

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Borehole ID

WS07

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 21/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 21/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Sampling & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES1				TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.		
0.40	ES2		0.35		Firm light brown sandy slightly gravelly CLAY. Gravel is subrounded fine to coarse of chert and quartz.		
1.00	D3						
1.20	SPT	N = 20					
			1.60		Stiff brown mottled grey sandy slightly gravelly CLAY. Gravel is rounded fine of chert and quartz.		
2.00	SPT	N = 26					
			2.40			▼	
2.50	D4		2.50		Medium dense light brown gravelly SAND. Gravel is rounded fine of chert and quartz.		
					Stiff brown mottled grey sandy slightly gravelly CLAY. Gravel is rounded fine of chert and quartz.		
3.00	SPT	N = 26					
3.50	D5						
4.00	SPT	N = 26	4.00				
5.00							

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 2.40m bgl. Borehole backfilled with arisings.

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Borehole ID

WS08

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 21/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 21/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Samplng & Insitu Testing			Depth	Legend	Strata Description	Well
Depth (m)	Type	Results				
0.15	ES1		0.20		TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.	
0.40	ES2				Firm light brown orange slightly sandy lightly gravelly CLAY. Gravel is subrounded fine to medium of chert and quartz.	
1.00	D3					
1.20	SPT	N = 16	1.30		Firm brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to medium of chert and quartz. Sand is fine to coarse.	
1.90	D4					
2.00	SPT	N = 21				
2.90	D5					
3.00	SPT	N = 24			*Becoming stiff at 3.00m bgl.*	
3.90	D6					
4.00	SPT	N = 20				
5.00	SPT	N = 30	5.00			

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100
4.00	5.00	70	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No groundwater encountered. Borehole backfilled with arisings.

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Borehole ID

WS09

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 21/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 21/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Samplng & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.10	ES1				TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.		
			0.20				
0.40	ES2				Soft brown sandy slightly gravelly CLAY. Gravel is subrounded fine to coarse of chert and quartz.		
1.00	D3						
1.20	SPT	N = 7					
			1.80			▼	
1.90	D4				Brown very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of chert and quartz.		
2.00	SPT	N = 4	2.00		Soft brown mottled grey sandy slightly gravelly CLAY. Gravel is rounded fine of chert and quarts.		
			2.20		Loose brown very sandy GRAVEL. Gravel is subrounded fine to medium of chert and quartz.		
2.90	D5						
3.00	SPT	N = 18					
			3.10		Firm brown mottled grey slightly gravelly CLAY. Gravel is rounded fine of chert and quartz.		
			3.60		Medium dense brown very sandy GRAVEL. Gravel is subangular to subrounded fine to medium of chert and quartz.		
4.00	SPT	N = 20	4.00				
5.00							

Dynamic Sample Run Details			
Top	Base	Diameter	Recovery

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 1.80m bgl. Borehole backfilled with arisings.

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Borehole ID

WS10

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 21/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 21/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Samplng & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES1				TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.		
			0.40				
0.60	ES2				Soft light brown orange slightly gravelly sandy CLAY. Gravel is subrounded fine to medium of chert and quartz.		
			0.80				
1.00	D3				Light brown slightly clayey sandy GRAVEL. Gravel is subangular to subrounded fine to medium of chert and quartz.	▼	
1.20	SPT	N = 8					
			1.50		Firm brown sandy slightly gravelly CLAY. Gravel is subrounded fine to medium of chert and quartz.		
1.90	D4		1.90				
2.00	SPT	N = 11			Light brown slightly clayey sandy GRAVEL. Gravel is subangular to subrounded fine to medium of chert and quartz.		
			2.10		Firm brown slightly sandy slightly gravelly CLAY. Gravel subrounded fine to medium chert and quartz.		
2.90	D5						
3.00	SPT	N = 1			*Becoming very soft at 3.00m bgl.*		
4.00	SPT	N = 19	4.00				
5.00							

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 1.00m bgl. Borehole backfilled with arisings.

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Borehole ID

WS11

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 22/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 22/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS			1:30	Page1 of 1

Sampling & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES1				TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.		
0.20	ES2		0.30		Soft light brown slightly gravelly sandy CLAY. Gravel is subrounded fine to medium of chert and quartz.		
0.50	ES3						
1.00	D4						
1.20	SPT	N = 15					
			1.60		Medium dense light brown very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of chert and quartz.	▼	
1.90	D5						
2.00	SPT	N = 18					
			2.30		Soft brown gravelly sandy CLAY. Gravel is subrounded fine to coarse of chert and quartz.		
2.90	D6						
3.00	SPT	N = 26			*Becoming firm at 3.00m bgl.*		
4.00	SPT	N = 20	4.00				

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 1.70m bgl. Borehole backfilled with arisings.

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Borehole ID

WS12

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 22/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 22/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Sampling & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES1				TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.	▼	
			0.40				
0.60	ES2				Soft light brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium of chert and quartz.		
1.00	D3						
			1.10				
1.20	SPT	N = 3			Light brown sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of chert and quartz.		
			1.50				
1.90	D4				Soft light brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse of chert and quartz.		
2.00	SPT	N = 2					
			2.70				
2.90	D5				Loose grey very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of chert and quartz.		
3.00	SPT	N = 8					
			3.60				
					Soft light brown sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of chert and quartz.		
4.00	SPT	N = 25	4.00		Medium dense light grey very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of chert and quartz.		
5.00	SPT	N = 30	5.00				

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100
4.00	5.00	70	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 0.40m bgl. Borehole backfilled with arisings.

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Borehole ID

WS13

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 22/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 22/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Samplng & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES1				TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.		
			0.40			▼	
0.60	ES2				Soft brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium of chert and quartz.		
1.00	D3						
1.20	SPT	N = 0					
1.90	D4						
2.00	SPT	N = 14					
			2.60		Loose light brown very sandy GRAVEL. Gravel is subangular to subrounded fine to medium of chert and quartz.		
2.90	D5						
3.00	SPT	N = 8					
4.00	SPT	N = 21	4.00				

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 0.40m bgl. Borehole backfilled with arisings.

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Borehole ID

WS14

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006		Easting:		Start Date: 22/02/2024	
Project Name: Wrexham Solar Farm		Northing:		End Date: 22/02/2024	
Client: Innova	Hole Type: DS	Level:	Logged By: EW	Scale: 1:30	Page Number: Page1 of 1

Sampling & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES1		0.30		TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.	▼	
0.60	ES2				Soft brown slightly gravelly very sandy CLAY. Gravel is subrounded fine to medium of chert and quartz.		
1.00	D3						
1.20	SPT	N = 3					
			1.70		Medium dense brown yellow very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of chert and quartz.		
1.90	D4						
2.00	SPT	N = 16					
			2.40		Medium dense brown gravelly SAND. Gravel is subangular to subrounded fine of chert and quartz.		
			2.60		Medium dense brown yellow very sandy GRAVEL. Gravel is subangular to subrounded fine to medium of chert and quartz.		
2.90	D5						
3.00	SPT	N = 22					
4.00	SPT	N = 20	4.00				

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 0.30m bgl. Borehole backfilled with arisings.

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Tel: 0161 713 0174 Email: info@geoconsiteinvestigations.com Web: www.geoconsiteinvestigations.com

Borehole ID

WS15

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 22/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 22/02/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Samplng & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES1				TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.	▼	
0.40	ES2		0.40				
0.40	ES3				Soft brown slightly gravelly sandy CLAY. Gravel is subangular fine of chert and quartz.		
1.00	D4						
1.20	SPT	N = 0					
1.90	D5		1.90				
2.00	SPT	N = 15			Medium dense light brown slightly clayey very sandy GRAVEL. Gravel is subangular to subrounded fine to medium of chert and quartz.		
			2.70				
2.90	D6				Medium dense grey clayey sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of chert and quartz.		
3.00	SPT	N = 12					
4.00	SPT	N = 30	4.00				
5.00							

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 0.40m bgl. Borehole backfilled with arisings.

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Borehole ID

WS16

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006		Easting:		Start Date: 22/02/2024	
Project Name: Wrexham Solar Farm		Northing:		End Date: 22/02/2024	
Client: Innova	Hole Type: DS	Level:	Logged By: EW	Scale: 1:30	Page Number: Page1 of 1

Samplng & Insitu Testing			Depth	Legend	Strata Description	Well
Depth (m)	Type	Results				
0.20	SPT	N = 50	0.70		MADE GROUND: Brown clayey sandy GRAVEL. Gravel is angular to subangular fine to coarse of chert.	

1.00
2.00
3.00
4.00
5.00

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 0.20m bgl. No groundwater was encountered. Borehole backfilled with arisings.

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Borehole ID

WS17

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 23/03/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 23/03/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Sampling & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES1				TOPSOIL: Soft brown slightly gravelly sandy CLAY with abundant rootlets. Gravel is subangular to subrounded fine to coarse of chert.		
			0.40				
0.60	ES2				Soft brown slightly gravelly sandy CLAY. Gravel is subrounded fine to medium of chert and quartz.		
1.00	D3						
1.20	SPT	N = 8					
			1.80				
1.90	D4				Medium dense light brown gravelly clayey SAND. Gravel is subrounded fine to medium of chert an quartz.		
2.00	SPT	N = 12					
			2.40				
					Medium dense brown clayey very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of chert and quartz.		
2.90	D5						
3.00	SPT	N = 13					
			3.10				
					Firm brown mottled grey slightly gravelly sandy CLAY. Gravel is subrounded fine to coarse of chert and quartz.		
			3.90				
4.00	SPT	N = 15			Medium dense light brown slightly clayey very gravelly SAND. Gravel is subangular to subrounded fine to medium of chert and quartz.		
5.00	SPT	N = 16	5.00				

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
2.00	3.00	92	100
3.00	4.00	79	100
4.00	5.00	70	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 1.60m bgl. Borehole backfilled with arisings.

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Borehole ID

WS18

DYNAMIC SAMPLE BOREHOLE LOG

Project No: GSI 2006	Easting:	Start Date: 23/02/2024
Project Name: Wrexham Solar Farm	Northing:	End Date: 23/03/2024

Client	Hole Type	Level	Logged By	Scale	Page Number
Innova	DS		EW	1:30	Page1 of 1

Sampling & Insitu Testing			Depth	Legend	Strata Description	Water Strike	Well
Depth (m)	Type	Results					
0.20	ES2				TOPSOIL: Soft brown sandy gravelly CLAY with abundant rootlets. Gravel is subrounded fine to medium of chert.		
0.20	ES3		0.30		Soft brown slightly gravelly sandy CLAY. Gravel is subrounded fine to medium of chert and quartz.		
0.50	ES4						
0.50	ES5						
1.00	D6						
1.20	SPT	N = 4					
			1.60		Medium dense brown yellow clayey very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of chert and quartz.		
1.90	D7						
2.00	SPT	N = 22					
2.90	D8				*Becoming very clayey and loose at 2.80m bgl.*		
3.00	SPT	N = 8					
			3.40		Firm brown mottled grey slightly sandy CLAY. Gravel is rounded fine of chert and quartz.		
4.00	SPT	N = 18	4.00				
5.00							

Dynamic Sample Run Details

Top	Base	Diameter	Recovery
1.20	2.00	102	100
2.00	3.00	92	100
3.00	4.00	79	100

Remarks: Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 1.60m bgl. Borehole backfilled with arisings.

APPENDIX C

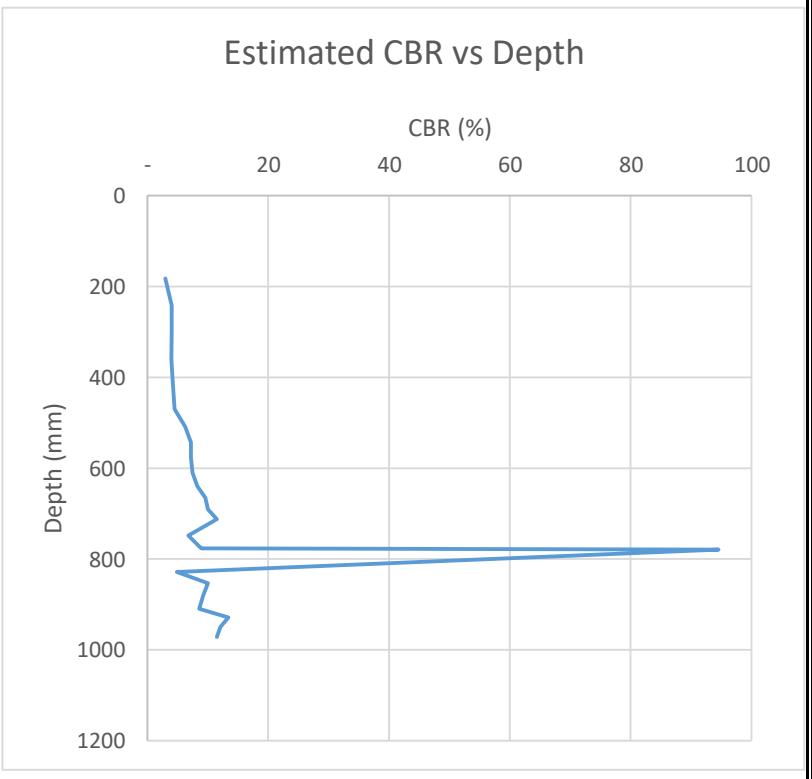
TRL DCP TESTING RESULTS

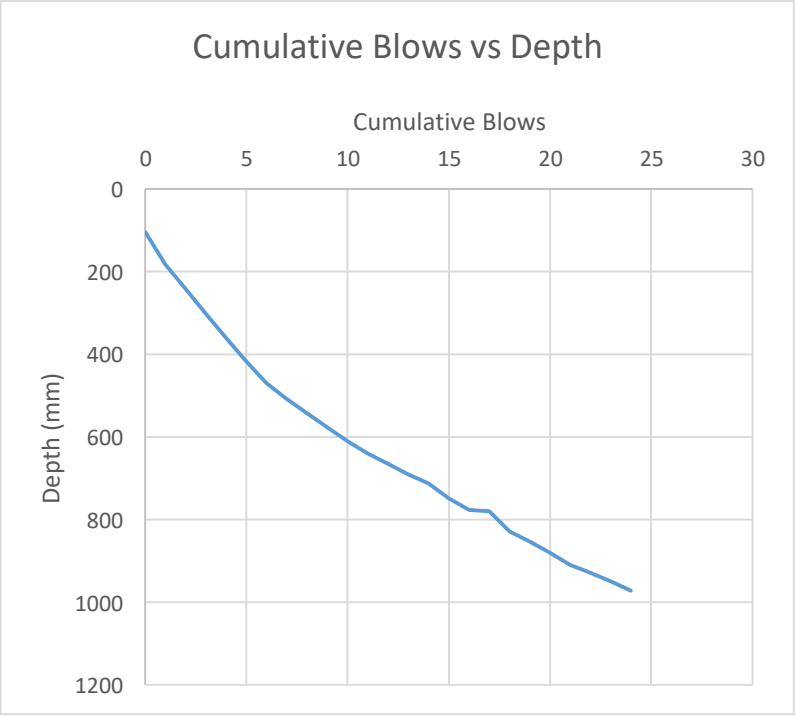
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 01
EW	23/02/2024	Sunny	All tests commenced on soft landscaping grassland.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	104mm bgl	Topsoil	104		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
104	0	0	1	0		
183	1	79	1	79	79.00	3
242	2	138	1	59	59.00	4
301	3	197	1	59	59.00	4
361	4	257	1	60	60.00	4
417	5	313	1	56	56.00	4
470	6	366	1	53	53.00	5
509	7	405	1	39	39.00	6
543	8	439	1	34	34.00	7
577	9	473	1	34	34.00	7
610	10	506	1	33	33.00	7
640	11	536	1	30	30.00	8
666	12	562	1	26	26.00	10
691	13	587	1	25	25.00	10
713	14	609	1	22	22.00	12
749	15	645	1	36	36.00	7
777	16	673	1	28	28.00	9
780	17	676	1	3	3.00	95
829	18	725	1	49	49.00	5
854	19	750	1	25	25.00	10
881	20	777	1	27	27.00	9
910	21	806	1	29	29.00	9
929	22	825	1	19	19.00	13
950	23	846	1	21	21.00	12
972	24	868	1	22	22.00	12





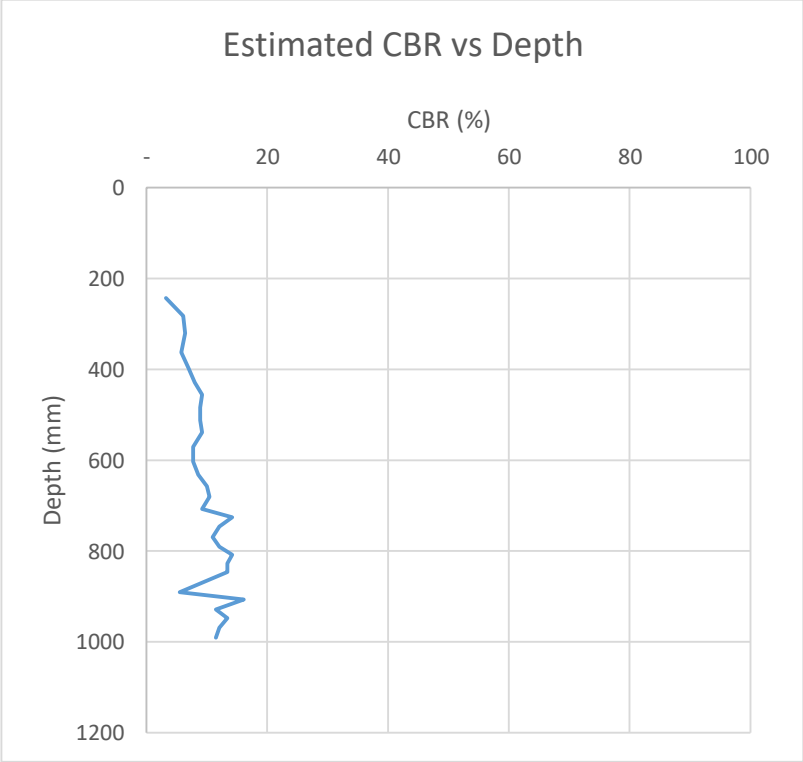
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 01**
Client:	Innova	

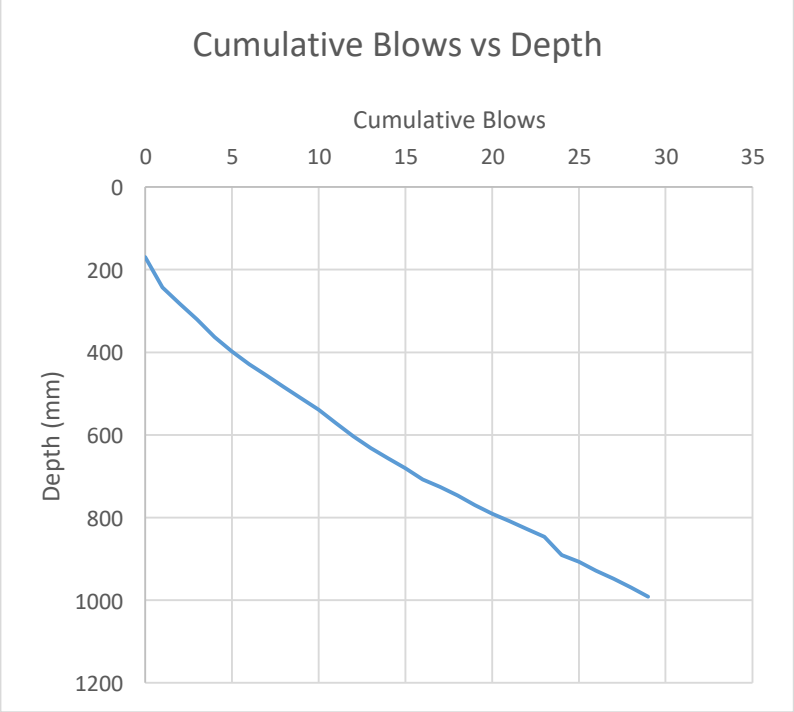
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 02
EW	23/02/2024	Sunny	All tests commenced on soft landscaping grassland.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	170mm bgl	Topsoil	170		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
170	0	0	1	0		
243	1	73	1	73	73.00	3
283	2	113	1	40	40.00	6
321	3	151	1	38	38.00	6
363	4	193	1	42	42.00	6
398	5	228	1	35	35.00	7
429	6	259	1	31	31.00	8
456	7	286	1	27	27.00	9
484	8	314	1	28	28.00	9
512	9	342	1	28	28.00	9
539	10	369	1	27	27.00	9
571	11	401	1	32	32.00	8
603	12	433	1	32	32.00	8
632	13	462	1	29	29.00	9
657	14	487	1	25	25.00	10
681	15	511	1	24	24.00	10
708	16	538	1	27	27.00	9
726	17	556	1	18	18.00	14
747	18	577	1	21	21.00	12
770	19	600	1	23	23.00	11
791	20	621	1	21	21.00	12
809	21	639	1	18	18.00	14
828	22	658	1	19	19.00	13
847	23	677	1	19	19.00	13
891	24	721	1	44	44.00	6
907	25	737	1	16	16.00	16
929	26	759	1	22	22.00	12
948	27	778	1	19	19.00	13
969	28	799	1	21	21.00	12
991	29	821	1	22	22.00	12



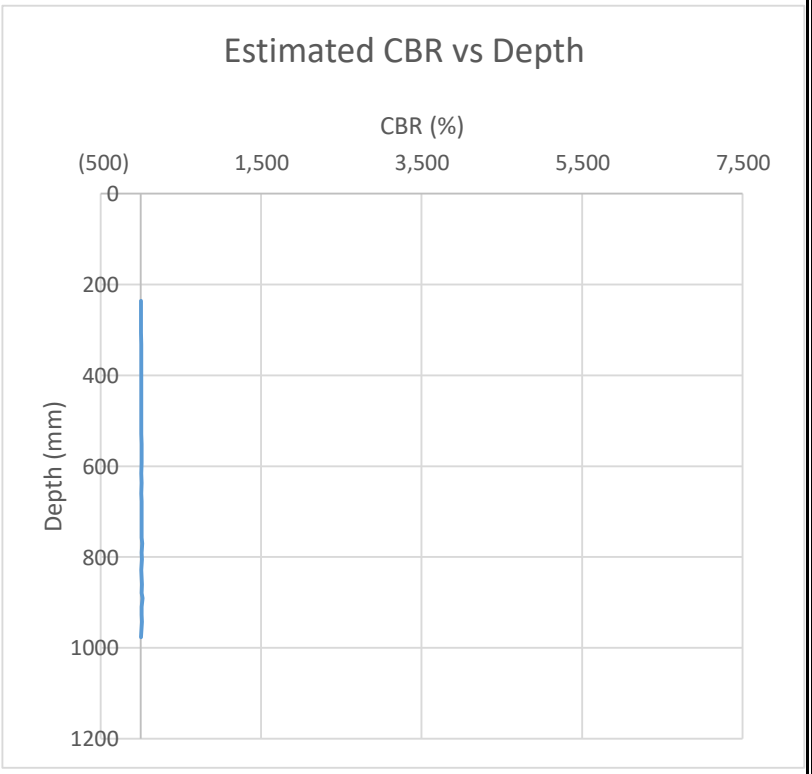


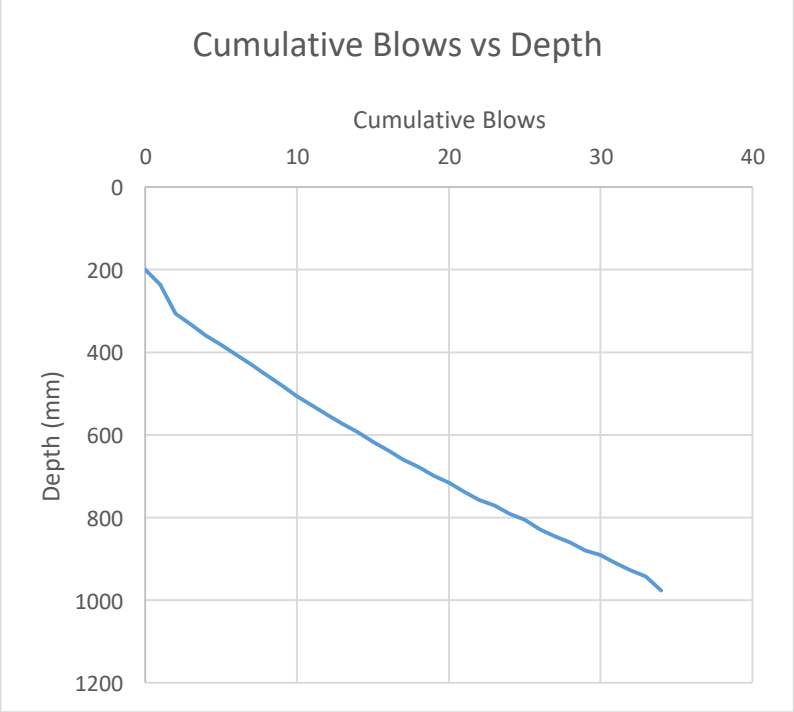
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	TRL DCP 02
Client:	Innova	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 03
EW	23/02/2024	Sunny	All tests commenced on soft landscaping grassland.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	
	200mm bgl	Topsoil	200		Grid:	

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
200	0	0	1	0		
236	1	36	1	36	36.00	7
307	2	107	1	71	71.00	3
332	3	132	1	25	25.00	10
359	4	159	1	27	27.00	9
382	5	182	1	23	23.00	11
406	6	206	1	24	24.00	10
430	7	230	1	24	24.00	10
455	8	255	1	25	25.00	10
480	9	280	1	25	25.00	10
506	10	306	1	26	26.00	10
529	11	329	1	23	23.00	11
551	12	351	1	22	22.00	12
573	13	373	1	22	22.00	12
593	14	393	1	20	20.00	13
616	15	416	1	23	23.00	11
637	16	437	1	21	21.00	12
660	17	460	1	23	23.00	11
678	18	478	1	18	18.00	14
699	19	499	1	21	21.00	12
716	20	516	1	17	17.00	15
738	21	538	1	22	22.00	12
758	22	558	1	20	20.00	13
771	23	571	1	13	13.00	20
791	24	591	1	20	20.00	13
806	25	606	1	15	15.00	17
829	26	629	1	23	23.00	11
846	27	646	1	17	17.00	15
861	28	661	1	15	15.00	17
880	29	680	1	19	19.00	13
891	30	691	1	11	11.00	24
910	31	710	1	19	19.00	13
928	32	728	1	18	18.00	14
943	33	743	1	15	15.00	17
977	34	777	1	34	34.00	7





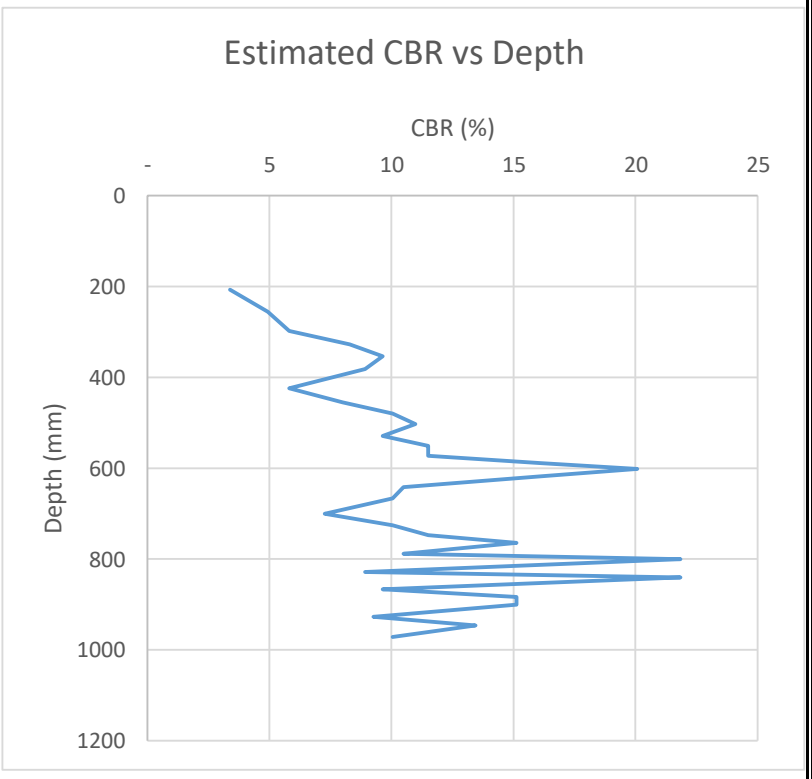
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 03**
Client:	Innova	

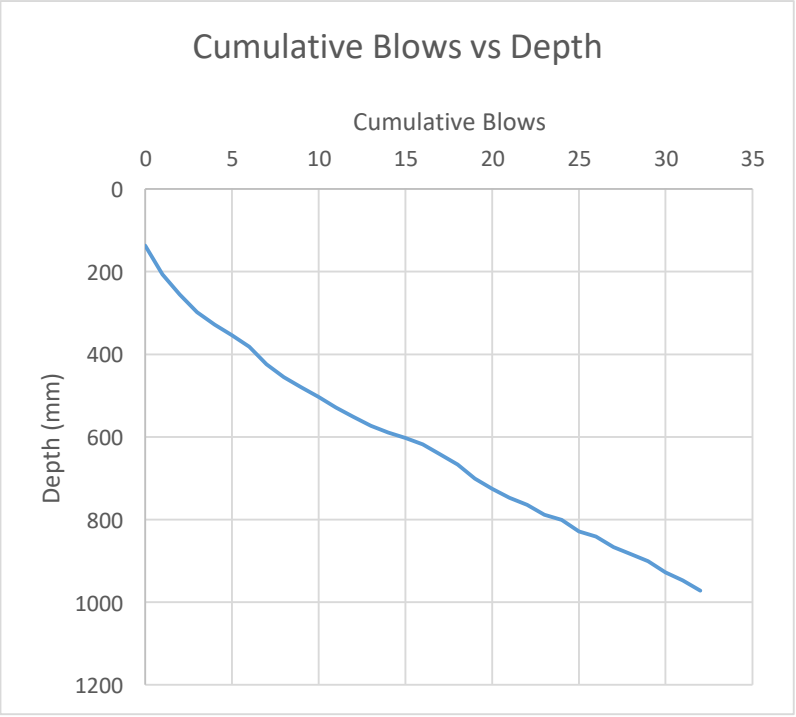
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 04
EW	23/02/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	137mm bgl	Topsoil	137		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
137	0	0	1	0		
207	1	70	1	70	70.00	3
256	2	119	1	49	49.00	5
298	3	161	1	42	42.00	6
328	4	191	1	30	30.00	8
354	5	217	1	26	26.00	10
382	6	245	1	28	28.00	9
424	7	287	1	42	42.00	6
455	8	318	1	31	31.00	8
480	9	343	1	25	25.00	10
503	10	366	1	23	23.00	11
529	11	392	1	26	26.00	10
551	12	414	1	22	22.00	12
573	13	436	1	22	22.00	12
589	14	452	1	16	16.00	16
602	15	465	1	13	13.00	20
618	16	481	1	16	16.00	16
642	17	505	1	24	24.00	10
667	18	530	1	25	25.00	10
701	19	564	1	34	34.00	7
726	20	589	1	25	25.00	10
748	21	611	1	22	22.00	12
765	22	628	1	17	17.00	15
789	23	652	1	24	24.00	10
801	24	664	1	12	12.00	22
829	25	692	1	28	28.00	9
841	26	704	1	12	12.00	22
867	27	730	1	26	26.00	10
884	28	747	1	17	17.00	15
901	29	764	1	17	17.00	15
928	30	791	1	27	27.00	9
947	31	810	1	19	19.00	13
972	32	835	1	25	25.00	10





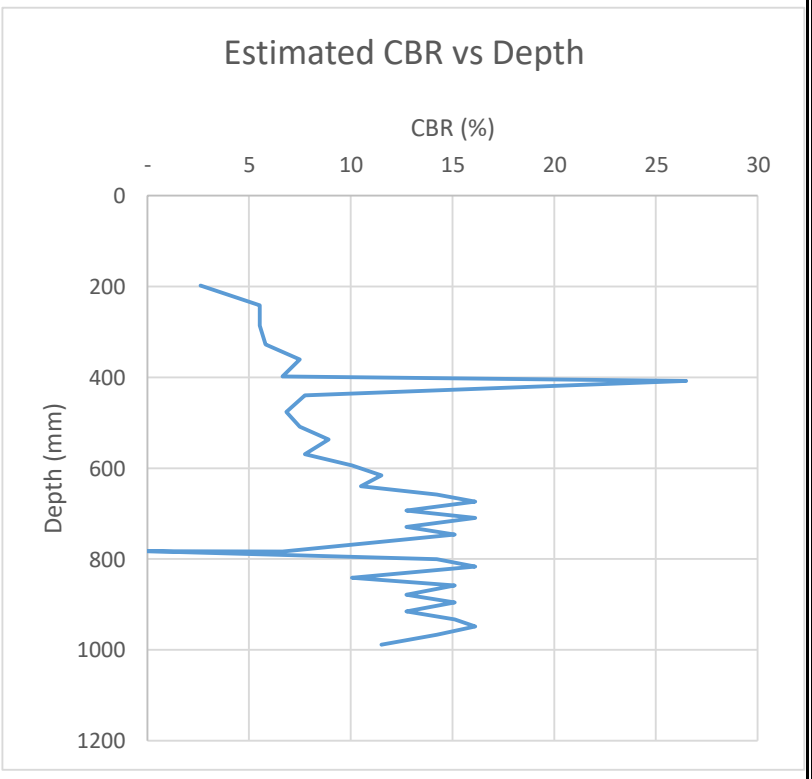
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 04**
Client:	Innova	

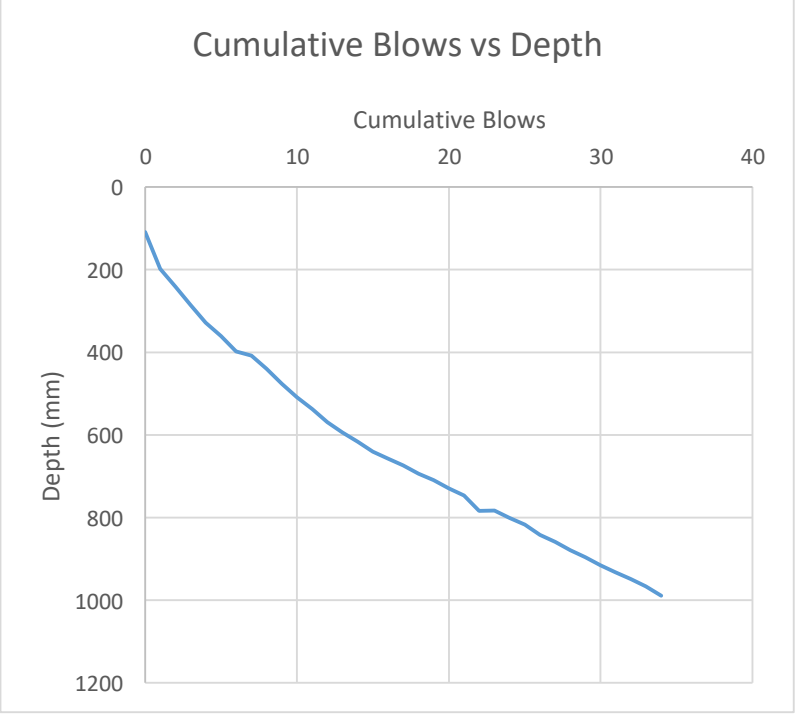
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 05
EW	23/02/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	109mm bgl	Topsoil	109		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
109	0	0	1	0		
198	1	89	1	89	89.00	3
242	2	133	1	44	44.00	6
286	3	177	1	44	44.00	6
328	4	219	1	42	42.00	6
361	5	252	1	33	33.00	7
398	6	289	1	37	37.00	7
408	7	299	1	10	10.00	26
440	8	331	1	32	32.00	8
476	9	367	1	36	36.00	7
509	10	400	1	33	33.00	7
537	11	428	1	28	28.00	9
569	12	460	1	32	32.00	8
594	13	485	1	25	25.00	10
616	14	507	1	22	22.00	12
640	15	531	1	24	24.00	10
658	16	549	1	18	18.00	14
674	17	565	1	16	16.00	16
694	18	585	1	20	20.00	13
710	19	601	1	16	16.00	16
730	20	621	1	20	20.00	13
747	21	638	1	17	17.00	15
784	22	675	1	37	37.00	7
783	23	674	1	-1	(1.00)	#NUM!
801	24	692	1	18	18.00	14
817	25	708	1	16	16.00	16
842	26	733	1	25	25.00	10
859	27	750	1	17	17.00	15
879	28	770	1	20	20.00	13
896	29	787	1	17	17.00	15
916	30	807	1	20	20.00	13
933	31	824	1	17	17.00	15
949	32	840	1	16	16.00	16
967	33	858	1	18	18.00	14
989	34	880	1	22	22.00	12



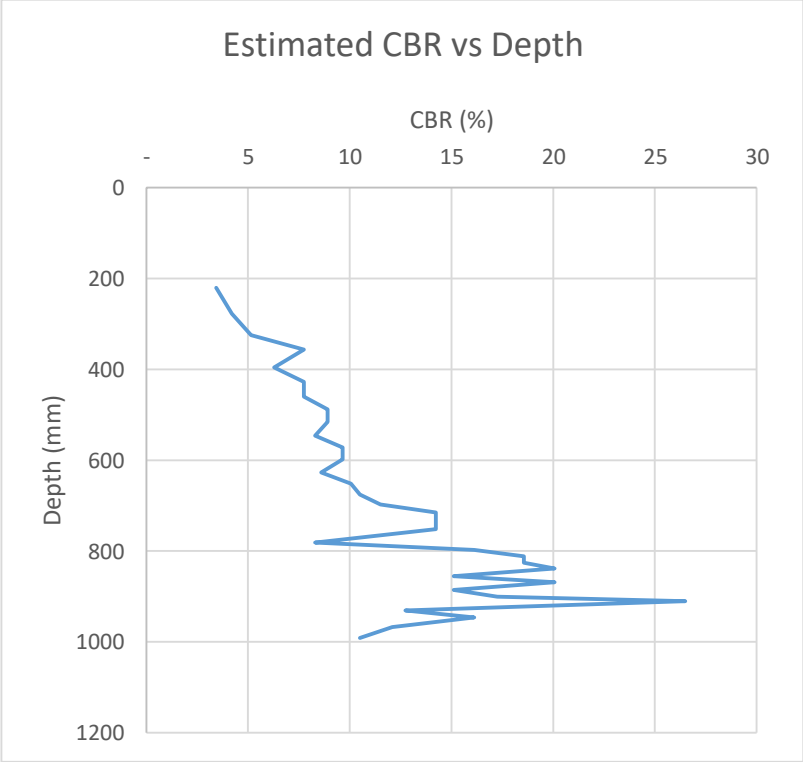


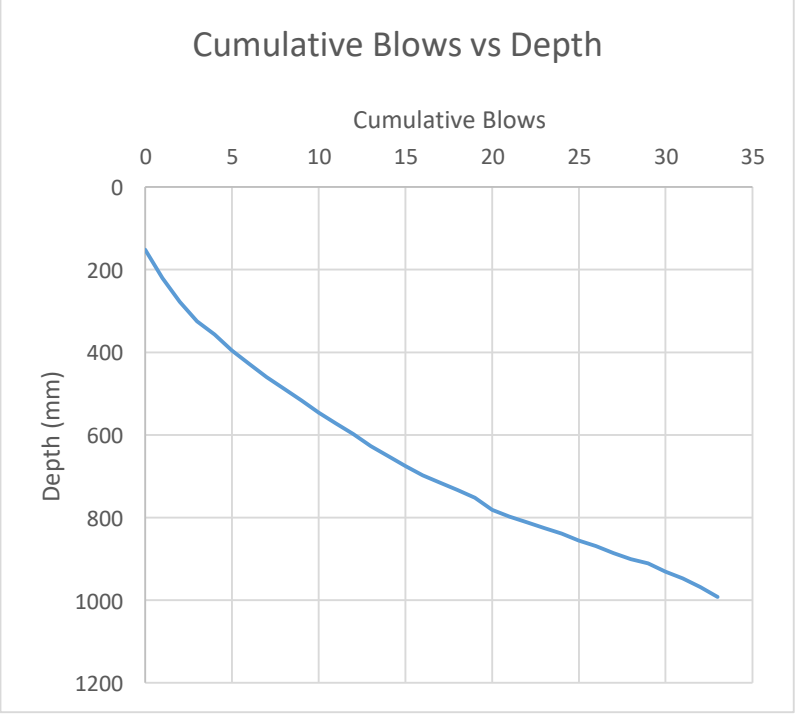
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	TRL DCP 05
Client:	Innova	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 06
EW	23/02/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	152mm bgl	Topsoil	152		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
152	0	0	1	0		
221	1	69	1	69	69.00	3
278	2	126	1	57	57.00	4
325	3	173	1	47	47.00	5
357	4	205	1	32	32.00	8
396	5	244	1	39	39.00	6
428	6	276	1	32	32.00	8
460	7	308	1	32	32.00	8
488	8	336	1	28	28.00	9
516	9	364	1	28	28.00	9
546	10	394	1	30	30.00	8
572	11	420	1	26	26.00	10
598	12	446	1	26	26.00	10
627	13	475	1	29	29.00	9
652	14	500	1	25	25.00	10
676	15	524	1	24	24.00	10
698	16	546	1	22	22.00	12
716	17	564	1	18	18.00	14
734	18	582	1	18	18.00	14
752	19	600	1	18	18.00	14
782	20	630	1	30	30.00	8
798	21	646	1	16	16.00	16
812	22	660	1	14	14.00	19
826	23	674	1	14	14.00	19
839	24	687	1	13	13.00	20
856	25	704	1	17	17.00	15
869	26	717	1	13	13.00	20
886	27	734	1	17	17.00	15
901	28	749	1	15	15.00	17
911	29	759	1	10	10.00	26
931	30	779	1	20	20.00	13
947	31	795	1	16	16.00	16
968	32	816	1	21	21.00	12
992	33	840	1	24	24.00	10





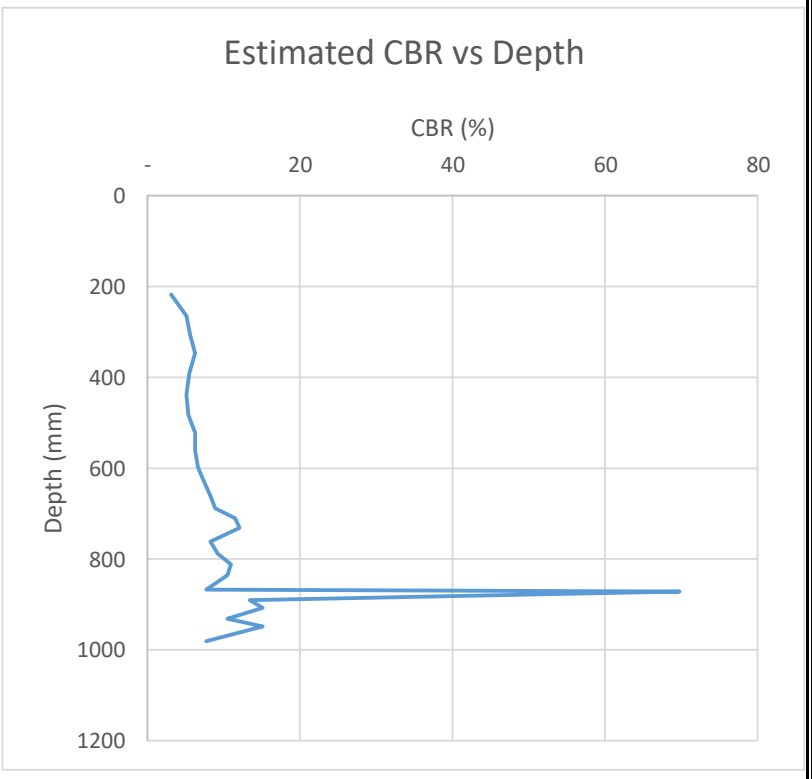
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 06**
Client:	Innova	

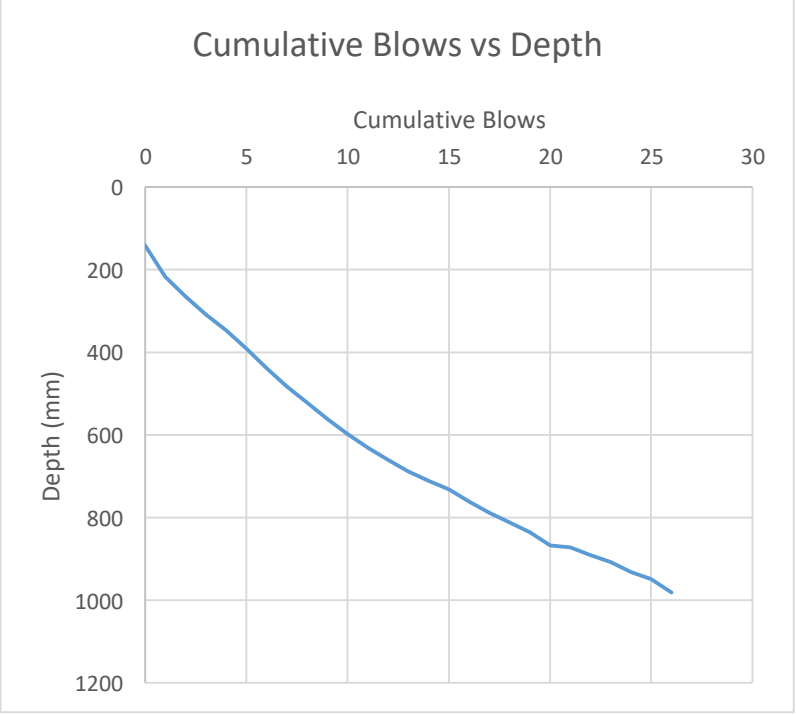
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 07
EW	23/02/2024	Sunny		mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	142mm bgl	Topsoil	142		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
142	0	0	1	0		
218	1	76	1	76	76.00	3
265	2	123	1	47	47.00	5
308	3	166	1	43	43.00	6
347	4	205	1	39	39.00	6
391	5	249	1	44	44.00	6
438	6	296	1	47	47.00	5
483	7	341	1	45	45.00	5
522	8	380	1	39	39.00	6
561	9	419	1	39	39.00	6
598	10	456	1	37	37.00	7
631	11	489	1	33	33.00	7
661	12	519	1	30	30.00	8
689	13	547	1	28	28.00	9
711	14	569	1	22	22.00	12
732	15	590	1	21	21.00	12
762	16	620	1	30	30.00	8
789	17	647	1	27	27.00	9
812	18	670	1	23	23.00	11
836	19	694	1	24	24.00	10
868	20	726	1	32	32.00	8
872	21	730	1	4	4.00	70
891	22	749	1	19	19.00	13
908	23	766	1	17	17.00	15
932	24	790	1	24	24.00	10
949	25	807	1	17	17.00	15
981	26	839	1	32	32.00	8





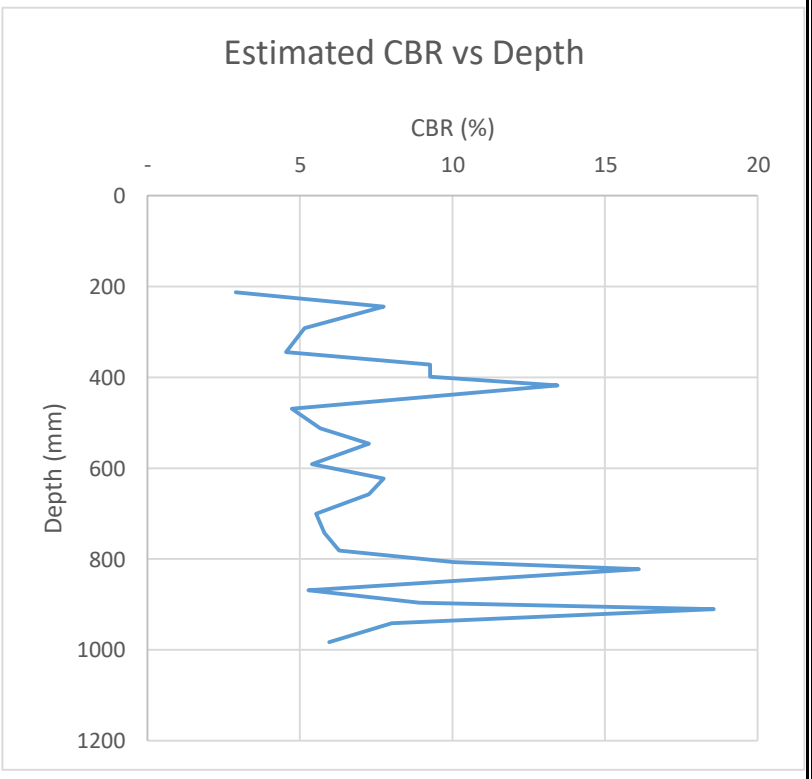
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	TRL DCP 07
Client:	Innova	

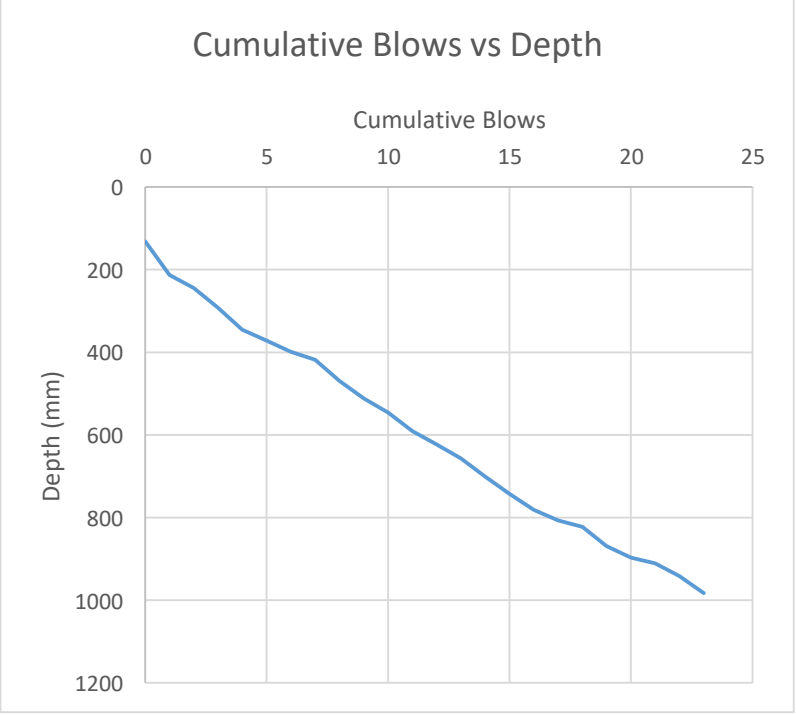
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 08
EW	23/02/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	132mm bgl	Topsoil	132		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
132	0	0	1	0		
213	1	81	1	81	81.00	3
245	2	113	1	32	32.00	8
292	3	160	1	47	47.00	5
345	4	213	1	53	53.00	5
372	5	240	1	27	27.00	9
399	6	267	1	27	27.00	9
418	7	286	1	19	19.00	13
469	8	337	1	51	51.00	5
512	9	380	1	43	43.00	6
546	10	414	1	34	34.00	7
591	11	459	1	45	45.00	5
623	12	491	1	32	32.00	8
657	13	525	1	34	34.00	7
701	14	569	1	44	44.00	6
743	15	611	1	42	42.00	6
782	16	650	1	39	39.00	6
807	17	675	1	25	25.00	10
823	18	691	1	16	16.00	16
869	19	737	1	46	46.00	5
897	20	765	1	28	28.00	9
911	21	779	1	14	14.00	19
942	22	810	1	31	31.00	8
983	23	851	1	41	41.00	6





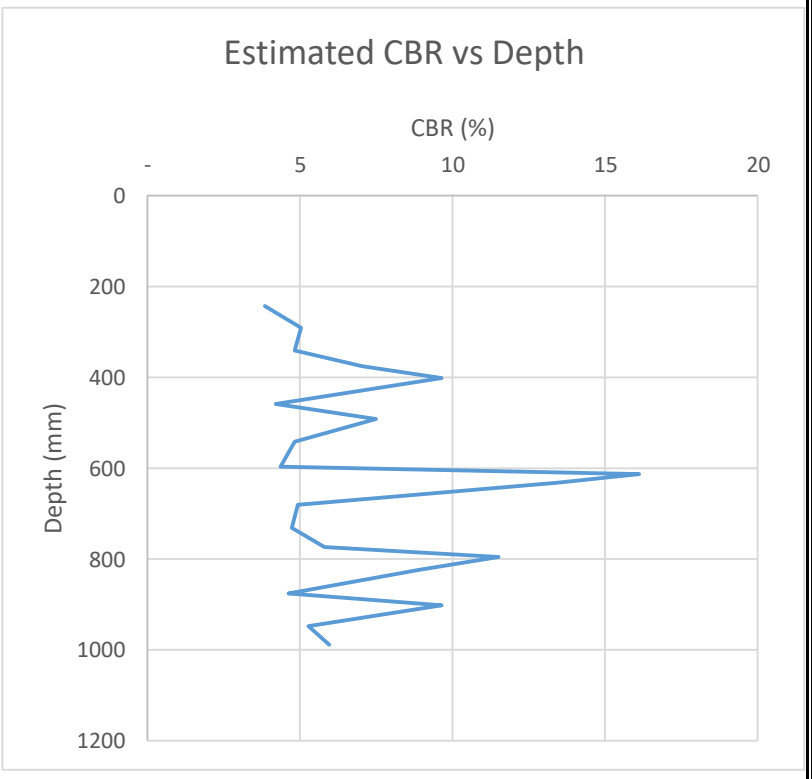
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 08**
Client:	Innova	

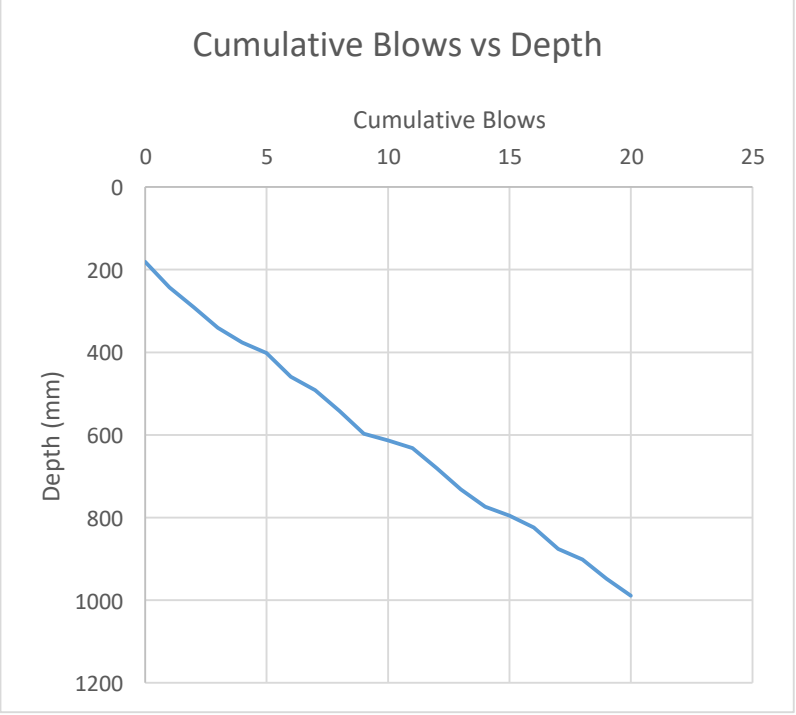
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 09
EW	23/02/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	181mm bgl	Topsoil	181		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
181	0	0	1	0		
243	1	62	1	62	62.00	4
291	2	110	1	48	48.00	5
341	3	160	1	50	50.00	5
376	4	195	1	35	35.00	7
402	5	221	1	26	26.00	10
459	6	278	1	57	57.00	4
492	7	311	1	33	33.00	7
542	8	361	1	50	50.00	5
597	9	416	1	55	55.00	4
613	10	432	1	16	16.00	16
632	11	451	1	19	19.00	13
681	12	500	1	49	49.00	5
732	13	551	1	51	51.00	5
774	14	593	1	42	42.00	6
796	15	615	1	22	22.00	12
824	16	643	1	28	28.00	9
876	17	695	1	52	52.00	5
902	18	721	1	26	26.00	10
948	19	767	1	46	46.00	5
989	20	808	1	41	41.00	6





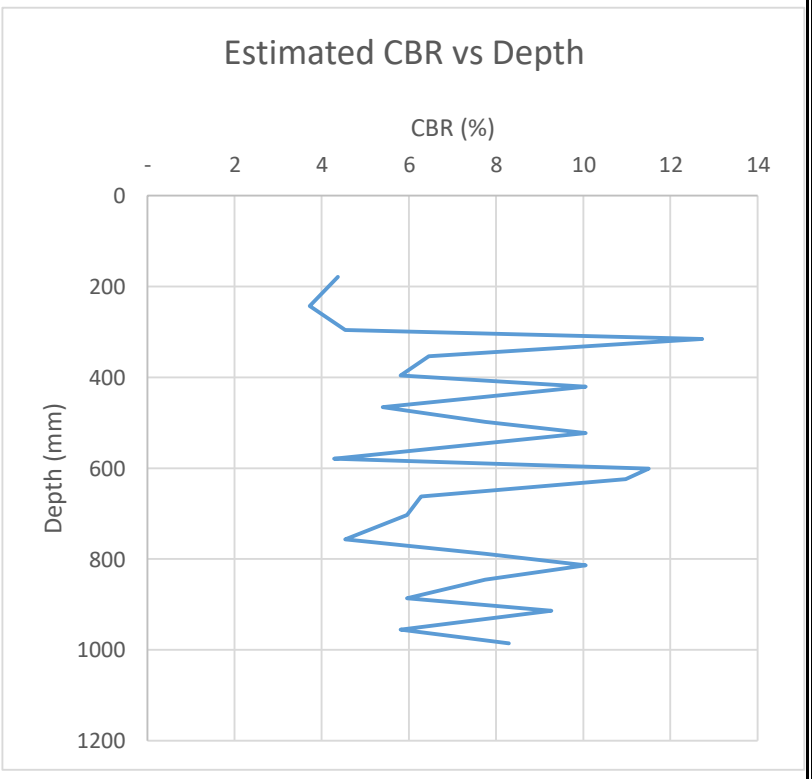
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 09**
Client:	Innova	

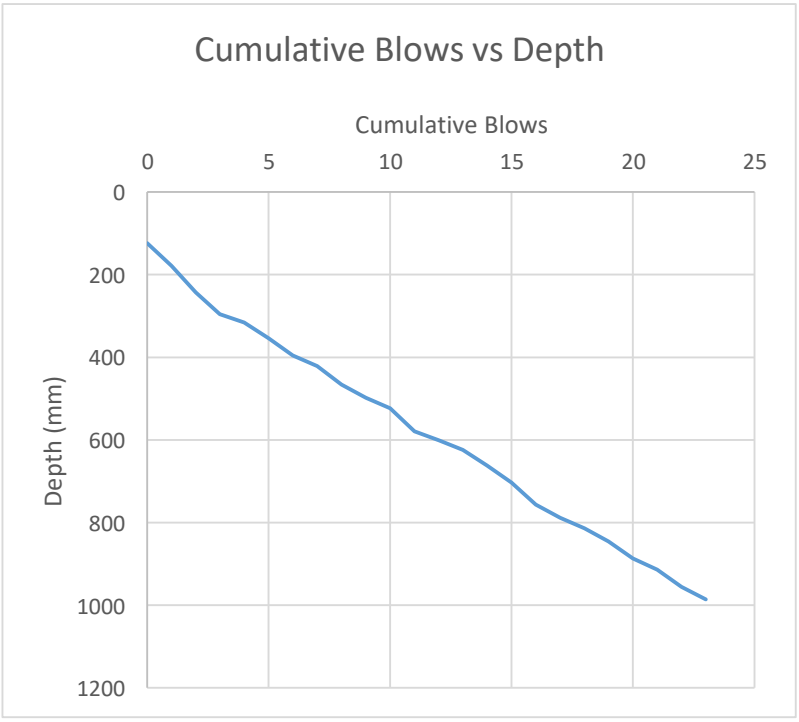
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 10
EW	23/02/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	124mm bgl	Topsoil	124		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
124	0	0	1	0		
179	1	55	1	55	55.00	4
243	2	119	1	64	64.00	4
296	3	172	1	53	53.00	5
316	4	192	1	20	20.00	13
354	5	230	1	38	38.00	6
396	6	272	1	42	42.00	6
421	7	297	1	25	25.00	10
466	8	342	1	45	45.00	5
498	9	374	1	32	32.00	8
523	10	399	1	25	25.00	10
579	11	455	1	56	56.00	4
601	12	477	1	22	22.00	12
624	13	500	1	23	23.00	11
663	14	539	1	39	39.00	6
704	15	580	1	41	41.00	6
757	16	633	1	53	53.00	5
789	17	665	1	32	32.00	8
814	18	690	1	25	25.00	10
846	19	722	1	32	32.00	8
887	20	763	1	41	41.00	6
914	21	790	1	27	27.00	9
956	22	832	1	42	42.00	6
986	23	862	1	30	30.00	8





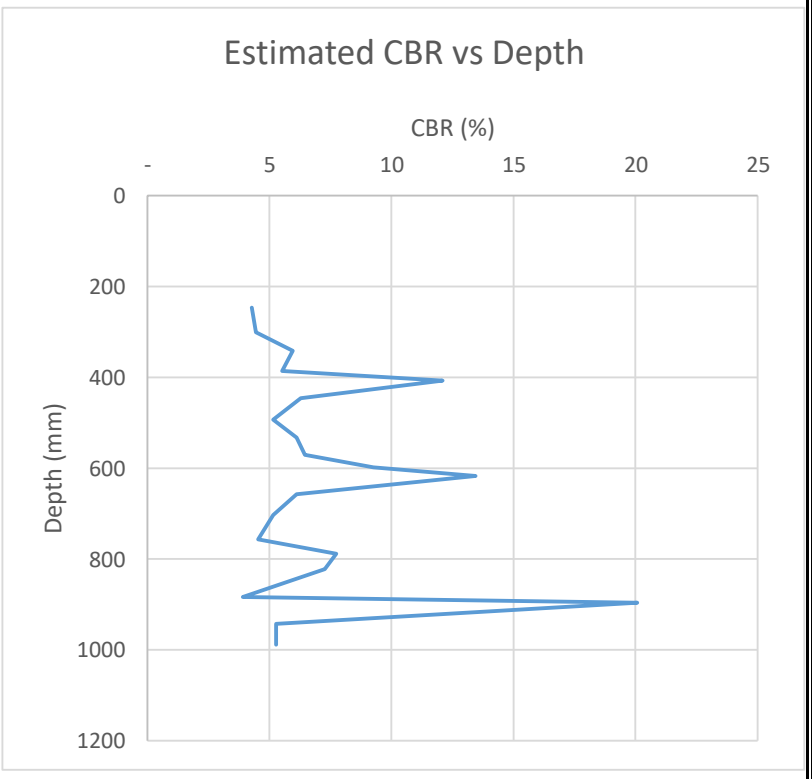
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 10**
Client:	Innova	

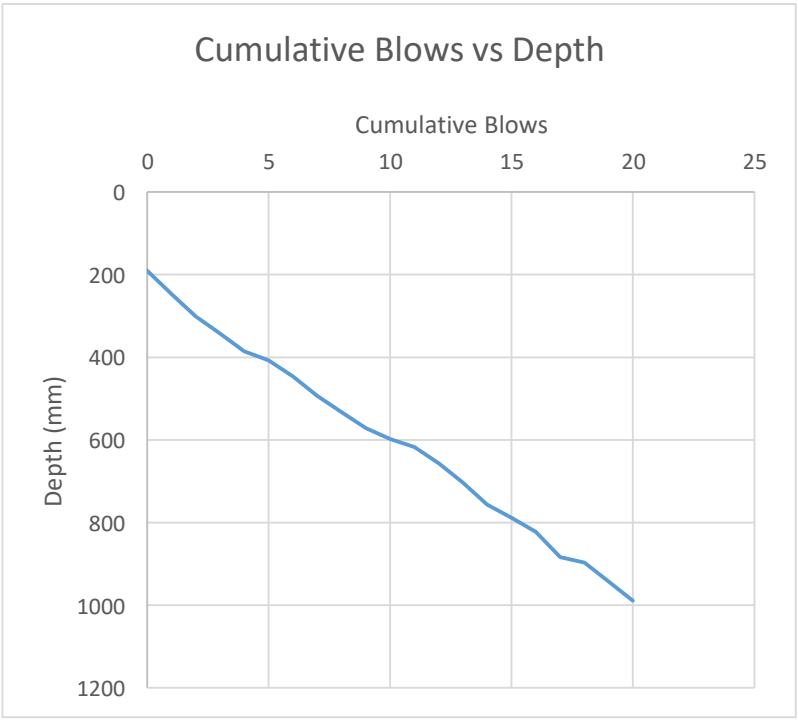
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 11
EW	23/02/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	191mm bgl	Topsoil	191		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
191	0	0	1	0		
247	1	56	1	56	56.00	4
301	2	110	1	54	54.00	4
342	3	151	1	41	41.00	6
386	4	195	1	44	44.00	6
407	5	216	1	21	21.00	12
446	6	255	1	39	39.00	6
493	7	302	1	47	47.00	5
533	8	342	1	40	40.00	6
571	9	380	1	38	38.00	6
598	10	407	1	27	27.00	9
617	11	426	1	19	19.00	13
657	12	466	1	40	40.00	6
704	13	513	1	47	47.00	5
757	14	566	1	53	53.00	5
789	15	598	1	32	32.00	8
823	16	632	1	34	34.00	7
884	17	693	1	61	61.00	4
897	18	706	1	13	13.00	20
943	19	752	1	46	46.00	5
989	20	798	1	46	46.00	5





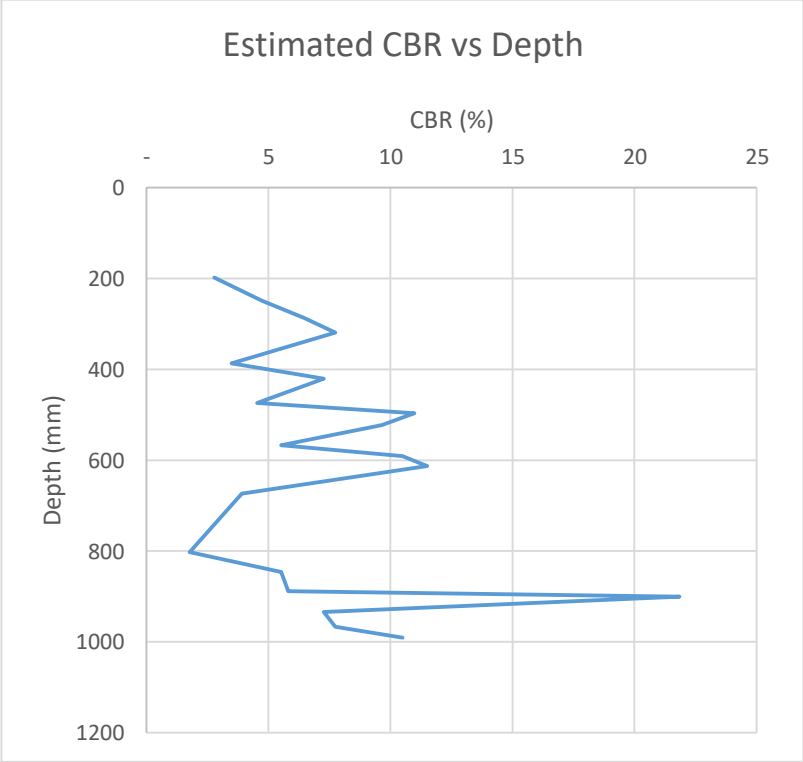
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 11**
Client:	Innova	

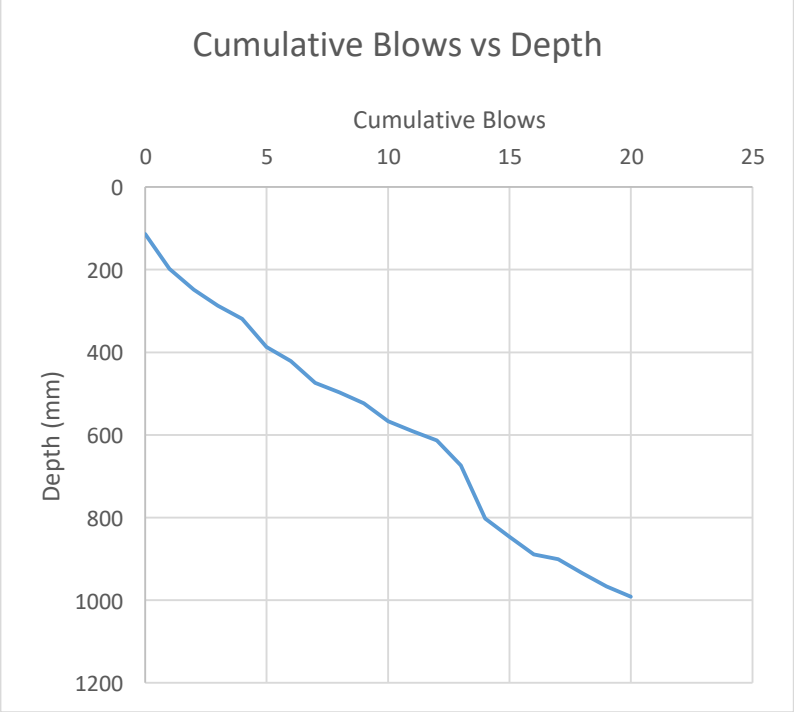
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 12
EW	23/02/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	114mm bgl	Topsoil	114		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
114	0	0	1	0		
198	1	84	1	84	84.00	3
249	2	135	1	51	51.00	5
287	3	173	1	38	38.00	6
319	4	205	1	32	32.00	8
387	5	273	1	68	68.00	3
421	6	307	1	34	34.00	7
474	7	360	1	53	53.00	5
497	8	383	1	23	23.00	11
523	9	409	1	26	26.00	10
567	10	453	1	44	44.00	6
591	11	477	1	24	24.00	10
613	12	499	1	22	22.00	12
674	13	560	1	61	61.00	4
803	14	689	1	129	129.00	2
847	15	733	1	44	44.00	6
889	16	775	1	42	42.00	6
901	17	787	1	12	12.00	22
935	18	821	1	34	34.00	7
967	19	853	1	32	32.00	8
991	20	877	1	24	24.00	10



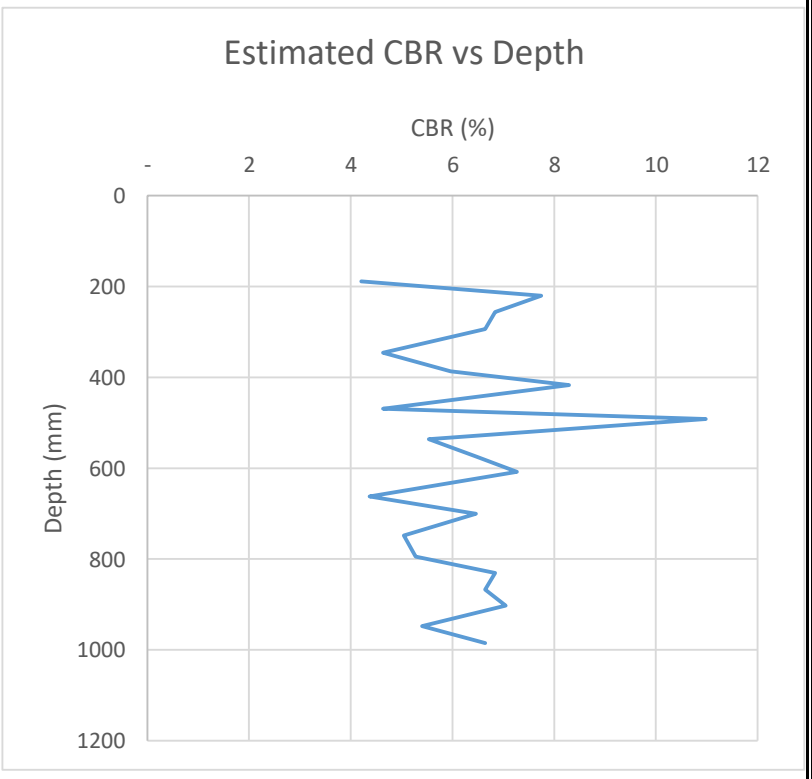


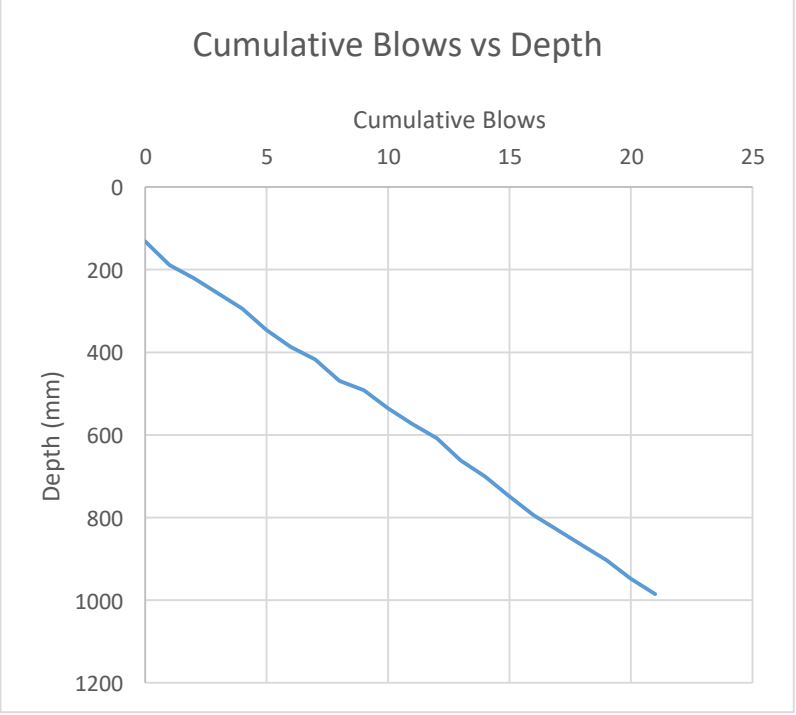
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 12**
Client:	Innova	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 13
EW	27/03/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	132 mm bgl	Topsoil	132		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
132	0	0	1	0		
189	1	57	1	57	57.00	4
221	2	89	1	32	32.00	8
257	3	125	1	36	36.00	7
294	4	162	1	37	37.00	7
346	5	214	1	52	52.00	5
387	6	255	1	41	41.00	6
417	7	285	1	30	30.00	8
469	8	337	1	52	52.00	5
492	9	360	1	23	23.00	11
536	10	404	1	44	44.00	6
574	11	442	1	38	38.00	6
608	12	476	1	34	34.00	7
663	13	531	1	55	55.00	4
701	14	569	1	38	38.00	6
749	15	617	1	48	48.00	5
795	16	663	1	46	46.00	5
831	17	699	1	36	36.00	7
868	18	736	1	37	37.00	7
903	19	771	1	35	35.00	7
948	20	816	1	45	45.00	5
985	21	853	1	37	37.00	7





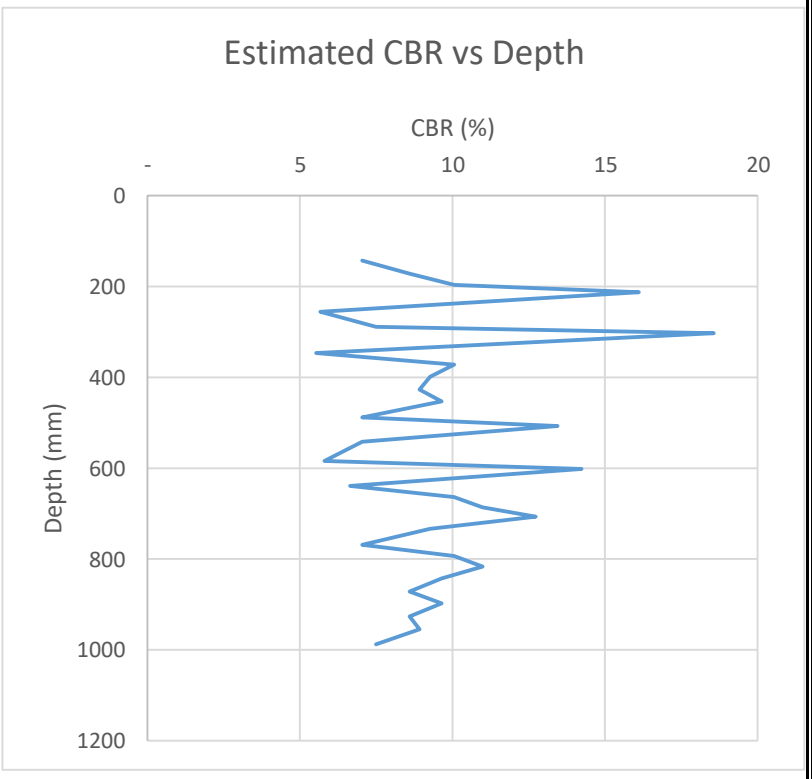
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 13**
Client:	Innova	

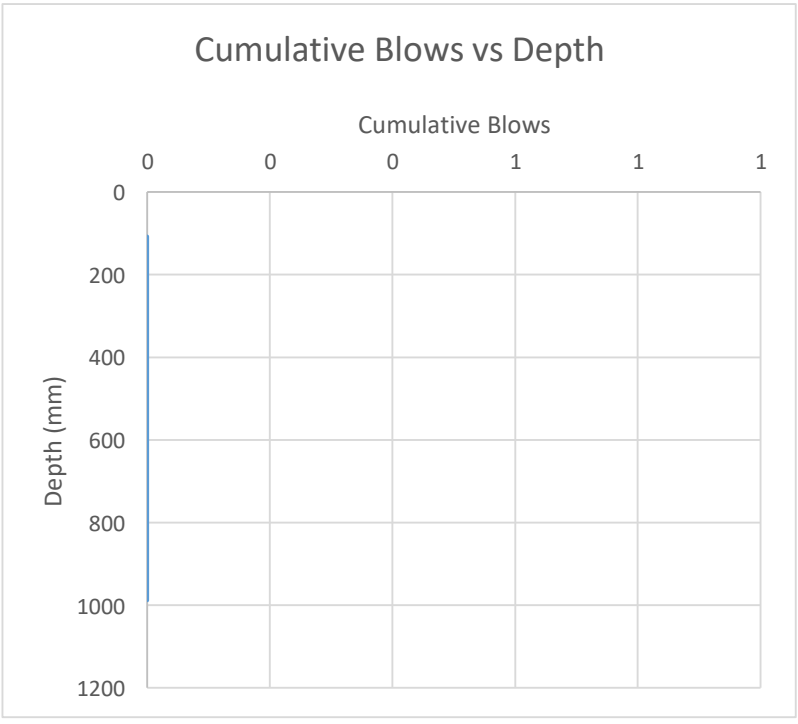
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 14
EW	27/03/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	108mm bgl	Topsoil	108		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
108	0	0	0	0		
143	0	35	1	35	35.00	7
172	0	64	1	29	29.00	9
197	0	89	1	25	25.00	10
213	0	105	1	16	16.00	16
256	0	148	1	43	43.00	6
289	0	181	1	33	33.00	7
303	0	195	1	14	14.00	19
347	0	239	1	44	44.00	6
372	0	264	1	25	25.00	10
399	0	291	1	27	27.00	9
427	0	319	1	28	28.00	9
453	0	345	1	26	26.00	10
488	0	380	1	35	35.00	7
507	0	399	1	19	19.00	13
542	0	434	1	35	35.00	7
584	0	476	1	42	42.00	6
602	0	494	1	18	18.00	14
639	0	531	1	37	37.00	7
664	0	556	1	25	25.00	10
687	0	579	1	23	23.00	11
707	0	599	1	20	20.00	13
734	0	626	1	27	27.00	9
769	0	661	1	35	35.00	7
794	0	686	1	25	25.00	10
817	0	709	1	23	23.00	11
843	0	735	1	26	26.00	10
872	0	764	1	29	29.00	9
898	0	790	1	26	26.00	10
927	0	819	1	29	29.00	9
955	0	847	1	28	28.00	9
988	0	880	1	33	33.00	7





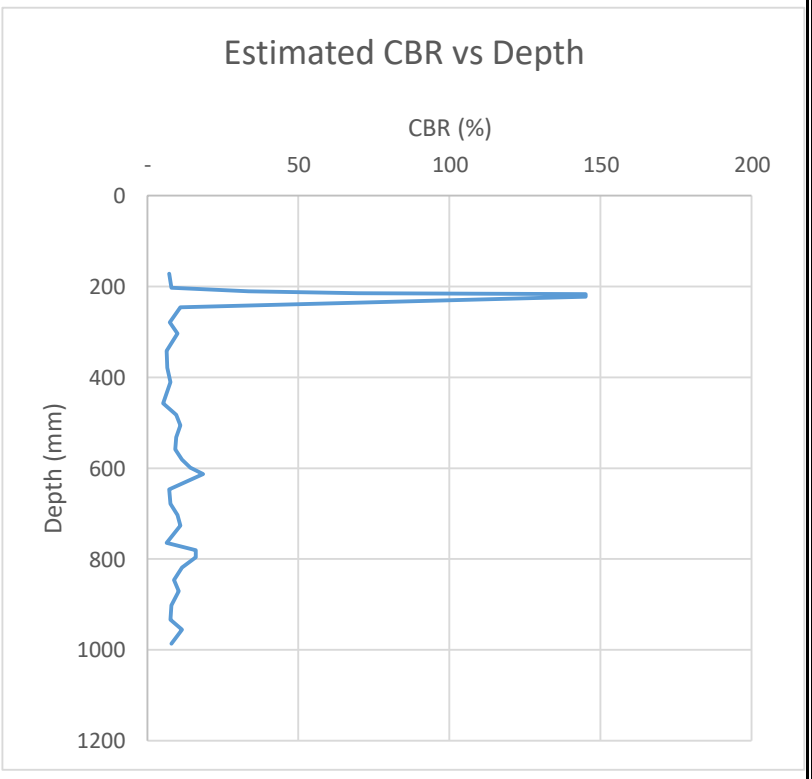
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 14**
Client:	Innova	

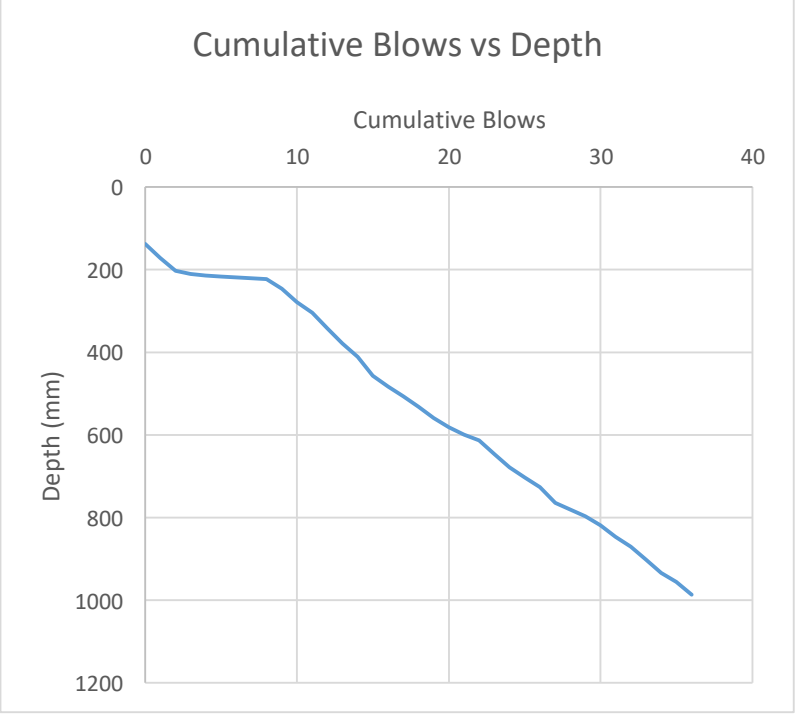
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 15
EW	27/03/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	138mm bgl	Topsoil	138		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
138	0	0	1	0		
172	1	34	1	34	34.00	7
203	2	65	1	31	31.00	8
211	3	73	1	8	8.00	34
215	4	77	1	4	4.00	70
217	5	79	1	2	2.00	>100
223	8	85	3	6	2.00	>100
246	9	108	1	23	23.00	11
279	10	141	1	33	33.00	7
304	11	166	1	25	25.00	10
342	12	204	1	38	38.00	6
379	13	241	1	37	37.00	7
411	14	273	1	32	32.00	8
457	15	319	1	46	46.00	5
483	16	345	1	26	26.00	10
506	17	368	1	23	23.00	11
532	18	394	1	26	26.00	10
559	19	421	1	27	27.00	9
581	20	443	1	22	22.00	12
599	21	461	1	18	18.00	14
613	22	475	1	14	14.00	19
647	23	509	1	34	34.00	7
679	24	541	1	32	32.00	8
704	25	566	1	25	25.00	10
727	26	589	1	23	23.00	11
765	27	627	1	38	38.00	6
781	28	643	1	16	16.00	16
797	29	659	1	16	16.00	16
819	30	681	1	22	22.00	12
847	31	709	1	28	28.00	9
871	32	733	1	24	24.00	10
902	33	764	1	31	31.00	8
934	34	796	1	32	32.00	8
956	35	818	1	22	22.00	12
987	36	849	1	31	31.00	8





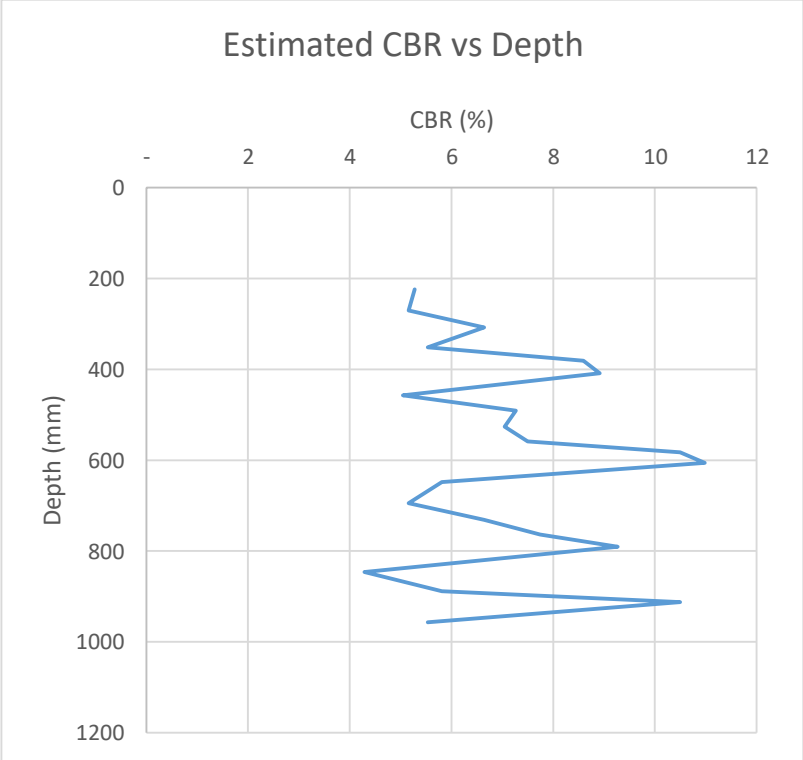
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 15**
Client:	Innova	

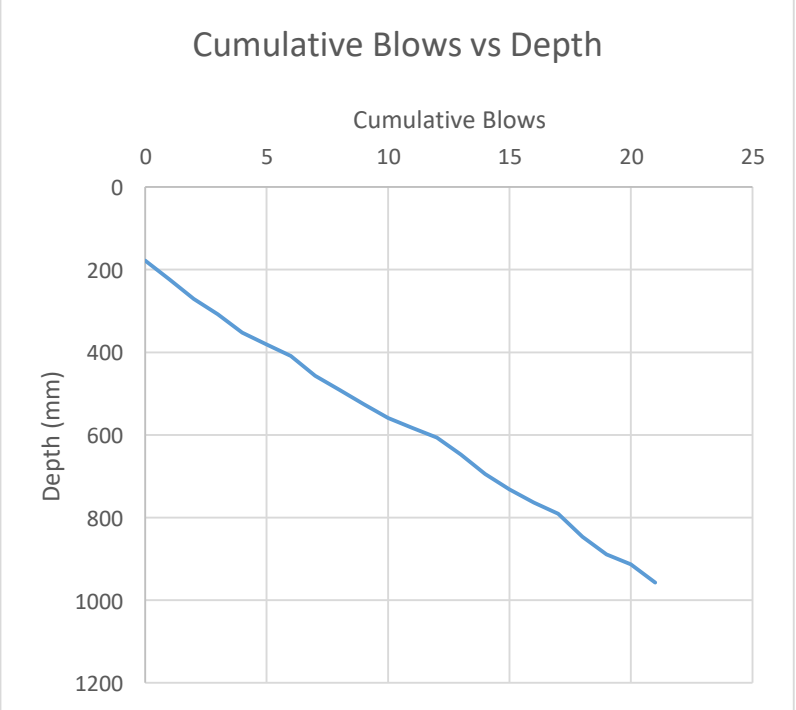
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 16
EW	27/03/2024	Raining	All tests commenced on soft landscaping. River flooded.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	178mm bgl	Topsoil	178		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
178	0	0	1	0		
224	1	46	1	46	46.00	5
271	2	93	1	47	47.00	5
308	3	130	1	37	37.00	7
352	4	174	1	44	44.00	6
381	5	203	1	29	29.00	9
409	6	231	1	28	28.00	9
457	7	279	1	48	48.00	5
491	8	313	1	34	34.00	7
526	9	348	1	35	35.00	7
559	10	381	1	33	33.00	7
583	11	405	1	24	24.00	10
606	12	428	1	23	23.00	11
648	13	470	1	42	42.00	6
695	14	517	1	47	47.00	5
732	15	554	1	37	37.00	7
764	16	586	1	32	32.00	8
791	17	613	1	27	27.00	9
847	18	669	1	56	56.00	4
889	19	711	1	42	42.00	6
913	20	735	1	24	24.00	10
957	21	779	1	44	44.00	6



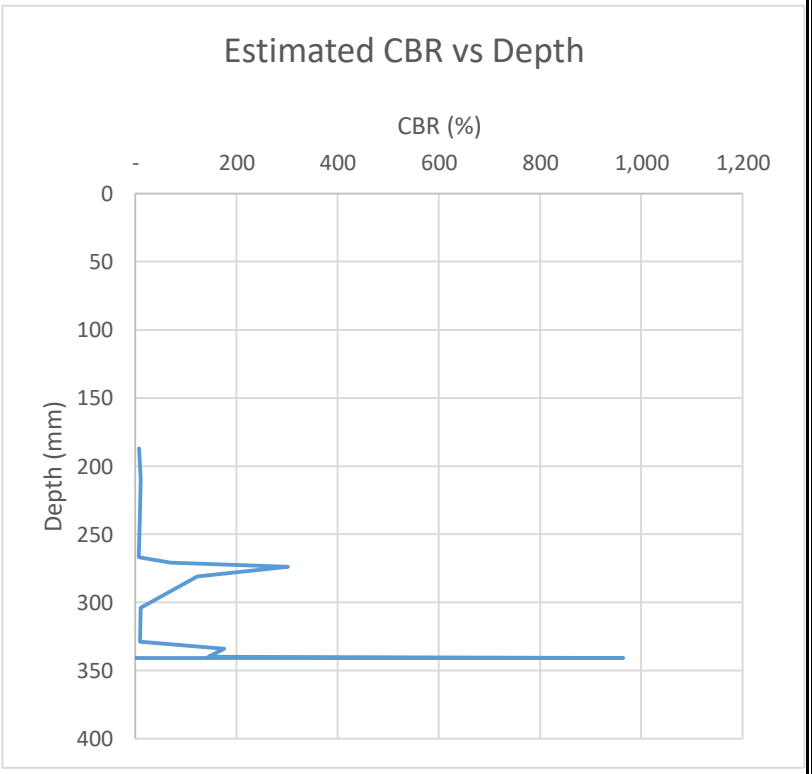


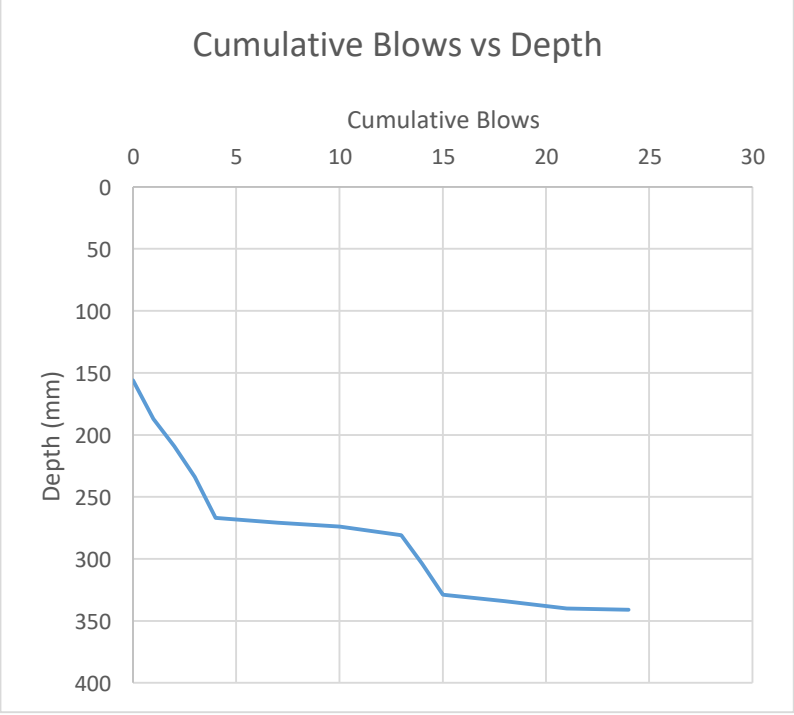
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 16**
Client:	Innova	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 17
EW	27/03/2024	Raining	All tests commenced on soft landscaping. Carried out on a s	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	
	156mm bgl	Topsoil	156		Grid:	

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
156	0	0	1	0		
187	1	31	1	31	31.00	8
209	2	53	1	22	22.00	12
234	3	78	1	25	25.00	10
267	4	111	1	33	33.00	7
271	7	115	1	4	4.00	70
274	10	118	3	3	1.00	>100
281	13	125	3	7	2.33	>100
304	14	148	1	23	23.00	11
329	15	173	1	25	25.00	10
334	18	178	3	5	1.67	>100
340	21	184	3	6	2.00	>100
341	24	185	3	1	0.33	>100





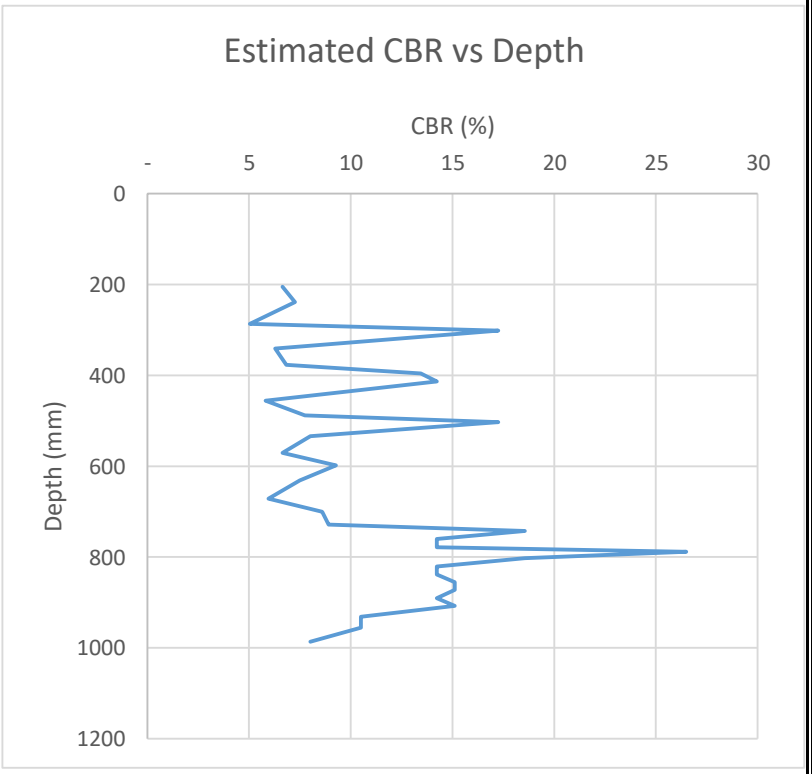
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 17**
Client:	Innova	

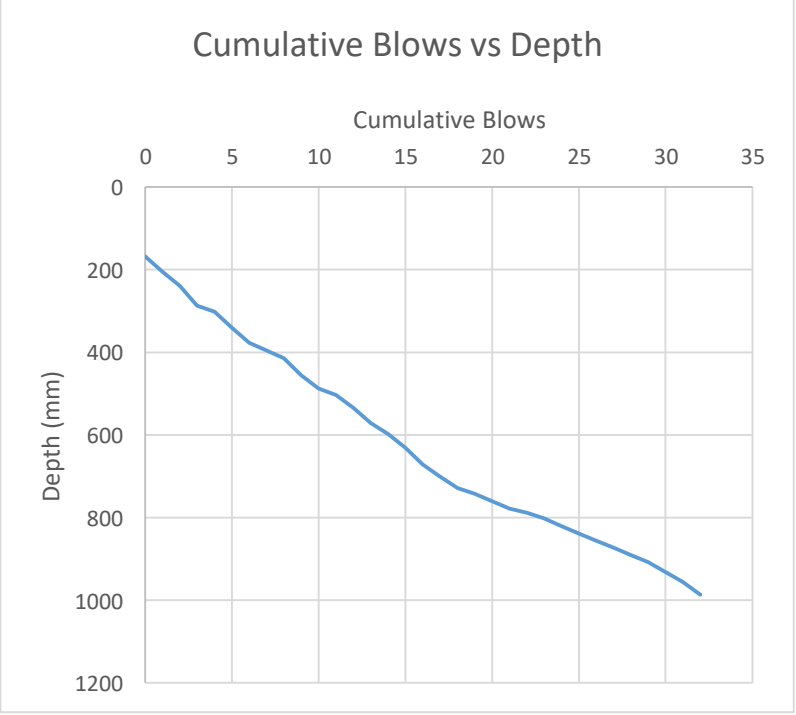
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 18
EW	27/03/2024	Raining	All tests commenced on soft landscaping. River has flooded	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	168mm bgl	Topsoil	168		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
168	0	0	1	0		
205	1	37	1	37	37.00	7
239	2	71	1	34	34.00	7
287	3	119	1	48	48.00	5
302	4	134	1	15	15.00	17
341	5	173	1	39	39.00	6
377	6	209	1	36	36.00	7
396	7	228	1	19	19.00	13
414	8	246	1	18	18.00	14
456	9	288	1	42	42.00	6
488	10	320	1	32	32.00	8
503	11	335	1	15	15.00	17
534	12	366	1	31	31.00	8
571	13	403	1	37	37.00	7
598	14	430	1	27	27.00	9
631	15	463	1	33	33.00	7
672	16	504	1	41	41.00	6
701	17	533	1	29	29.00	9
729	18	561	1	28	28.00	9
743	19	575	1	14	14.00	19
761	20	593	1	18	18.00	14
779	21	611	1	18	18.00	14
789	22	621	1	10	10.00	26
803	23	635	1	14	14.00	19
821	24	653	1	18	18.00	14
839	25	671	1	18	18.00	14
856	26	688	1	17	17.00	15
873	27	705	1	17	17.00	15
891	28	723	1	18	18.00	14
908	29	740	1	17	17.00	15
932	30	764	1	24	24.00	10
956	31	788	1	24	24.00	10
987	32	819	1	31	31.00	8





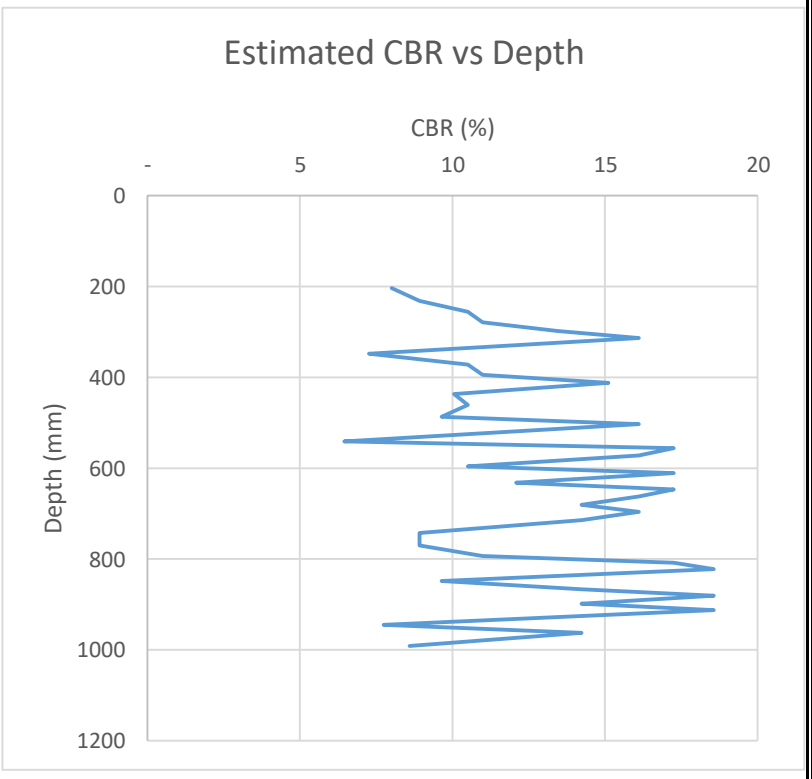
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 18**
Client:	Innova	

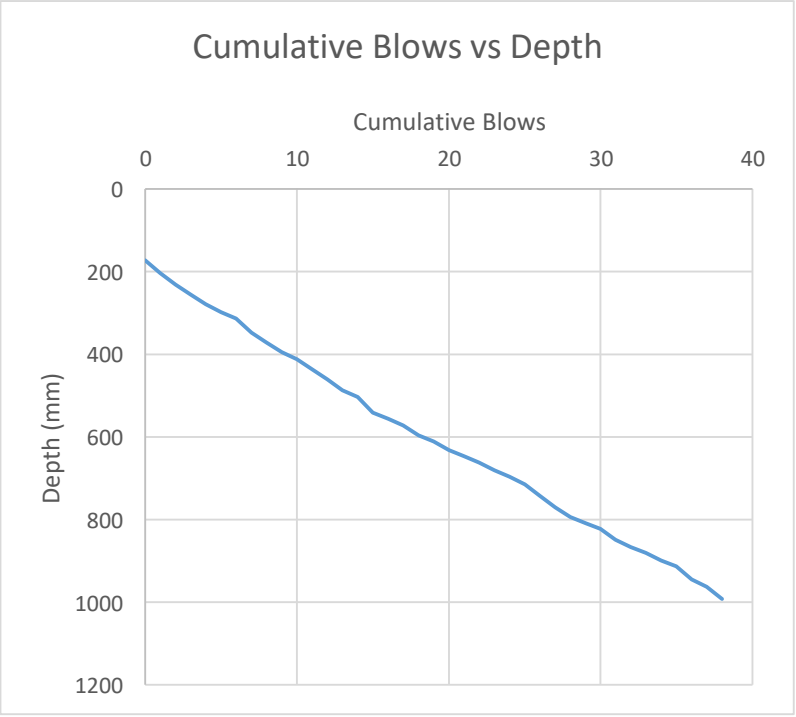
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 19
EW	27/03/2024	Cloudy	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	173mm bgl	Topsoil	173		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
173	0	0	1	0		
204	1	31	1	31	31.00	8
232	2	59	1	28	28.00	9
256	3	83	1	24	24.00	10
279	4	106	1	23	23.00	11
298	5	125	1	19	19.00	13
314	6	141	1	16	16.00	16
348	7	175	1	34	34.00	7
372	8	199	1	24	24.00	10
395	9	222	1	23	23.00	11
412	10	239	1	17	17.00	15
437	11	264	1	25	25.00	10
461	12	288	1	24	24.00	10
487	13	314	1	26	26.00	10
503	14	330	1	16	16.00	16
541	15	368	1	38	38.00	6
556	16	383	1	15	15.00	17
572	17	399	1	16	16.00	16
596	18	423	1	24	24.00	10
611	19	438	1	15	15.00	17
632	20	459	1	21	21.00	12
647	21	474	1	15	15.00	17
663	22	490	1	16	16.00	16
681	23	508	1	18	18.00	14
697	24	524	1	16	16.00	16
715	25	542	1	18	18.00	14
743	26	570	1	28	28.00	9
771	27	598	1	28	28.00	9
794	28	621	1	23	23.00	11
809	29	636	1	15	15.00	17
823	30	650	1	14	14.00	19
849	31	676	1	26	26.00	10
867	32	694	1	18	18.00	14
881	33	708	1	14	14.00	19
899	34	726	1	18	18.00	14
913	35	740	1	14	14.00	19
945	36	772	1	32	32.00	8
963	37	790	1	18	18.00	14
992	38	819	1	29	29.00	9



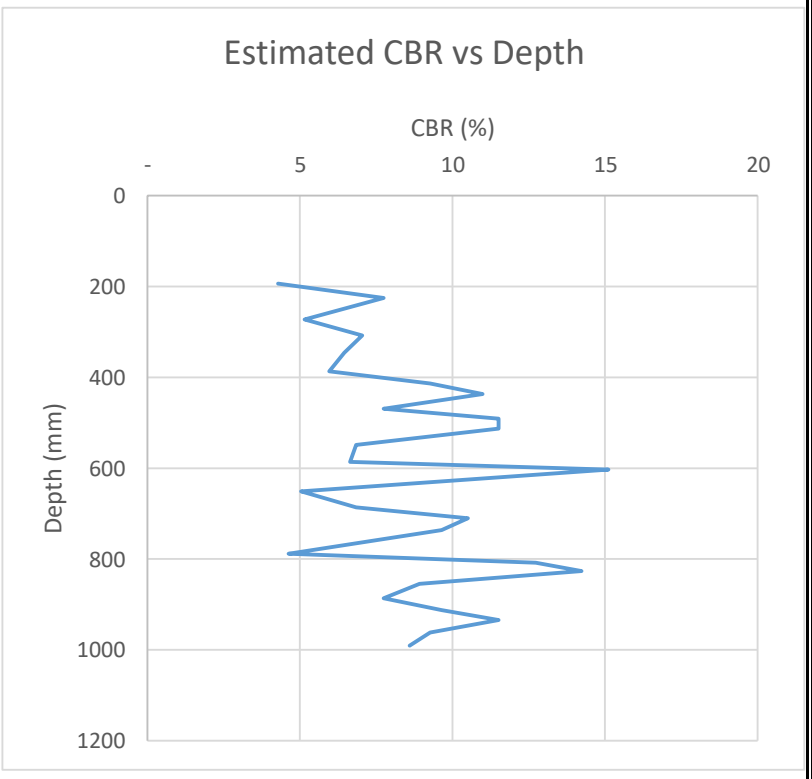


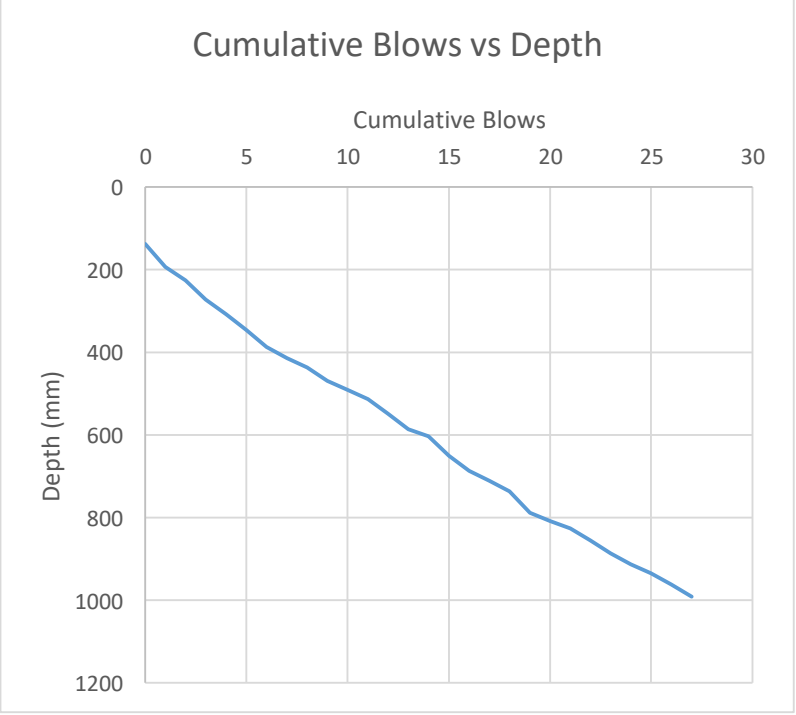
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 19**
Client:	Innova	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 20
EW	27/03/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	138mm bgl	Topsoil	138		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
138	0	0	1	0		
194	1	56	1	56	56.00	4
226	2	88	1	32	32.00	8
273	3	135	1	47	47.00	5
308	4	170	1	35	35.00	7
346	5	208	1	38	38.00	6
387	6	249	1	41	41.00	6
414	7	276	1	27	27.00	9
437	8	299	1	23	23.00	11
469	9	331	1	32	32.00	8
491	10	353	1	22	22.00	12
513	11	375	1	22	22.00	12
549	12	411	1	36	36.00	7
586	13	448	1	37	37.00	7
603	14	465	1	17	17.00	15
651	15	513	1	48	48.00	5
687	16	549	1	36	36.00	7
711	17	573	1	24	24.00	10
737	18	599	1	26	26.00	10
789	19	651	1	52	52.00	5
809	20	671	1	20	20.00	13
827	21	689	1	18	18.00	14
855	22	717	1	28	28.00	9
887	23	749	1	32	32.00	8
913	24	775	1	26	26.00	10
935	25	797	1	22	22.00	12
962	26	824	1	27	27.00	9
991	27	853	1	29	29.00	9



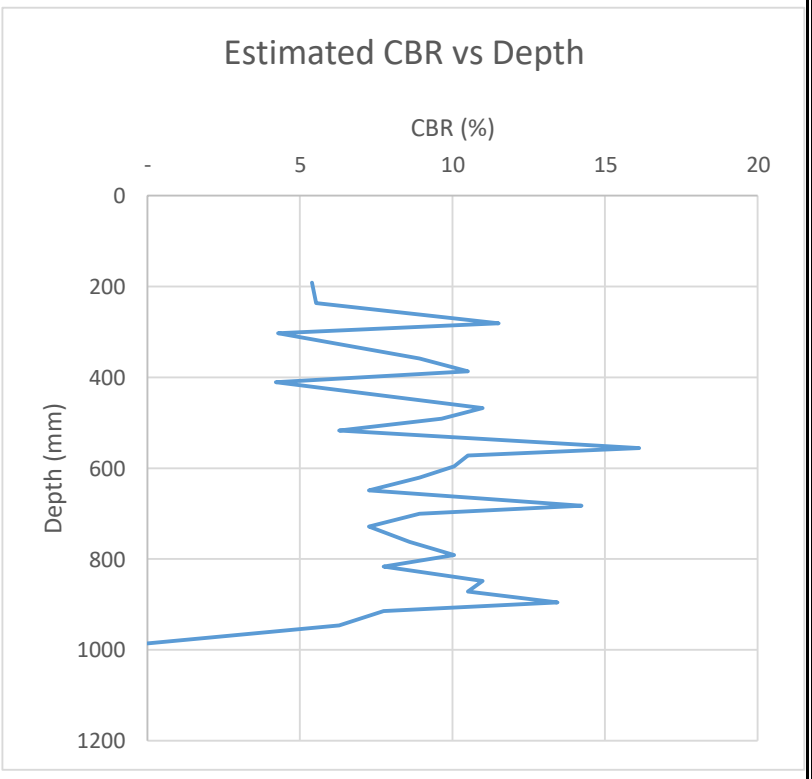


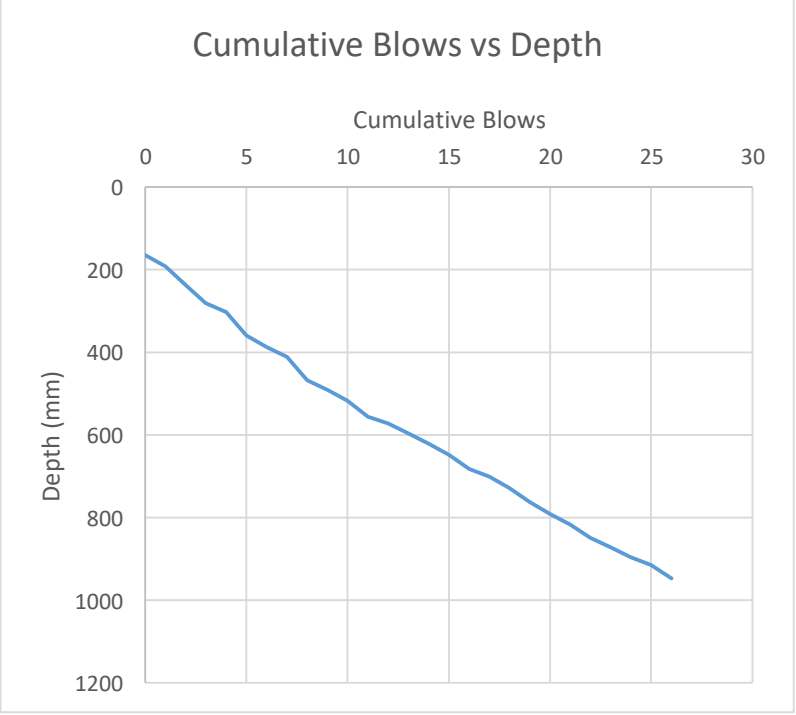
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 20**
Client:	Innova	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 21
EW	27/03/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	
	165mm bgl	Topsoil	165		Grid:	

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
165	0	27	1	27		
192	1	72	1	45	45.00	5
237	2	116	1	44	44.00	6
303	3	138	1	22	22.00	12
359	4	194	1	56	56.00	4
387	5	222	1	28	28.00	9
411	6	246	1	24	24.00	10
468	7	303	1	57	57.00	4
491	8	326	1	23	23.00	11
517	9	352	1	26	26.00	10
556	10	391	1	39	39.00	6
572	11	407	1	16	16.00	16
596	12	431	1	24	24.00	10
621	13	456	1	25	25.00	10
649	14	484	1	28	28.00	9
683	15	518	1	34	34.00	7
701	16	536	1	18	18.00	14
729	17	564	1	28	28.00	9
763	18	598	1	34	34.00	7
792	19	627	1	29	29.00	9
817	20	652	1	25	25.00	10
849	21	684	1	32	32.00	8
872	22	707	1	23	23.00	11
896	23	731	1	24	24.00	10
915	24	750	1	19	19.00	13
947	25	782	1	32	32.00	8
986	26	821	1	39	39.00	6





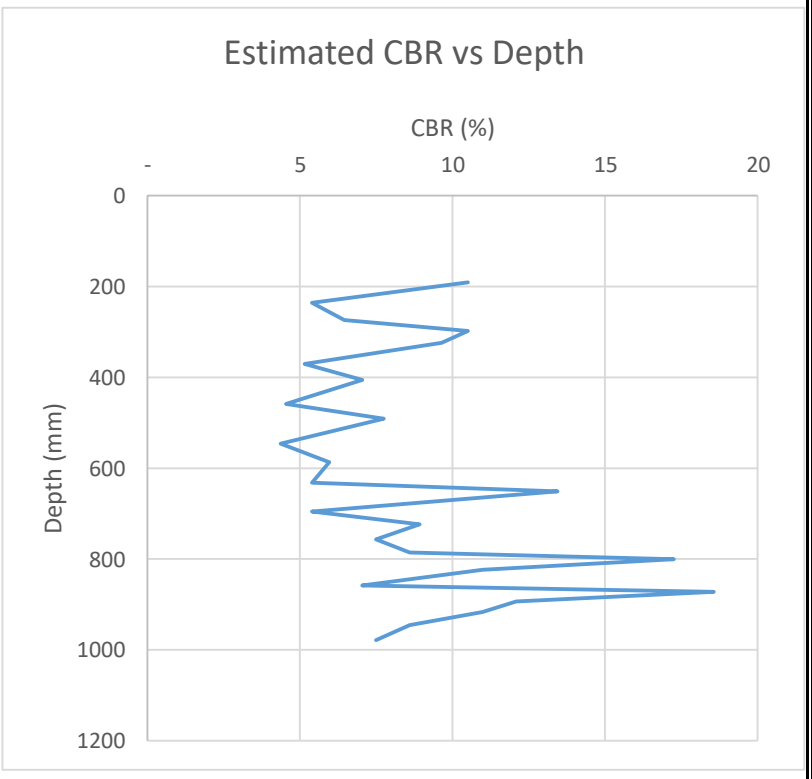
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 21**
Client:	Innova	

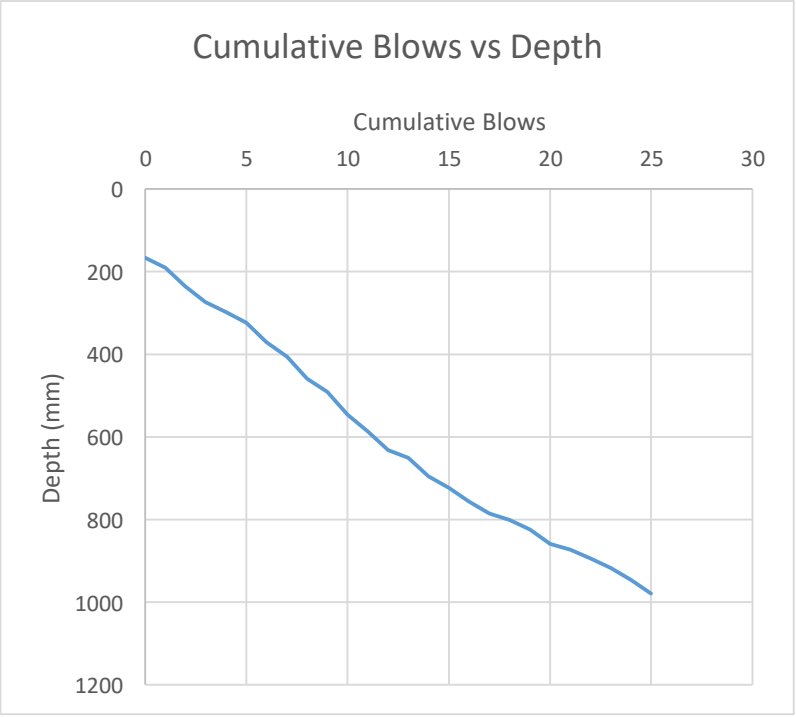
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 22
EW	27/03/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	167mm bgl	Topsoil	167		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
167	0	0	1	0		
191	1	24	1	24	24.00	10
236	2	69	1	45	45.00	5
274	3	107	1	38	38.00	6
298	4	131	1	24	24.00	10
324	5	157	1	26	26.00	10
371	6	204	1	47	47.00	5
406	7	239	1	35	35.00	7
459	8	292	1	53	53.00	5
491	9	324	1	32	32.00	8
546	10	379	1	55	55.00	4
587	11	420	1	41	41.00	6
632	12	465	1	45	45.00	5
651	13	484	1	19	19.00	13
696	14	529	1	45	45.00	5
724	15	557	1	28	28.00	9
757	16	590	1	33	33.00	7
786	17	619	1	29	29.00	9
801	18	634	1	15	15.00	17
824	19	657	1	23	23.00	11
859	20	692	1	35	35.00	7
873	21	706	1	14	14.00	19
894	22	727	1	21	21.00	12
917	23	750	1	23	23.00	11
946	24	779	1	29	29.00	9
979	25	812	1	33	33.00	7





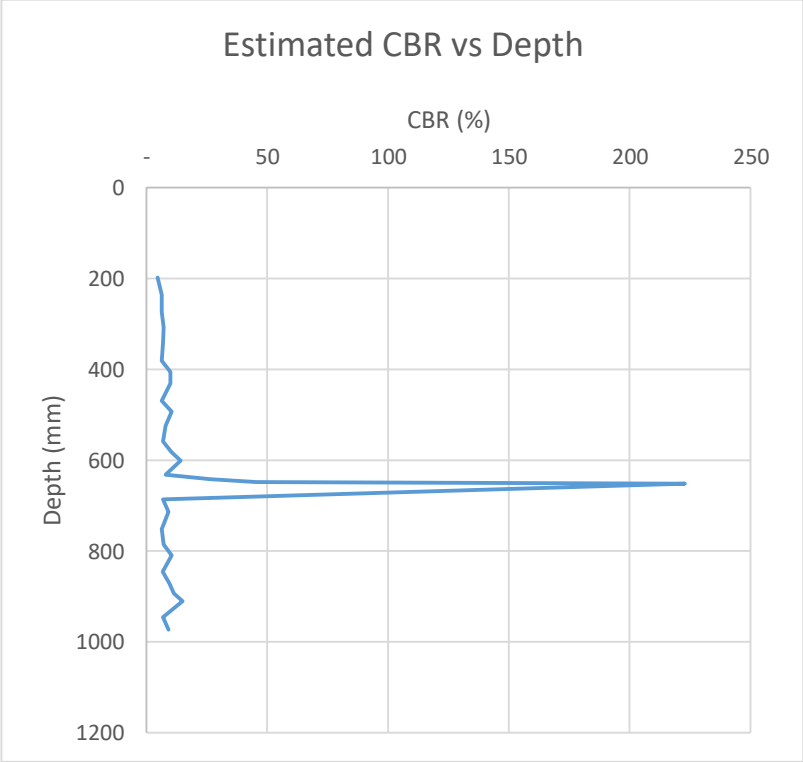
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 22**
Client:	Innova	

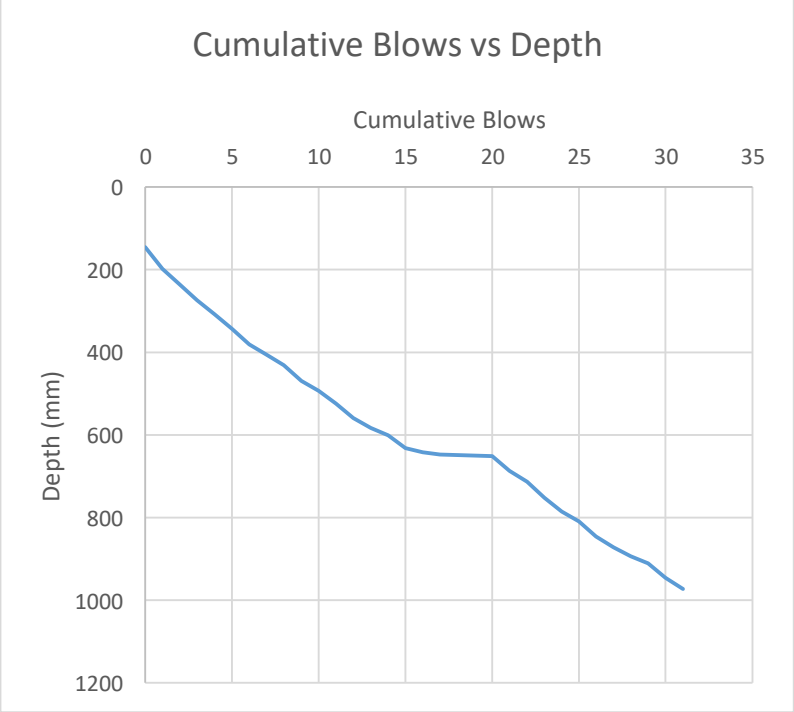
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 23
EW	27/03/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	146mm bgl	Topsoil	146		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
146	0	0	1	0		
198	1	52	1	52	52.00	5
236	2	90	1	38	38.00	6
274	3	128	1	38	38.00	6
308	4	162	1	34	34.00	7
343	5	197	1	35	35.00	7
381	6	235	1	38	38.00	6
406	7	260	1	25	25.00	10
431	8	285	1	25	25.00	10
469	9	323	1	38	38.00	6
493	10	347	1	24	24.00	10
524	11	378	1	31	31.00	8
559	12	413	1	35	35.00	7
583	13	437	1	24	24.00	10
601	14	455	1	18	18.00	14
632	15	486	1	31	31.00	8
642	16	496	1	10	10.00	26
648	17	502	1	6	6.00	45
652	20	506	3	4	1.33	>100
687	21	541	1	35	35.00	7
714	22	568	1	27	27.00	9
752	23	606	1	38	38.00	6
786	24	640	1	34	34.00	7
810	25	664	1	24	24.00	10
846	26	700	1	36	36.00	7
872	27	726	1	26	26.00	10
894	28	748	1	22	22.00	12
911	29	765	1	17	17.00	15
946	30	800	1	35	35.00	7
973	31	827	1	27	27.00	9





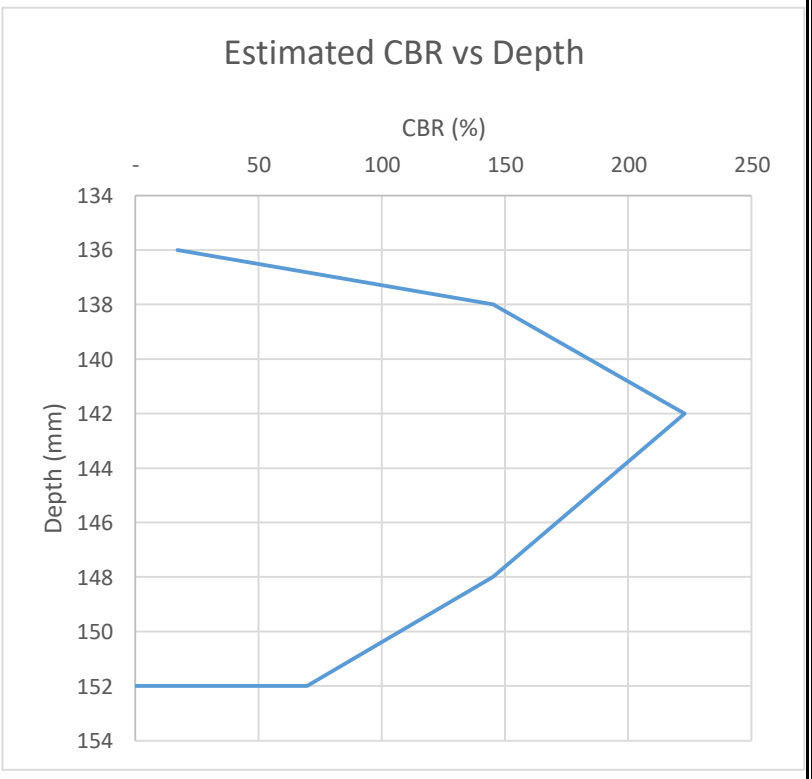
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 23**
Client:	Innova	

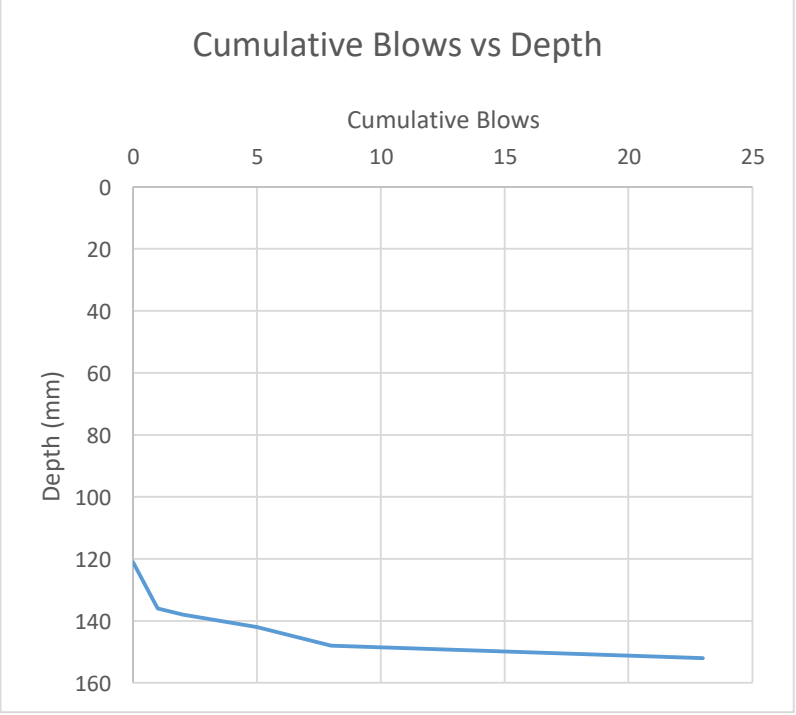
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 24
EW	27/03/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:
	121mm bgl	Topsoil	121		Grid:

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
121	0	0	1	0		
136	1	15	1	15	15.00	17
138	2	17	1	2	2.00	>100
142	5	21	3	4	1.33	>100
148	8	27	3	6	2.00	>100
152	23	31	1	4	4.00	70





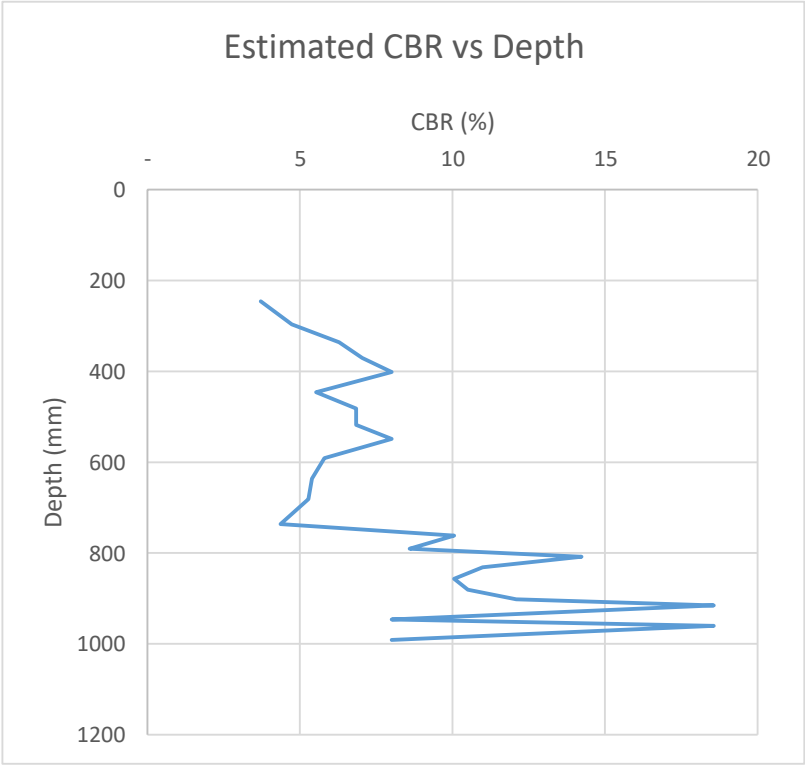
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 24**
Client:	Innova	

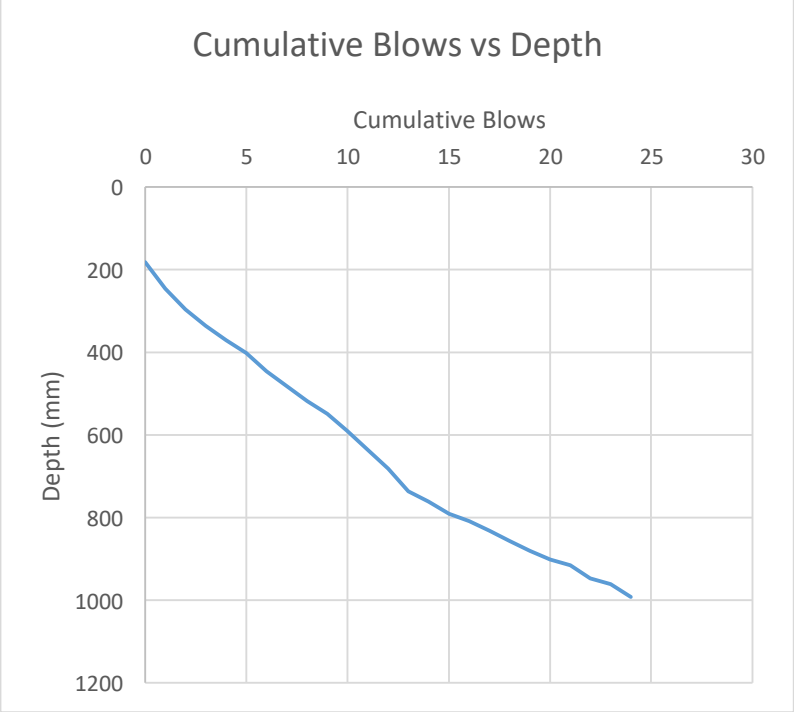
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 25
EW	27/03/2024	Sunny	All tests commenced on soft landscaping.	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	
	182mm bgl	Topsoil	182		Grid:	

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
182	0	0	1	0		
246	1	64	1	64	64.00	4
297	2	115	1	51	51.00	5
336	3	154	1	39	39.00	6
371	4	189	1	35	35.00	7
402	5	220	1	31	31.00	8
446	6	264	1	44	44.00	6
482	7	300	1	36	36.00	7
518	8	336	1	36	36.00	7
549	9	367	1	31	31.00	8
591	10	409	1	42	42.00	6
636	11	454	1	45	45.00	5
682	12	500	1	46	46.00	5
737	13	555	1	55	55.00	4
762	14	580	1	25	25.00	10
791	15	609	1	29	29.00	9
809	16	627	1	18	18.00	14
832	17	650	1	23	23.00	11
857	18	675	1	25	25.00	10
881	19	699	1	24	24.00	10
902	20	720	1	21	21.00	12
916	21	734	1	14	14.00	19
947	22	765	1	31	31.00	8
961	23	779	1	14	14.00	19
992	24	810	1	31	31.00	8





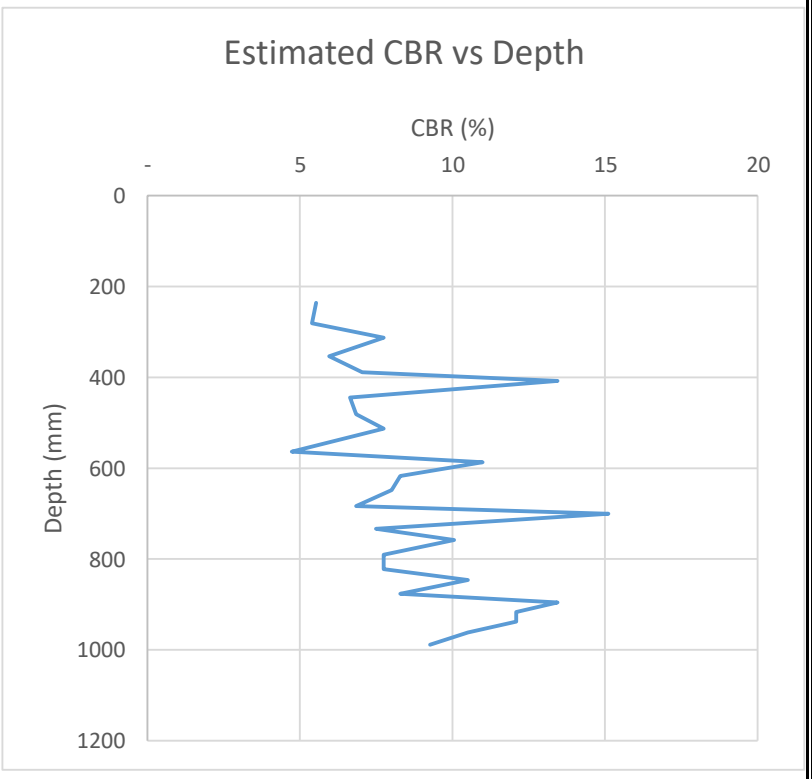
Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 25**
Client:	Innova	

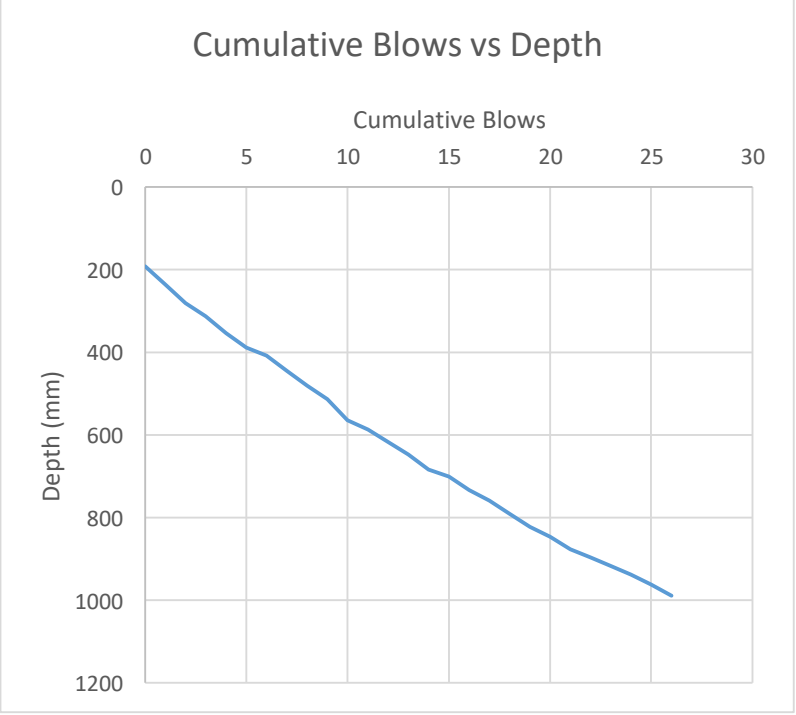
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 26
EW	27/03/2024	Sunny	All tests commenced on soft landscaping. Ground is floode	mE:	
				mN:	
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	
	192mm bgl	Topsoil	192		Grid:	

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
192	0	0	1	0		
236	1	44	1	44	44.00	6
281	2	89	1	45	45.00	5
313	3	121	1	32	32.00	8
354	4	162	1	41	41.00	6
389	5	197	1	35	35.00	7
408	6	216	1	19	19.00	13
445	7	253	1	37	37.00	7
481	8	289	1	36	36.00	7
513	9	321	1	32	32.00	8
564	10	372	1	51	51.00	5
587	11	395	1	23	23.00	11
617	12	425	1	30	30.00	8
648	13	456	1	31	31.00	8
684	14	492	1	36	36.00	7
701	15	509	1	17	17.00	15
734	16	542	1	33	33.00	7
759	17	567	1	25	25.00	10
791	18	599	1	32	32.00	8
823	19	631	1	32	32.00	8
847	20	655	1	24	24.00	10
877	21	685	1	30	30.00	8
896	22	704	1	19	19.00	13
917	23	725	1	21	21.00	12
938	24	746	1	21	21.00	12
962	25	770	1	24	24.00	10
989	26	797	1	27	27.00	9





Project Name:	Wrexham Solar Farm	Test reference:
Project ID:	GSI 2006	**TRL DCP 26**
Client:	Innova	

APPENDIX D

UXO BOREHOLE CLEARANCE REPORT



Unexploded Ordnance (UXO) Specialist
Borehole Support Report

Project Name	Wrexham solar Farm, Wales
Client	GeoCon Site Investigations Ltd
Site Address	Wrexham solar Farm, Wales
Report Reference	BH11819c-00
Date	28th February 2024
Author	OH
Final Check	LR

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Annexes

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Unexploded Ordnance (UXO) Specialist Borehole Support Report

Site: Wrexham solar Farm, Wales
Client: GeoCon Site Investigations Ltd

1. Introduction

1.1. Background

GeoCon Site Investigations Ltd commissioned 1st Line Defence to provide UXO Borehole Clearance at Wrexham solar Farm between the 20th and 22nd of February 2024.

A third party report was carried out which concluded that there is a medium risk from UXBs across the site. As a consequence, GeoCon Site Investigations Ltd appointed 1st Line Defence to provide risk mitigation services.

1.2. Site Location

The surrounding area is largely rural in nature, in addition to Wrexham Industrial Park located adjacent to the north-west of the site.

The site is approximately centred on the OS grid reference: SJ 38074 48386.

1.3. Aim

The aims of a UXO Specialist being present at Wrexham solar Farm were to:

1. Carry out UXO Awareness Briefings. The briefings included:
    - Nature of likely explosive ordnance on the site.
    - Basic ordnance recognition training.
    - What to do if a suspicious item is encountered.
2. Provide Borehole Support to planned site investigation works.

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2. UXO Borehole Support

2.1. Support Methodology

Prior to commencing drilling, the area around the proposed borehole location is scanned with hand-held Magnetrometry instrumentation to check for the presence of ferrous anomalies which have the potential to be UXO-related. These are lifetime calibrated, and tested before each hole. If a shallow anomaly is present it will be investigated, identified and cleared. If the location is heavily contaminated by ferrous material, an alternative location for the borehole may be found in consultation with the Client.

Once the UXO Supervisor/Specialist is satisfied that the surface is sufficiently clear of metal, to allow the bore-holing to commence, the drilling equipment begins operations and continues the safe depth advised by the UXO Supervisor/Specialist (usually 1m increments).

When the depth is reached the drilling equipment is removed from the location and a 'borehole mode' magnetometer sensor introduced into the hole. The UXO Supervisor/Specialist uses this equipment to survey the hole to a new depth and once clear, the rig returns and drills to this new safe depth.

It is necessary for the drillers to lower a plastic (non-ferrous) or steel casing down the hole if open holed. Once installed, ferrous steel casing is required to be withdrawn a minimum of 3.0m from the base of the hole. A survey is conducted and once the UXO Supervisor/Specialist provides clearance, the non-ferrous liner is withdrawn by the drillers and drilling resumes to the indicated safe depth.

This sequence of operations continues until a depth is reached at which the UXO Supervisor/Specialist is satisfied that there is no longer a threat from buried ordnance. At this point, drilling can continue at this location without UXO support.

This methodology will only provide clearance for specific site investigation locations and not for future intrusive works.

If an anomaly is located in the path of the drill, the UXO Supervisor/Specialist will advise that drilling is to cease, and will inform the Client accordingly. A decision will then have to be made whether to investigate and identify the source of the anomaly, or to leave it in situ and simply record its location. It may be necessary to sink a new borehole to complete the site investigation program.

2.2. Permit to Excavate and Service Clearance

The client carried out service clearance and issued Permits to Work.

2.3. Borehole Support

The UXO Borehole support was carried out between the 20th and 22nd February 2024. The following UXO Specialist was in attendance:

Personnel	
Date of Site Attendance	UXO Specialist
20th – 22nd February 2024	Rob McDonald

2.4. Variations

There were no variations to the works on site.

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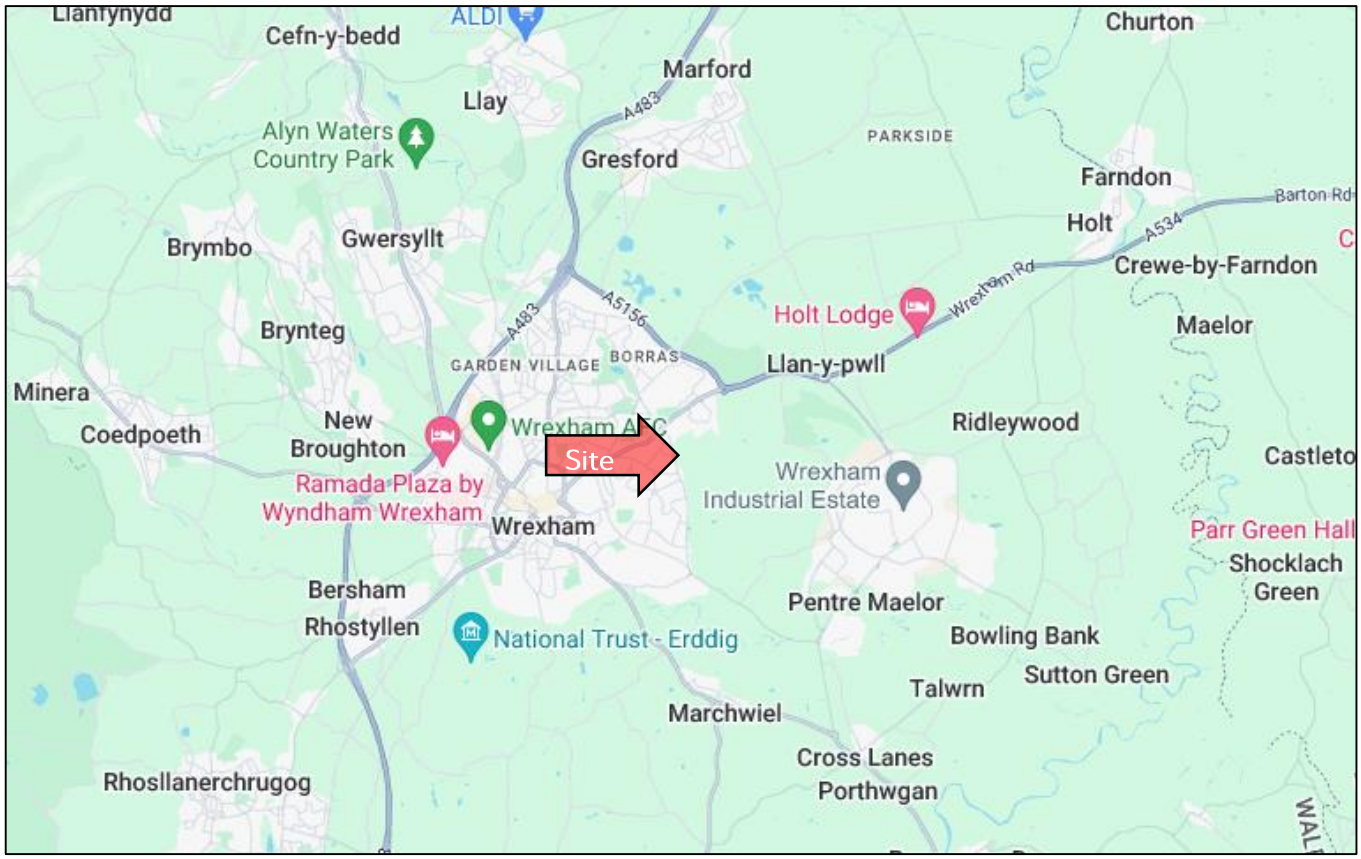
3. Summary of UXO Specialist Support

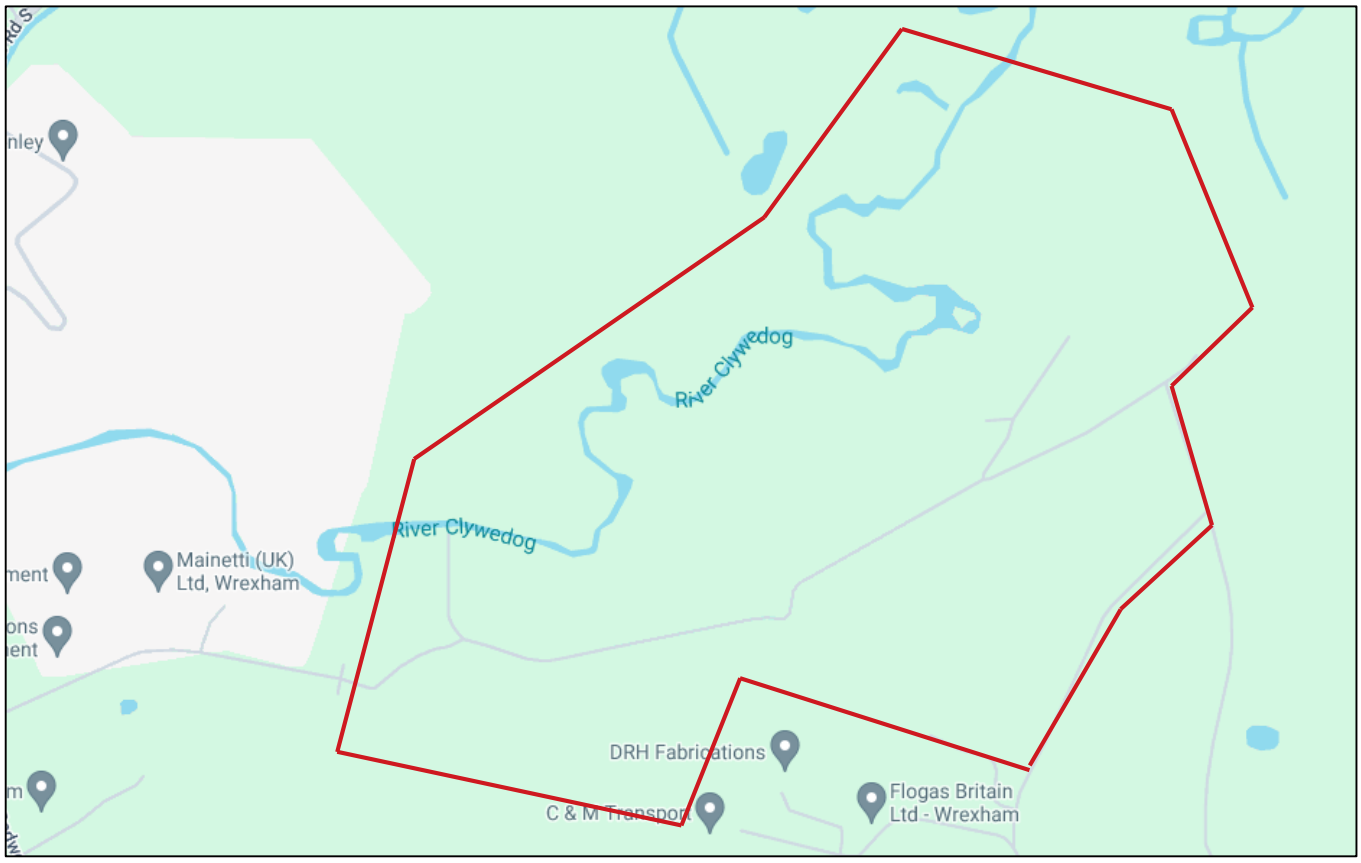
UXO Borehole Support operations at Wrexham Solar Farm between the 20th and 22nd February 2024 was supported/supervised by a 1st Line Defence UXO Supervisor. A total of 16 boreholes were surveyed.

No anomalies were detected or encountered on any of the exploratory locations, and the risk of encountering UXO is considered to have been reduced to as low as reasonably practicable.

28th February 2024

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Unit 3, Maple Park,
Essex Road, Hoddesdon,
Hertfordshire. EN11 0EX
Email: info@1stlinedefence.co.uk
Tel: +44 (0)1992 245 020

Client: GeoCon Site Investigations Ltd

Approximate site boundary

Project: Wrexham solar Farm, Wales

N

Ref: BH11819c-00

Source: Google Maps

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Date	20-02-24	**Day**	Tuesday	**Serial**	001
Client	Geocon	**OPN**	11819c		
Site	Bedwell Road, Cross Lanes, Wrexham, LL13 0TS	**Site Area**	Bedwell Road, Cross Lanes, Wrexham, LL13 0TS		
Locator Type	Sensys	**Main Unit Serial No**	1LDFA223	**Probe Serial No**	1LDFA224
Cable Serial No	1LDFA239	**Drilling Method**	Cable Punctuation		

Borehole Reference	Test Depth	SPT Reading	Casing Material	Depth to which it is safe to proceed	Anomaly Detected (Y/N)	Mode & Sensitivity Settings	Strata	Comments	Total Time Taken (HR : MIN)
WS01	0	Nil	Nil	1	N	1-300	Top soil into medium clay	No inspection pit	1101
WS01	1	16	Nil	2	N	1-300	Medium clay into very dense clay with flint		1118
WS01	2	31	Nil	3	N	1-300	Rig struggling to get through	Clear of UXO due to ground strata	1120
WS02	0	Nil	Nil	1	N	1-300	Top soil into medium clay	No inspection pit	1209
WS02	1	18	Nil	2	N	1-300	Medium clay into very dense clay with flint		1219
WS02	2	41	Nil	3	N	1-300	Rig struggling to get through	Clear of UXO due to ground strata	1236

WS03	0	Nil	Nil	1	N	1-300	Top soil into medium clay	No inspection pit	1307
WS03	1	16	Nil	2	N	1-300	Medium clay into very dense clay with flint		1319
WS03	2	20	Nil	3	N	1-300	Rig struggling to get through	Clear of UXO due to ground strata	1340
WS04	0	Nil	Nil	1	N	1-300	Top soil into medium clay	No inspection pit	1350
WS04	1		Nil	2	N	1-300	Medium clay into very dense clay with flint		1406
WS04	2		Nil	3	N	1-300	Rig struggling to get through	Clear of UXO due to ground strata	1425

Carried out by 1LD UXO Specialist's Name	Robert McDonald	**UXO Specialist's Signature**	

Date	21-02-24	**Day**	Wednesday	**Serial**	002
Client	Geocon	**OPN**	11819c		
Site	Bedwell Road, Cross Lanes, Wrexham, LL13 0TS	**Site Area**	Bedwell Road, Cross Lanes, Wrexham, LL13 0TS		
Locator Type	Sensys	**Main Unit Serial No**	1LDFA223	**Probe Serial No**	1LDFA224
Cable Serial No	1LDFA239	**Drilling Method**	Cable Punctuation		

Borehole Reference	Test Depth	SPT Reading	Casing Material	Depth to which it is safe to proceed	Anomaly Detected (Y/N)	Mode & Sensitivity Settings	Strata	Comments	Total Time Taken (HR : MIN)
WS05	0	Nil	Nil	1	N	1-300	Top soil into medium clay	No inspection pit	0900
WS05	1	14	Nil	2	N	1-300	Medium clay into very dense clay with flint		0916
WS05	2	25	Nil	3	N	1-300	Rig struggling to get through	Clear of UXO due to ground strata	0930
WS06	0	Nil	Nil	1	N	1-300	Top soil into medium clay	No inspection pit	1030
WS06	1	18	Nil	2	N	1-300	Medium clay into very dense clay with flint		1041
WS06	2	32	Nil	3	N	1-300	Rig struggling to get through	Clear of UXO due to ground strata	1100

WS07	0	Nil	Nil	1	N	1-300	Top soil into medium clay	No inspection pit	1121
WS07	1	20	Nil	2	N	1-300	Medium clay into very dense clay with flint		1130
WS07	2	26	Nil	3	N	1-300	Rig struggling to get through	Clear of UXO due to ground strata	1150
WS08	0	Nil	Nil	1	N	1-300	Top soil into medium clay	No inspection pit	1350
WS08	1	16	Nil	2	N	1-300	Medium clay into very dense clay with flint		1417
WS08	2	21	Nil	3	N	1-300	Rig struggling to get through	Clear of UXO due to ground strata	1440
WS09	0	Nil	Nil	1	N	1-300	Top soil into medium clay	No inspection pit	1502
WS09	1	7	Nil	2	N	1-300	Medium clay into very dense clay with flint		1431
WS09	2	4	Nil	3	N	1-300	Rig struggling to get through	Clear of UXO due to ground strata	1445
WS10	0	Nil	Nil	1	N	1-300	Top soil into medium clay	No inspection pit	1500
WS10	1	8	Nil	2	N	1-300	Medium clay into very dense clay with flint		1517

WS10	2	11	Nil	3	N	1-300	Rig struggling to get through	Clear of UXO due to ground strata	1532

Carried out by 1LD UXO Specialist's Name	Robert McDonald	**UXO Specialist's Signature**	

Date	22-02-24	**Day**	Thursday	**Serial**	003
Client	Geocon	**OPN**	11819c		
Site	Bedwell Road, Cross Lanes, Wrexham, LL13 0TS	**Site Area**	Bedwell Road, Cross Lanes, Wrexham, LL13 0TS		
Locator Type	Sensys	**Main Unit Serial No**	1LDFA223	**Probe Serial No**	1LDFA224
Cable Serial No	1LDFA239	**Drilling Method**	Window sample		

Borehole Reference	Test Depth	SPT Reading	Casing Material	Depth to which it is safe to proceed	Anomaly Detected (Y/N)	Mode & Sensitivity Settings	Strata	Comments	Total Time Taken (HR : MIN)
WS11	0		Nil	1	N	1-300	Top soil into medium clay	No inspection pit	0830
WS11	1	16	Nil	2	N	1-300	Medium clay into very dense clay with flint		0901
WS11	2	18	Nil	3	N	1-300	Rig struggling to get through	Clear of UXO due to ground strata	0921

Carried out by 1LD UXO Specialist's Name	Robert McDonald	**UXO Specialist's Signature**	

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APPENDIX E

CHEMICAL LABORATORY TESTING RESULTS

Sample Deviation Report

GeoCon Site Investigations Ltd☐
Suite 2 Marple House
39 Stockport Road
Marple
Stockport
SK6 6BD

e: liam.daley@geoconsiteinvestigations.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-007176

Project / Site name:	Wrexham Solar Farm	**Samples received on:**	05/03/2024
Your job number:	GSI 2006	**Samples instructed on/ Analysis started on:**	05/03/2024
Your order number:	PO 24-0130	**Analysis completed by:**	13/03/2024
Report Issue Number:	1	**Report issued on:**	16/03/2024
Samples Analysed:	12 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136041	136046	136047	136048	136049
Sample Reference				WS18	WS13	WS14	WS15	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.20	0.60	0.60	0.40
Date Sampled				23/02/2024	22/02/2024	22/02/2024	22/02/2024	21/02/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	36	24	20	17
Total mass of sample received	kg	0.1	NONE	0.2	0.8	0.9	0.2	0.9
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU	SPU	SPU	SPU	SPU
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	7.6	7.2	6.8	7.5	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.8	5.2	1.5	1.5	1.6
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.12	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.12	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.09	0.35	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.1	0.33	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.19	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.22	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.36	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.11	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.27	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.17	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.07	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.19	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	2.38	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2	8.3	9	7.4	9.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	3.6	1.8	2.1	0.5
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	27	13	20	14	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	25	19	16	43
Lead (aqua regia extractable)	mg/kg	1	MCERTS	210	1000	500	630	55
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	21	28	21	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	730	300	370	87

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136041	136046	136047	136048	136049
Sample Reference				WS18	WS13	WS14	WS15	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.20	0.60	0.60	0.40
Date Sampled				23/02/2024	22/02/2024	22/02/2024	22/02/2024	21/02/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	-	< 0.020	-	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	-	< 0.020	-	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	-	< 0.050	-	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	-	< 2.0	-	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	-	< 8.0	-	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	-	29	-	< 8.0	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	-	29	-	< 10	< 10
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	-	< 0.010	-	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	-	< 0.010	-	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	-	< 0.050	-	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	-	< 2.0	-	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	-	< 10	-	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	-	28	-	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	-	28	-	< 10	< 10
VOCs								
Chloromethane	µg/kg	5	ISO 17025	-	< 5.0 ##	-	< 5.0 ##	< 5.0 ##
Chloroethane	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	< 5.0 ##	-	< 5.0 ##	< 5.0 ##
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
Chloroform	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	< 5.0

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136041	136046	136047	136048	136049
Sample Reference				WS18	WS13	WS14	WS15	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.20	0.60	0.60	0.40
Date Sampled				23/02/2024	22/02/2024	22/02/2024	22/02/2024	21/02/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
p & m-Xylene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	< 5.0
SVOCs								
Aniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	-	< 0.05	-	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	-	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	< 0.2

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136041	136046	136047	136048	136049
Sample Reference				WS18	WS13	WS14	WS15	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.20	0.60	0.60	0.40
Date Sampled				23/02/2024	22/02/2024	22/02/2024	22/02/2024	21/02/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	< 0.2
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	-	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.30	-	< 0.30	< 0.30
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	-	< 0.3	-	< 0.3	< 0.3
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	< 0.3	-	< 0.3	< 0.3
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	-	0.001	-	< 0.001	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	-	0.002	-	< 0.001	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	-	0.002	-	< 0.001	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	-	0.003	-	< 0.001	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	-	0.002	-	< 0.001	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	< 0.001
Total PCBs	mg/kg	0.007	MCERTS	-	0.009	-	< 0.007	< 0.007

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136050	136051	136052	136053	136054
Sample Reference				WS10	WS11	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.20	0.60	0.40	0.40
Date Sampled				21/02/2024	22/02/2024	20/02/2024	20/02/2024	24/02/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	27	13	11	11
Total mass of sample received	kg	0.1	NONE	0.2	1.2	0.9	0.8	0.9
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU	SPU	SPU	SPU	SPU
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	7.4	7.2	8.2	7.9	7.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.6	3.1	0.2	0.3	0.5
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.09	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.07	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.6	11	6.2	6.3	11
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.5	1.4	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	29	18	20	39
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	27	16	7.1	25
Lead (aqua regia extractable)	mg/kg	1	MCERTS	520	610	24	19	24
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	25	25	16	15	43
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	270	320	39	42	71

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136050	136051	136052	136053	136054
Sample Reference				WS10	WS11	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.20	0.60	0.40	0.40
Date Sampled				21/02/2024	22/02/2024	20/02/2024	20/02/2024	24/02/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	-	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	-	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	-	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	-	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	-	< 8.0	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	< 10	-	< 10	< 10
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	-	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	-	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	-	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	-	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	-	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	< 10	-	< 10	< 10
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0 ##	< 5.0 ##	-	< 5.0 ##	< 5.0 ##
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
Chloroform	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	< 5.0	< 5.0

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136050	136051	136052	136053	136054
Sample Reference				WS10	WS11	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.20	0.60	0.40	0.40
Date Sampled				21/02/2024	22/02/2024	20/02/2024	20/02/2024	24/02/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	-	< 5.0	< 5.0
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	-	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	-	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	-	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	-	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	-	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	-	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	-	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	-	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	-	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	-	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	-	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	-	< 0.2	< 0.2

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136050	136051	136052	136053	136054
Sample Reference				WS10	WS11	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.20	0.60	0.40	0.40
Date Sampled				21/02/2024	22/02/2024	20/02/2024	20/02/2024	24/02/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	-	< 0.2	< 0.2
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	-	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	< 0.30	-	< 0.30	< 0.30
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	-	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3	-	< 0.3	< 0.3
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3	-	< 0.3	< 0.3
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
Total PCBs	mg/kg	0.007	MCERTS	< 0.007	< 0.007	-	< 0.007	< 0.007

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136055	136056
Sample Reference				WS05	WS06
Sample Number				None Supplied	None Supplied
Depth (m)				0.40	0.40
Date Sampled				21/02/2024	21/02/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	21	14
Total mass of sample received	kg	0.1	NONE	0.8	0.9
Asbestos					
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ
General Inorganics					
pH (L099)	pH Units	N/A	MCERTS	7.5	7.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.1	0.4
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.1	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.09	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	8.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	10
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	26
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	73	44

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136055	136056
Sample Reference				WS05	WS06
Sample Number				None Supplied	None Supplied
Depth (m)				0.40	0.40
Date Sampled				21/02/2024	21/02/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Petroleum Hydrocarbons					
TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	-
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	-
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	-
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	-
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	-
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	-
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	-
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	-
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	-
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	-
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	-
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	-
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	-
VOCs					
Chloromethane	µg/kg	5	ISO 17025	< 5.0	-
Chloroethane	µg/kg	5	NONE	< 5.0	-
Bromomethane	µg/kg	5	ISO 17025	< 5.0	-
Vinyl Chloride	µg/kg	5	NONE	< 5.0	-
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	-
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0 ##	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	-
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	-
Chloroform	µg/kg	5	ISO 17025	< 5.0	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	-
Carbontetrachloride	µg/kg	5	NONE	< 5.0	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	-
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	-
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-
Toluene	µg/kg	5	MCERTS	< 5.0	-
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	-
Tetrachloroethene	µg/kg	5	NONE	< 5.0	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	-
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136055	136056
Sample Reference				WS05	WS06
Sample Number				None Supplied	None Supplied
Depth (m)				0.40	0.40
Date Sampled				21/02/2024	21/02/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	-
Styrene	µg/kg	5	ISO 17025	< 5.0	-
Bromoform	µg/kg	5	NONE	< 5.0	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	-
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	-
Bromobenzene	µg/kg	5	NONE	< 5.0	-
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	-
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-
Butylbenzene	µg/kg	5	NONE	< 5.0	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	-

Sample Deviation Report

Analytical Report Number: 24-007176
Project / Site name: Wrexham Solar Farm
Your Order No: PO 24-0130

Lab Sample Number				136055	136056
Sample Reference				WS05	WS06
Sample Number				None Supplied	None Supplied
Depth (m)				0.40	0.40
Date Sampled				21/02/2024	21/02/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	-
Azobenzene	mg/kg	0.3	NONE	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	-
Anthraquinone	mg/kg	0.3	NONE	< 0.3	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	-
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	-
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	-
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	-
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	-
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	-
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	-

Total PCBs	mg/kg	0.007	MCERTS	< 0.007	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Sample Deviation Report

Analytical Report Number : 24-007176
Project / Site name: Wrexham Solar Farm

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
136041	WS18	None Supplied	0.5	Brown clay with vegetation
136046	WS13	None Supplied	0.2	Brown clay and loam with vegetation
136047	WS14	None Supplied	0.6	Brown clay with vegetation
136048	WS15	None Supplied	0.6	Brown sand with vegetation
136049	WS08	None Supplied	0.4	Brown clay
136050	WS10	None Supplied	0.6	Brown sand with vegetation
136051	WS11	None Supplied	0.2	Brown clay and loam with vegetation
136052	WS02	None Supplied	0.6	Brown clay and sand
136053	WS03	None Supplied	0.4	Brown clay and sand
136054	WS04	None Supplied	0.4	Brown clay and sand
136055	WS05	None Supplied	0.4	Brown clay and sand
136056	WS06	None Supplied	0.4	Brown clay and sand with vegetation

Sample Deviation Report

Analytical Report Number : 24-007176
Project / Site name: Wrexham Solar Farm

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS

Sample Deviation Report

Analytical Report Number : 24-007176
Project / Site name: Wrexham Solar Farm

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised

Sample Deviation Report

Analytical Report Number : 24-007176

Project / Site name: Wrexham Solar Farm

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
WS02	N/A	S	136052	c	Total cyanide in soil	L080	c
WS03	N/A	S	136053	c	BTEX and/or Volatile organic compounds in soil	L073B	c
WS03	N/A	S	136053	c	Total cyanide in soil	L080	c
WS04	N/A	S	136054	c	Total cyanide in soil	L080	c
WS05	N/A	S	136055	c	Total cyanide in soil	L080	c
WS06	N/A	S	136056	c	Total cyanide in soil	L080	c
WS08	N/A	S	136049	c	Total cyanide in soil	L080	c
WS10	N/A	S	136050	c	Total cyanide in soil	L080	c
WS11	N/A	S	136051	c	Total cyanide in soil	L080	c
WS13	N/A	S	136046	c	Total cyanide in soil	L080	c
WS14	N/A	S	136047	c	Total cyanide in soil	L080	c
WS15	N/A	S	136048	c	Total cyanide in soil	L080	c
WS18	N/A	S	136041	c	Total cyanide in soil	L080	c

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Analytical Report Number : 24-007179

Project / Site name:	Wrexham Solar Farm	**Samples received on:**	05/03/2024
Your job number:	GSI 2006	**Samples instructed on/ Analysis started on:**	05/03/2024
Your order number:	PO 24-0130	**Analysis completed by:**	13/03/2024
Report Issue Number:	1	**Report issued on:**	16/03/2024
Samples Analysed:	4 10:1 WAC samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Waste Acceptance Criteria Analytical Results

Report No:	**24-007179**						
					Client: GEOCON		
Location	**Wrexham Solar Farm**						
Lab Reference (Sample Number)	136057				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	22/02/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS15						
Depth (m)	0.60						
Solid Waste Analysis							
TOC (%)**	1.5				3%	5%	6%
Loss on Ignition (%) **	3.5				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.0				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	1.1				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.00100			< 0.0100	0.5	2	25
Barium *	0.0198			0.198	20	100	300
Cadmium *	0.000394			0.00394	0.04	1	5
Chromium *	0.0022			0.022	0.5	10	70
Copper *	0.023			0.23	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	< 0.000400			< 0.00400	0.5	10	30
Nickel *	0.0036			0.036	0.4	10	40
Lead *	0.10			1.0	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.041			0.41	4	50	200
Chloride *	0.44			4.4	800	15000	25000
Fluoride*	0.92			9.2	10	150	500
Sulphate *	1.2			12	1000	20000	50000
TDS*	17			170	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	18.8			188	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.5						
Dry Matter (%)	80						
Moisture (%)	20						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Waste Acceptance Criteria Analytical Results

Report No:	**24-007179**						
					Client: GEOCON		
Location	**Wrexham Solar Farm**						
Lab Reference (Sample Number)	136058				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	22/02/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS11						
Depth (m)	0.20						
Solid Waste Analysis							
TOC (%)**	3.1				3%	5%	6%
Loss on Ignition (%) **	6.6				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	7.6				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	0.42				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.00239			0.0239	0.5	2	25
Barium *	0.0155			0.155	20	100	300
Cadmium *	0.000395			0.00395	0.04	1	5
Chromium *	0.0019			0.019	0.5	10	70
Copper *	0.044			0.44	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.000533			0.00533	0.5	10	30
Nickel *	0.0030			0.030	0.4	10	40
Lead *	0.044			0.44	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.020			0.20	4	50	200
Chloride *	0.92			9.2	800	15000	25000
Fluoride*	0.21			2.1	10	150	500
Sulphate *	3.2			32	1000	20000	50000
TDS*	28			280	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	23.1			231	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	73						
Moisture (%)	27						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

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Waste Acceptance Criteria Analytical Results

Report No:	**24-007179**						
					Client: GEOCON		
Location	**Wrexham Solar Farm**						
Lab Reference (Sample Number)	136059				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	24/02/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS04						
Depth (m)	0.40						
Solid Waste Analysis							
TOC (%)**	0.5				3%	5%	6%
Loss on Ignition (%) **	2.7				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.0				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	2.3				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.00154			0.0154	0.5	2	25
Barium *	0.00221			0.0221	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	< 0.00040			< 0.0040	0.5	10	70
Copper *	0.0020			0.020	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	< 0.000400			< 0.00400	0.5	10	30
Nickel *	< 0.00030			< 0.0030	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0026			0.026	4	50	200
Chloride *	15			150	800	15000	25000
Fluoride*	0.94			9.4	10	150	500
Sulphate *	3.4			34	1000	20000	50000
TDS*	22			220	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	21.2			212	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.9						
Dry Matter (%)	89						
Moisture (%)	11						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

i2 Analytical
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Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**24-007179**						
					Client: GEOCON		
Location	**Wrexham Solar Farm**						
Lab Reference (Sample Number)	136060				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	21/02/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS05						
Depth (m)	0.40						
Solid Waste Analysis							
TOC (%)**	1.1				3%	5%	6%
Loss on Ignition (%) **	2.7				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	12				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.0				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	3.6				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.00100			< 0.0100	0.5	2	25
Barium *	0.00657			0.0657	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	< 0.00040			< 0.0040	0.5	10	70
Copper *	0.011			0.11	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00122			0.0122	0.5	10	30
Nickel *	0.0016			0.016	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0092			0.092	4	50	200
Chloride *	45			450	800	15000	25000
Fluoride*	0.60			6.0	10	150	500
Sulphate *	1.2			12	1000	20000	50000
TDS*	45			450	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	22.7			227	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.8						
Dry Matter (%)	79						
Moisture (%)	21						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Analytical Report Number : 24-007179
Project / Site name: Wrexham Solar Farm

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
136057	WS15	None Supplied	0.6	Brown sand with vegetation
136058	WS11	None Supplied	0.2	Brown clay and loam with vegetation
136059	WS04	None Supplied	0.4	Brown clay and sand
136060	WS05	None Supplied	0.4	Brown clay and sand

Analytical Report Number : 24-007179
Project / Site name: Wrexham Solar Farm

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

Analytical Report Number : 24-007179
Project / Site name: Wrexham Solar Farm

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

APPENDIX F

GEOTECHNICAL LABORATORY TESTING RESULTS

LABORATORY REPORT

Contract Number: PSL24/1902

Report Date: 22 March 2024

Client's Reference: GSI 2006

Client Name: Geocon Site Investigations Ltd
Geocon Suite, Arden House
Shipley Lane Industrial Estate
Hawk Green
Marple
SK6 7JW

For the attention of: Graham Boultbee/Liam Daley/Ian Walker/Matt Styles

Contract Title: Wrexham Solar Farm

Date Received: 14/3/2024
Date Commenced: 14/3/2024
Date Completed: 22/3/2024

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)
S Eyre (Senior Technical Coordinator)
T Watkins (Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
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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
WS02			1.00		Brown very gravelly very sandy CLAY.
WS03			1.90		Brown mottled grey sandy CLAY.
WS04			1.00		Brown mottled grey very sandy CLAY.
WS05			1.90		Brown mottled grey slightly gravelly sandy CLAY.
WS06			1.00		Brown sandy CLAY.
WS08			1.00		Brown sandy CLAY.
WS09			1.00		Brown sandy CLAY.
WS11			1.00		Brown slightly gravelly sandy CLAY.
WS13			1.90		Dark brown sandy CLAY.
WS14			1.00		Brown very sandy CLAY.
WS15			1.00		Brown very sandy CLAY.
WS18			1.00		Brown very sandy CLAY.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Wrexham Solar Farm	Contract No:
	PSL24/1902
	Client Ref:
	GSI 2006

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
WS02			1.00		11			25	14	11	68	Low Plasticity CL
WS03			1.90		22			46	22	24	100	Intermediate Plasticity CI
WS04			1.00		15			23	14	9	96	Low Plasticity CL
WS05			1.90		32			39	19	20	98	Intermediate Plasticity CI
WS06			1.00		22			44	21	23	100	Intermediate Plasticity CI
WS08			1.00		20			43	21	22	100	Intermediate Plasticity CI
WS09			1.00		29			44	21	23	100	Intermediate Plasticity CI
WS11			1.00		20			35	18	17	98	Intermediate Plasticity CI
WS13			1.90		29			37	19	18	100	Intermediate Plasticity CI
WS14			1.00		26			31	17	14	100	Low Plasticity CL
WS15			1.00		24			29	17	12	100	Low Plasticity CL
WS18			1.00		23			25	14	11	99	Low Plasticity CL

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Wrexham Solar Farm

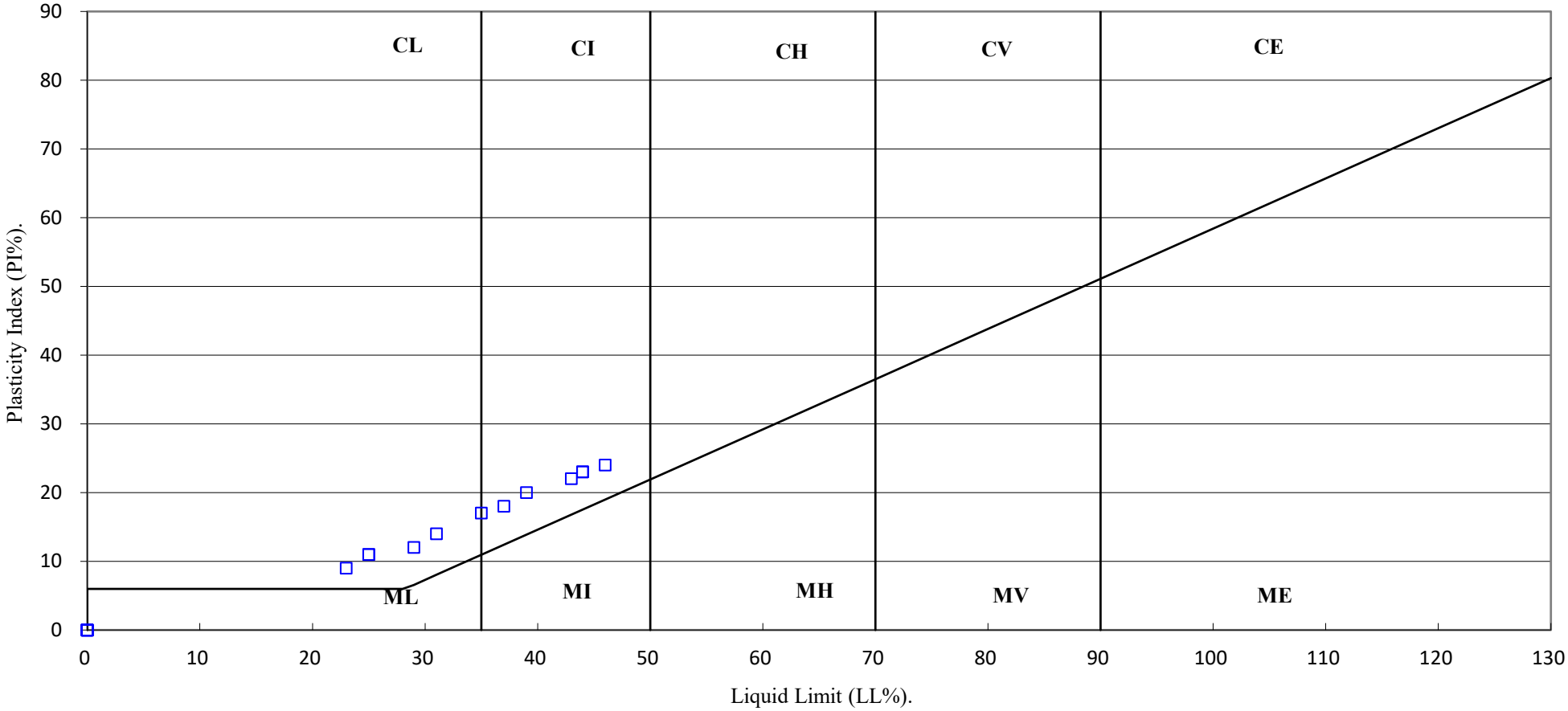
Contract No:

PSL24/1902

Client Ref:

GSI 2006

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**Wrexham Solar Farm**	**Contract No:** PSL24/1902 **Client Ref:** GSI 2006

4161

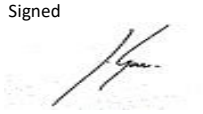
CTS Group
7 - 11 Harding Street
Leicester
LE1 4DH

Professional Soils Laboratory
5/7 Hexthorpe Road
Hexthorpe
Doncaster
DN4 0AR

Analytical Test Report: L24/02358/PSL - 24-42988

Your Project Reference:	**PSL24/1902 Wrexham Solar Farm**		
Your Order Number:	PSL24/1902	Samples Received / Instructed:	18/03/2024 / 18/03/2024
Report Issue Number:	1	Sample Tested:	18/03 to 22/03/2024
Samples Analysed:	12 soil samples	Report issued:	22/03/2024

Signed



James Gane
Analytical Services Manager
CTS Group

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30˚C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue: 18.03.2024

Issued by: J. Gane

Issue No: 4

Rev No: 6

4161

CTS Group
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L24/02358/PSL - 24-42988

Project Reference - PSL24/1902 Wrexham Solar Farm

Analytical Test Results - Chemical Analysis

Lab Reference			347442	347443	347444	347445	347446	347447
Client Sample ID			-	-	-	-	-	-
Client Sample Location			WS01	WS03	WS04	WS05	WS06	WS07
Client Sample Type			-	-	-	-	-	-
Client Sample Number			-	-	-	-	-	-
Depth - Top (m)			0.80	1.00	1.90	1.00	1.90	1.00
Depth - Bottom (m)			0.80	1.00	1.90	1.00	1.90	1.00
Date of Sampling			-	-	-	-	-	-
Time of Sampling			-	-	-	-	-	-
Sample Matrix			Clay	Clay	Clay	Clay	Clay	Clay
Determinant	**Units**	**Accreditation**						
Water soluble sulphate (as SO_4)	(mg/l)	u	19	38	31	64	56	55
Acid Soluble Sulphate	(%)	u	0.02	0.01	0.02	0.02	0.02	0.02
Total Sulphur	(%)	UKAS	0.01	< 0.01	0.01	0.01	0.01	0.01
pH Value	pH Units	MCERTS	8.4	8.5	8.4	8.4	8.5	8.3

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Project Reference - PSL24/1902 Wrexham Solar Farm

Analytical Test Results - Chemical Analysis

Lab Reference			347448	347449	347450	347451	347452	347453
Client Sample ID			-	-	-	-	-	-
Client Sample Location			WS08	WS10	WS12	WS13	WS14	WS17
Client Sample Type			-	-	-	-	-	-
Client Sample Number			-	-	-	-	-	-
Depth - Top (m)			1.90	1.00	1.00	1.00	1.90	1.00
Depth - Bottom (m)			1.90	1.00	1.00	1.00	1.90	1.00
Date of Sampling			-	-	-	-	-	-
Time of Sampling			-	-	-	-	-	-
Sample Matrix			Clay	Clay	Clay	Clay	Clay	Clay
Determinant	**Units**	**Accreditation**						
Water soluble sulphate (as SO_4)	(mg/l)	u	39	20	11	100	12	30
Acid Soluble Sulphate	(%)	u	0.02	0.03	0.02	0.04	< 0.01	0.04
Total Sulphur	(%)	UKAS	0.02	0.01	0.02	0.08	0.01	0.02
pH Value	pH Units	MCERTS	8.6	7.5	7.7	6.5	7.5	7.3

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L24/02358/PSL - 24-42988

Project Reference - PSL24/1902 Wrexham Solar Farm

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
347442	-	WS01	-	-	Brown silty clay with rare organic matter	-	-	100
347443	-	WS03	-	-	Greyish brown slightly gravelly silty clay with rare organic matter	-	-	100
347444	-	WS04	-	-	Greyish brown silty clay with rare organic matter	-	-	100
347445	-	WS05	-	-	Brown silty clay with rare organic matter	-	-	100
347446	-	WS06	-	-	Greyish brown silty clay	-	-	100
347447	-	WS07	-	-	Greyish brown silty clay	-	-	100
347448	-	WS08	-	-	Brown silty clay with rare organic matter	-	-	100
347449	-	WS10	-	-	Brown silty clay with rare organic matter	-	-	100
347450	-	WS12	-	-	Brown slightly sandy silty clay	-	-	100
347451	-	WS13	-	-	Greyish brown slightly sandy silty clay	-	-	100
347452	-	WS14	-	-	Brown sandy silty clay	-	-	100
347453	-	WS17	-	-	Brown slightly sandy silty clay	-	-	100

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Project Reference - PSL24/1902 Wrexham Solar Farm

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
347442	-	WS01	-	-	
347443	-	WS03	-	-	
347444	-	WS04	-	-	
347445	-	WS05	-	-	
347446	-	WS06	-	-	
347447	-	WS07	-	-	
347448	-	WS08	-	-	
347449	-	WS10	-	-	
347450	-	WS12	-	-	
347451	-	WS13	-	-	
347452	-	WS14	-	-	
347453	-	WS17	-	-	

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Project Reference - PSL24/1902 Wrexham Solar Farm

Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preperation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)

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L24/02358/PSL - 24-42988

Project Reference - PSL24/1902 Wrexham Solar Farm

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided
C - Received in inappropriate container
H - Contains headspace
T - Temperature on receipt exceeds storage temperature
R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
347442	-	WS01	-	-		A
347443	-	WS03	-	-		A
347444	-	WS04	-	-		A
347445	-	WS05	-	-		A
347446	-	WS06	-	-		A
347447	-	WS07	-	-		A
347448	-	WS08	-	-		A
347449	-	WS10	-	-		A
347450	-	WS12	-	-		A
347451	-	WS13	-	-		A
347452	-	WS14	-	-		A
347453	-	WS17	-	-		A