Noakhali Greentech Solar Energy

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Sustainable Engineering Worldwide

Noakhali Greentech Solar Energy Ltd

Noakhali Greentech Solar Energy Ltd

Solar PV Plant

Noakhali, Bangladesh

Geo-technical Investigation

Technical Specifications

September 2024

Report Details

Prepared for:	Noakhali Greentech Solar Energy Ltd
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Report Distribution	
Report Classification:	Confidential

	Name	Job-Title	Signature
Prepared by:	Mansi Medhe	Structural Engineer	
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Authorised by:	Saddiq Peerzada	General Manager	
Date of Issue	18 September 2024		

Amendment Records

Revision Number	Date	Purpose of Revision	Summary of Amendments
A1	22 Aug. 2024	First draft	Draft for internal review
B1	22 Aug. 2024	-	Client Issue
B2	06 Sep. 2024	Comment Compliance	Client Issue
B3	12 Sep. 2024	Comment Compliance	Client Issue

Contents

Tables

1 Introduction

Noakhali Greentech Solar Energy Ltd intends to install a solar PV plant at Noakhali, Bangladesh. SgurrEnergy Private Ltd has been appointed as a technical consultant for the aforesaid 10MW Solar PV project.

This document herein presents the technical specification for conducting Geotechnical Investigation studies.

Table 1-1: Project Location

Project	Latitude	Longitude
10 MW Solar PV Plant, in Noakhali, Bangladesh	22°46'31.72N	91° 0'13.20"E

2 Scope

The technical specifications intend the service provider to conduct a geo-technical investigation for the identified site. Service provider is required to submit a detailed geotechnical report covering specific information on substrata profile for the site.

The scope shall include mobilization of all required equipment's, onsite manpower, and technical supervision as required completing the investigation. This shall also include laboratory investigation, analysis and interpretation of collected data as required for completing a professional geotechnical report.

Examination of geotechnical characteristics, including the analysis of soil and rock types, their structures, fractures, and spatial organization, will be conducted in accordance with the seismic conditions outlined in BNBC 2020. In cases where specific seismic parameters are not addressed within BNBC 2020, references will be made to relevant international standards for comprehensive analysis.

The scope of soil investigation covers execution of complete soil exploration including boring, drilling, collection of undisturbed and disturbed soil samples, conducting laboratory tests of samples to find out the various parameters mainly related to load bearing capacity, ground water level, settlement and soil condition and submission of detail reports along with recommendation regarding suitable type of foundations, including recommendation for soil improvement, where necessary.

The criteria for total settlement for foundation will be evaluated in accordance with relevant codes, as well as standard industry practices. This comprehensive approach ensures a thorough consideration of settlement aspects to uphold the integrity and stability of the structures involved.

Scope shall include determination of appropriate soil characteristics, basic wind speed, weather effect (temperature, humidity, flood, rainfall and ambient air observations and their effects on Geo-tech properties) and seismic zone for the project site location. Upon completion of liquefaction study, the report shall furnish the liquefaction index for the designated stratum layers.

3 Quality assurance and code compliance

Geotechnical investigations shall adhere to the latest editions of applicable standards, including any updated amendments, in conjunction with this technical specification document. Additionally, reference books or articles approved by the client are permitted.

Table 3-1 below indicates a non-exhaustive list of standards to which the study should conform.

Table 3-1:Reference Codes

Document	Document Name / Number
ASTM D420	Standard Guide to Site Characterization for Engineering Design and Construction Purposes.
ASTM D1586-99	Standard Test Method for Penetration Test and Split – Barrel Sampling of Soil.
ASTM D1587-00	Standard Practice for Thin – Walled Tube Sampling of Soil for Geotechnical Purposes.
ASTM D 5778-12	Standard Test Method for Electronic Friction Cone and Piezocone Penetration Testing of Soils.
ASTM D7400-08	Standard Test Method for Downhole Seismic Testing.
IEEE STD 81-2012	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System.
ASTM G57	Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method.
ASTM D4648-00	Standard test method for Miniature vane shear test for saturated fine-grained clayey soil.
ASTM D5334 - 14	Standard Test Method for Determination of Thermal Conductivity of Soil and Soft Rock by Thermal Needle Probe Procedure.
ASTM D2488-00	Standard Practice for Description and Identification of Soils (Visual – Manual Procedure).
ASTM D4220-95	Standard Practices for Preserving and Transporting Soil Samples.
ASTM D422–63	Standard Test Method for Particle Analysis of Soils.
ASTM D854–83	Standard Test Method for Specific Gravity.
ASTM D2166–00	Standard Test Method for Unconfined Compressive Strength of Cohesive Soil.
ASTM D2216- 98	Standard Test Method for Laboratory Determination of Water Content of Soil and Rock Mass.
ASTM D2435 -96	Standard Test Methods for One-Dimensional Consolidation Properties of Soil Using Incremental Loading.

ASTM D2487-00	Standard Classification of Soil Engineering Purposes (Unified Soil Classification System).
ASTM D2850-95	Standard Test Method for Unconsolidated – Undrained Triaxial Compression Test on Cohesive Soil.
ASTM D2937-00	Standard Test Methods for Density of Soil in Place by The Drive – Cylinder Method.
ASTM D3080-98	Standard Test Method for Direct Shear Test of Soil Under Consolidated Drained Condition.
ASTM D4318-00	Standard Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soil.
ASTM D4767-95	Standard Test Methods for Consolidated - Undrained Triaxial Compression Test for Cohesive Soils.
ASTM D5434 - 12	Standard Guide for Field Logging of Subsurface Explorations of Soil and Rock.
ASTM D4972	Standard Test Methods for pH of Soils.
ASTM STP 479	Special procedures for testing soil and rock for engineering purposes.
ASTM C1580-15	Standard Test Method for Water-Soluble Sulfate in Soil.
ASTM D4373	Standard Test Method for Rapid Determination of Carbonate Content of Soils.
BNBC 2020	Bangladesh National Building Code.

4 Experience benchmarks

- The geotechnical investigation shall be carried out by a Govt. approved / certified geotechnical consultant.
- Service provider should have a minimum experience of five years for carrying out similar studies.
- All the field studies and laboratory investigation works shall be supervised by qualified civil engineer having a minimum of five years on site experience in various aspects of geotechnical investigation work. A professional geologist is required to on-site witness all investigations for drilling.
- Scheduling of laboratory tests, analysis and interpretation of test results, reports and recommendations should be conducted by specialized geotechnical engineers having a minimum experience of five years.
- The Services shall be in compliance with the Applicable Laws, the World Bank environmental and social policies (the Safeguard Policies) and the IFC Performance Standards on Environmental and Social Sustainability and related Environmental, Health, and Safety General Guidelines, and the PIDG Health, Safety, Environmental and Social Management System (HSES-MS) Standards.

5 Evaluation

The vendor evaluation will be based on the following areas:

Areas Of Evaluation	Weightage	Vendors Response
Experience and Capabilities		
Overall Global Experience	25%	
Overall service Capability and Single Largest service executed.		
Overall Bid Quality (Based on the conceptual sample documents shared)		
Accreditation for Lab testing		
NABL Certification	10%	
Variance to Scope of Work & DOR		
Scope of work and Division of Responsibilities	25%	
Miscellaneous		
Cost of the services as per the RFP	10%	
Accuracy and quality considered for the deliverables		
ISO Certification		
ISO 9001:2015	10%	
IS0 14001:2015		
ISO 45001:2018		
ISO/IEC 17025:2017		
Adherence to Environment, Health and Safety guidelines		
Timelines		
Is the given timelines followed in the schedule dates	10%	
Technical Competence Evaluation		

Knowledge expertise on soil investigation, soil improvement and foundation recommendations	10%	

6 Geotechnical Investigation Studies

This section presents the general requirements of geotechnical investigation. The geotechnical investigations shall follow the requirements of the latest relevant national and international standards editions with updated amendments.

6.1 Field Investigation Study

In conjunction with the dimensions of the land plot, the field investigation study shall cover the entire plant area. The purpose of an investigation is to understand the physical and chemical properties of soil to design optimum foundations for module mounting structures, buildings, and electrical equipment, expected in a typical solar PV project.

Following are the tests to be conducted at the time of soil investigation.

Table 6-1:Total quantity of observations required.

Sr. No	Investigation/Test Name	Total No. of tests or observations	Remark
1	Boreholes (BH)	5 (up to 20 meter depth)	Shall cover the entire plant area
2	Trial Pit	5	Shall cover the entire plant area
3	Plate Load Test	1	Near the MCR location
4	CBR	1	Near location of road
5	Water Samples	2	One from Pond and One from BH-2
6	Earth Resistivity Test	5	Shall cover the entire plant area
7	Thermal Resistivity Test	5	Shall cover the entire plant area

6.1.1 Bore Hole

Investigation boreholes shall have a diameter of 100mm. These shall be drilled at provided locations to understand subsoil profile, nature, strength and collect soil samples for strata identification and conducting laboratory tests.

- Total number of 5 boreholes investigation shall be carried out. The depth of the bore log shall be a minimum of 20meters, SPT, disturbed and undisturbed sampling shall be as specified in the respective heading.
- Casing pipe is required to be used in the borehole for supporting sides when a side fall is suspected to occur inside the borehole. When casing pipe is used, it shall be ensured that its bottom end is at all times 15cm above the bottom of the borehole.
- If any obstruction to normal drilling is encountered, it shall be addressed by continuing drilling or chiselling. Chiselling shall proceed for a maximum depth of

20 cm or for up to 2 hours, whichever occurs first. Rock fragments shall be collected during chiselling. The identification of rock strata shall be based on a visual examination of SPT samples and the collected rock fragments.

- Water table in the boreholes shall be recorded and reported.
- Submissions under this study shall essentially include borehole logging sheet comprising data on subsoil condition, stratification and soil profile with graphical representation.

6.1.2 Trial Pit

Trial pits shall be of minimum 2m x 2m size at the bottom so as to permit easy access for visual examination of the walls of the pit and to facilitate sampling and in-situ testing operations. Pits shall be up to 1.5-meter depth or upto the water table, whichever is more in all types of soils or at least 1.0m into rock or as per the directions of the engineer. Precautions shall be taken to ensure the stability of pit walls including provision of shoring, if necessary, as per applicable standard. Precautions shall be taken to prevent surface water from draining into the pit. Arrangements shall be made for dewatering if the pit is extended below water table. Trial pits shall be kept dry and a ladder shall be provided for easy access to the bottom of the pit. In-situ tests shall be conducted and undisturbed samples shall be collected immediately on reaching the specified depth so as to avoid substantial changes in moisture content of the subsoil. Arrangements shall be made for barriers, protective measures and lighting necessary for the period the pits remain open.

The contractor shall ascertain for himself the nature of materials to be excavated and the difficulties, if any, likely to be encountered in executing this work. Wherever ground water table is met with during excavation, the contractor shall make suitable dewatering arrangement to maintain dry working conditions by maintaining the water table below the bottom of the excavation level.

A note on the visual examination of soil and rock strata shall be prepared. This should include the nature, colour, consistency and visual classification of the soil, thickness of soil strata, thickness of expansive soil, ground water table, if any, etc.

In case it is not possible to collect undisturbed samples in the trial pit, in-situ density of soil shall be determined by the sand replacement method or by suitable testing machine which will provide accurate results can be utilized, however calibration certificate for the equipment/machine shall be attached in the report. The specifications, equipment's, accessories required for the test and test procedure shall be as per applicable standards. No separate payment shall be made for this test.

6.2 Plate load test

The plate load test stands out as a widely acknowledged and frequently employed geotechnical field test, particularly in the context of designing shallow foundations and pavements. This test proves valuable for assessing various ground parameters, encompassing deformation modulus, modulus of subgrade reaction, settlement, and allowable bearing pressure.

One number of plate load test shall be conducted at the proposed Main control building location.

6.3 Standard Penetration Test (SPT)

- Initially Standard Penetration Test shall be conducted in every bore hole at immediate ground level after clearing of grass/bushes and after collection of undisturbed soil sample.

- Successive SPT is required to be conducted in every bore hole on all types of soil by repeating the testing procedures at 0.5m, 1.5m, 3.0m, 4.5m, 6.0m, 7.5m & 9.0m from NGL. Results shall also be provided at every change in strata.
- The specification for equipment's and other accessories, procedure for conducting the test, presentation of test results and collection of disturbed and undisturbed soil samples shall conform to IS:2131.

6.4 Sampling

All the soil samples are required to be collected for investigating soil properties. Disturbed and un-disturbed soil samples shall be collected for field identification and conducting laboratory tests such as Index property, sieve analysis, specific gravity, chemical analysis etc. Undisturbed samples shall be collected to estimate physical properties.

The specification of accessories, procedure for soil sampling shall conform relevant national and international codes. Disturbed and undisturbed samples collected in the field shall be classified at site in accordance to the relevant national and international standard.

6.4.1 Undisturbed soil samples

For bore hole location, first undisturbed soil sample shall be taken at immediate ground level (after clearing grass/bushes). Successive samples shall be taken by repeating the sampling procedures at every change in stratum. Samples shall be taken for laboratory tests to determine the parameters of soil at various depth intervals mentioned above in 6.3.

For trial pit location, undisturbed samples shall be collected at 1.0,1.5 m depth and at the termination depth in all the pits.

Locations where undisturbed samples are difficult to obtain, disturbed samples shall be taken for laboratory testing.

6.4.2 Disturbed soil samples

Disturbed samples of soils may be obtained for every SPT in the course of excavation and boring.

Disturbed samples of clay may result in the remoulding of the material and may render it unsuitable for shear strength measurements, unless it is required for fill.

Disturbed samples may not be truly representative, especially when taken from below the ground water level.

6.5 Soil Electrical Resistivity Test

This test (Earth resistivity test-ERT) shall essentially be conducted for determining the soil electrical resistivity that shall facilitate effective design of earthing system of entire solar PV plant. Refer Table 6-1 for number of tests to be conducted.

For this test, minimum of 8 to 10 readings is required be taken by changing the spacing of the electrodes from an initial small value of 0.5m up to a distance of 10m.

The equipment specification (ERT instrumentation), test procedure and reporting/data analysis of field observations shall conform to IEEE Std 81-2012 / relevant international standards.

6.6 Thermal resistivity test

Thermal resistivity testing evaluates the ground's ability to either conduct or disperse heat effectively. An accurate understanding of the thermal characteristics of soil, whether

natural or man-made, is vital when planning and installing underground cables. When electrical current flows through underground power cables, it is essential to manage the generated heat properly. The soil's thermal resistivity plays a decisive role in determining whether a buried power cable remains at a safe temperature or becomes excessively hot. Accumulated heat around the cable can lead to decreased transmission efficiency or, in severe cases, cable melting. Identifying potential issues is achievable through in-situ soil thermal resistivity measurements. Remedial actions may involve modifying cable specifications, enhancing insulation, or incorporating specialized thermal materials into the cable trench.

Detailed test procedure, apparatus, Specimen Preparation, Calibration, Calculations, and Data Analysis, etc. shall be strictly followed as per ASTM D5334-14.

7 Laboratory Tests

Laboratory test shall be conducted and report shall have prepared perceiving light weight PV module mounting structure posing wind load as a major load. Plant will also consist of soil cutting and filling, road, storm water drainage and R.C.C structures for control room and switch yard foundations. Hence, the initial soil information up to 3m depth is very critical and shall be handled with more accuracy.

Following laboratory tests to be conducted in accordance to soil condition but shall not be limited to water content, wet density, sieve analysis, pipette method/hydrometer test if grain size is smaller than 75µ, hydrometer test is not applicable if less than 10 percent of the material passes the 75 µ, Atterberg's limit tests, Oedometer test, tri-axial / direct shear test in accordance to soil (cohesion and friction angle), expansion index test (swelling pressure), soil subgrade modulus and permeability test.

In case rock attains, rock mass classification, rock quality designation index (RQD), uniaxial compressive strength and shear strength of rock material shall be provided.

CBR test for soil in soak condition (at depth 0.3 to 0.5m from surface) shall be conducted to aid economical and efficient design of road.

Bored cast in situ or rammed pile foundation up to a depth of 3m may be expected for module mounting structure. Therefore, the test results i.e. strata, cohesion, friction angle, 'N' value and safe bearing capacity of soil shall be provided at close depth interval and at every change in strata.

All soil samples are required to be laboratory tested for chemical properties including pH, sulphate, and chloride.

All the devices to be used for the geotechnical investigation shall be calibrated and certificate of same shall be enclosed in the geotechnical report.

Following laboratory tests on disturbed/undisturbed soil samples to be conducted for engineering properties (for all depth intervals as mentioned in this report):

- Determination of Water Content
- Classification and Identification of Soil
- Determination of Specific Gravity
- Grain Size Analysis
- Determination of Atterberg's Limits
- Determination of Permeability
- Determination of Density

- Determination of soil subgrade modulus
- Determination of Shear Strength Parameters
- Determination of settlement and soil bearing capacities
- Determination of Chemical Properties
- Determination of CBR
- Relative densities of soil in percentage
- Strain at 50% deflection (e50) in P-Y curve.
- Determination of swelling and shrinkage index of soil
- Determination of swelling pressure and pile cut of depth

7.1 Ground Water

Procedure for determining ground water table in the boreholes shall be in accordance to relevant national and international codes.

If variation in ground water level is observed in any of the borehole, water level in hole shall be recorded frequently during the field investigation study. Subsequent levels in nearby wells or streams shall also be observed and recorded for long term studies.

Two water samples will be collected for laboratory testing: for drinking, module cleaning, and construction purposes. The first sample will be taken from the existing pond at the plant, while the second will be collected from Borehole BH-2, 24 hours after the field test, to allow sufficient time for the water to settle.

The water samples shall be analysed for chemical properties, including but not limited to tests for pH, total hardness, total alkalinity, TDS, dissolved inorganic substance like sulphates, chlorides, calcium, magnesium, sodium, potassium, iron, carbonate, bi-carbonate, total alkalinity, total hardness, organic substance, presence of clay, silt, silica, etc.

Report shall indicate type of hardness and suitable way of water treatment (type of water softener, RO) in line with water to be used for solar PV module cleaning.

7.2 Liquefaction Potential of Soil

A study for liquefaction potential is required to ensure safety from the loss of strength in soils due to the build-up of pore water pressures during dynamic loading from large earthquakes. Based on the study, specify the risk level and provide suitable recommendations/remedial measures in the report. In case of liquefiable soil is observed then, the report shall recommend suitable foundation type for building type of structure and/or suitable soil improvement technique based on soil properties.

8 Soil and Atmospheric Corrosion Assessment

The contractor must conduct on-site analyses to assess soil and atmospheric corrosion factors. This includes a thorough examination of soil composition, corrosive elements, and identification of potential corrosive agents. Utilizing advanced testing methodologies, the contractor is to quantify the corrosive potential, providing conclusive recommendations for optimized coating and base material thicknesses. These recommendations should consider current and potential future environmental conditions, ensuring the longevity and resilience of the proposed structures.

9 Reporting on geotechnical investigation

The geotechnical investigations shall be submitted in a report format with three hardcopies and soft copy in the CD or USB drive. This shall essentially include:

- Coordinates for borehole/test locations as per field investigation study.
- Detailed investigation report covering all the above specifications and requirements including assumptions and results.
- Recommendations for foundation type for light weight solar mounting structure where wind uplift is major load. Recommended pile foundation can be amongst bored cast in situ pile, rammed pile, helical/screwed piles or rock anchoring (if rock attains at shallow depth). Recommendations for foundation type for Control room building, office room, substations and related structures.
- Sample calculation shall be provided for pile capacities against pull-out (tension), compression and lateral loadings for recommended type of pile foundation.
- Appropriate value of earth pressure coefficient ‘k’ and adhesion factor ‘α’, if any, shall be recommended in the report.
- Laboratory test results including assumptions made and calculations.
- Safe bearing capacity of soil at different depths along with sample calculations for efficient design of foundations for building structures.
- Slope and embankment stability will be assessed in accordance with EN 1997-1:2009-09. Geotechnical experts will identify potential risks to slope stability, and verification of slope stability will be conducted for foundations and infrastructure/buildings located within the impact area above a slope.
- Appropriate values of soil parameters at different depths (intervals mentions in this document) required to design foundation of various structures in solar project.
- Report shall indicate soil corrosive potential for buried steel and concrete in accordance to soil chemical analysis and soil resistivity. It shall also indicate influence of sulfate and chloride and shall recommend type of cement to be used and minimum cement content, in case of concrete piles.
- Pictographic result of sample collected to be provided.

10 Bid Time Lines

Noakhali Greentech Solar Energy Ltd is seeking proposals from qualified firms/organizations to conduct a comprehensive geotechnical investigation for a proposed solar PV plant in Noakhali district, Bangladesh. The selected firm will be responsible for data collection, analysis, and the preparation of a detailed report outlining the soil conditions and design considerations for the solar PV plant.

The bidding process will follow a specific timeline and tasks, as outlined in the table below:

Sr No.	Task	Working Days
A	Release of the RfP	0
B	Bid Submission	A+5
C	Bid Evaluation	B+4
D	Issue of Letter of Award	C+3
E	Deliverable as per RfP	D+21

The bid timeline and task details provide a clear structure for the bidding process, ensuring transparency and fairness for all interested firms/organizations. The evaluation process and right to cancel clauses protect the interests of Noakhali Greentech Solar Energy Ltd in the procurement.

11 Submission Address

The proposal should be submitted by e-mail and related file transfer (as necessary) to the following address:

Towhidul Haque

Director & CEO

Noakhali Greentech Solar Energy Ltd

Address: Tower- 52, Level- 4, Road- 11, Block- C, Banani, Dhaka- 1213

towhid@greensolarenergy.com.sg saifur@greensolarenergy.com.sg

Printed copies of the proposal are not required.

12 Attachment – 1

Form of Proposal Letter

[*letterhead of the contracting firm*]

Towhidul Haque

Director & CEO

Noakhali Greentech Solar Energy Ltd

Address: Tower- 52, Level- 4, Road- 11, Block- C, Banani, Dhaka- 1213

Dear Sir,

Subject: [Abstract]

Proposal for: [Category]

Having examined the Request for Proposal (RfP) received for the provision of the Services for the above named Project, we, the undersigned, offer to perform and complete the whole of the Services in conformity with the said RfP and with all due diligence, efficiency and economy, in accordance with generally accepted techniques and practices commonly recognized by international professional bodies, and will observe sound management, technical and engineering practices and employ appropriate technologies and methodologies, for the total amount of:

Bangladesh (BDT)	Taka	[Amount numbers]	in	[Amount in words]

or such other sums as may be determined in accordance with the Contract.

We agree to abide by this proposal for the period of 30 calendar days from the submission date (or otherwise it can be extended upon mutual agreed timeline with the client) and it shall remain valid, open for acceptance and binding upon us and may be accepted at any time before the expiration of that period.

Unless and until the formal Agreement is prepared and executed, this proposal, together with your written acceptance thereof, shall constitute a binding Contract between us.

Name of Consultant

Signature of Consultant's Representative [Company Stamp]

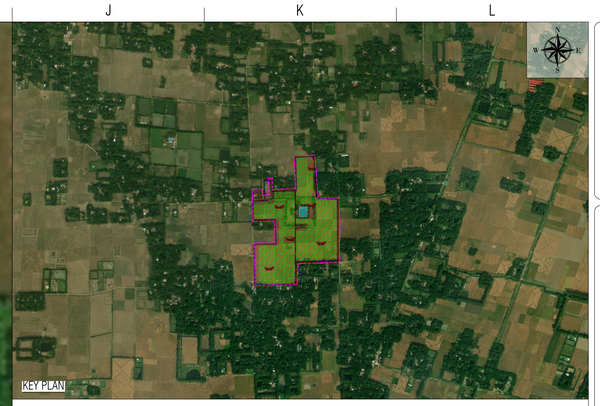
Name of Signatory

Position/Title of Signatory

Date

13 Annexures

- Geotechnical investigation test layout is attached in the following page.



LEGEND	
	BOREHOLE (BH)
	THERMAL RESISTIVITY TEST(TRT)
	ELECTRICAL RESISTIVITY TEST(ERT)
	TRAIL PIT (TP)
	WATER SAMPLE
	PLATE LOAD TEST
	CALIFORNIA BEARING RATION

GEO-LOCATION COORDINATES TABLE

BOREHOLE LOCATION		
NO	EASTING	NORTHING
BH-01	294994.321	2520142.457
BH-02	294863.204	2520023.752
BH-03	295092.723	2520005.551
BH-04	294950.019	2519870.366
BH-05	294821.974	2519761.829

THERMAL RESISTIVITY TEST(TRT)		
NO	EASTING	NORTHING
TRT-01	294994.321	2520166.347
TRT-02	294923.204	2520023.752
TRT-03	295092.723	2519973.051
TRT-04	295010.019	2519810.366
TRT-05	294881.974	2519701.829

ELECTRICAL RESISTIVITY TEST(ERT)		
NO	EASTING	NORTHING
ERT-01	294996.535	2520115.051
ERT-02	294863.204	2519963.752
ERT-03	295079.718	2520014.362
ERT-04	295010.019	2519870.366
ERT-05	294881.974	2519761.829

TRAIL PIT (TP)		
NO	EASTING	NORTHING
TP-01	294990.705	2520192.979
TP-02	294923.204	2519963.752
TP-03	295019.718	2519954.362
TP-04	294950.019	2519810.366
TP-05	294821.974	2519701.829

ADDITIONAL TEST		
NO	EASTING	NORTHING
CBR-01	294954.273	2519899.328
PLT-01	294826.765	2520060.452
WS-01	294864.191	2520016.029
WS-02/BH-2	294863.204	2520023.752

Status:
ISSUED FOR REVIEW

Client / Developer:

Contractor:

Consulting Engineer:

Technical Consultant:
sgurr energy Sustainable Engineering Worldwide
www.sgurrenergy.com

Project Details:
NGSE_10MW_Bangladesh

Date:
08/23/2024

Drawn By:
AKASH BORSE

Checked By:
MANSI MEDHE

Approved By:
YADNESHWAR JOSHI

REVISIONS

#	MM/DD/YY	DESCRIPTION
A	08/23/24	ISSUED FOR REVIEW
B	09/05/24	ISSUED FOR REVIEW

Project Code:
6.24.6266.001

Drawing No:
6.24.6266.001_EM2_S202

Drawing Title:
GEOTECHNICAL INVESTIGATION TEST LOCATION LAYOUT

Sheet:
1 OF 1

Scale:
N.T.S