For inquiries, email us at
inquiry@teragrail.com

TERAGRAIL

GEOLOGY & GEOTECHNICS

2024 Company Profile

Provider of Responsible, Cost-Effective Engineering

OUR STORY

In the midst of a challenging period for the Philippine economy, Teragrail emerged as a beacon of resilience, aiming to confront the adversities within the engineering and construction industry. The year 2020 marked a pivotal moment for Teragrail as it strategically shifted its focus from construction to the realms of earth sciences and engineering.

Embarking on this transformative journey, Teragrail initially delved into ground investigation works, laying the foundation for its foray into a broader spectrum of services. Today, Teragrail stands not only as a solver of ground-related challenges but also as a proficient contributor to foundation construction projects, demonstrating a commitment to diversification and adaptability.

MISSION

To leverage our expertise in geotechnics with advance technology and provide the most cost-effective services and solutions.

VISION

To become a foremost authority in catering to comprehensive engineering needs, encompassing construction, consultancy, and a spectrum of related services in the Philippines.

Excellence in Engineering Consultancy, Services, and Construction Works

WHAT WE DO

At Teragrail, we transcend the conventional boundaries of geotechnical services, offering a comprehensive suite of solutions that span from meticulous site investigations and geotechnical engineering to advanced geophysical surveys and bespoke foundation design. With a commitment to excellence, we tailor our offerings to align seamlessly with your unique budgetary constraints and project requirements.

Our diverse team, including geologists, geotechnical engineers, civil engineers, structural engineers, environmental specialists, lab technicians and other professionals, possesses unparalleled knowledge of Philippines' subsoil conditions. This expertise enables us to navigate diverse terrains and provide cost-effective solutions grounded in realism and sound engineering principles.

Geotechnical Drilling & Investigation

From SPT sampling to rock core drilling up to 1,500-m depths

Micropiling & Bored Piles

From 300-mm diameter micropiles to 1,500-mm diameter bored piles

Geophysical Surveys

From MASW to GPR, to electrical resistivity to thermal resistivity

Slope Stability & Foundation Design

From ground improvement works to slope stabilizing solutions

Topographic & LiDAR Surveys

For architecture, engineering, environment, and construction surveys which include topographic, LiDAR, relocation and route survey

Accredited Testing Laboratory

From oedometer to consolidation tests to triaxial and permeability tests for rock and soil

Our Experience

Offshore Geotechnical Investigation of 50 Boreholes

MANILA BAY, MANILA

Client	**Cargon Mining Corporation**
Consultant	Royal Haskoning
Date Completed	November 2021

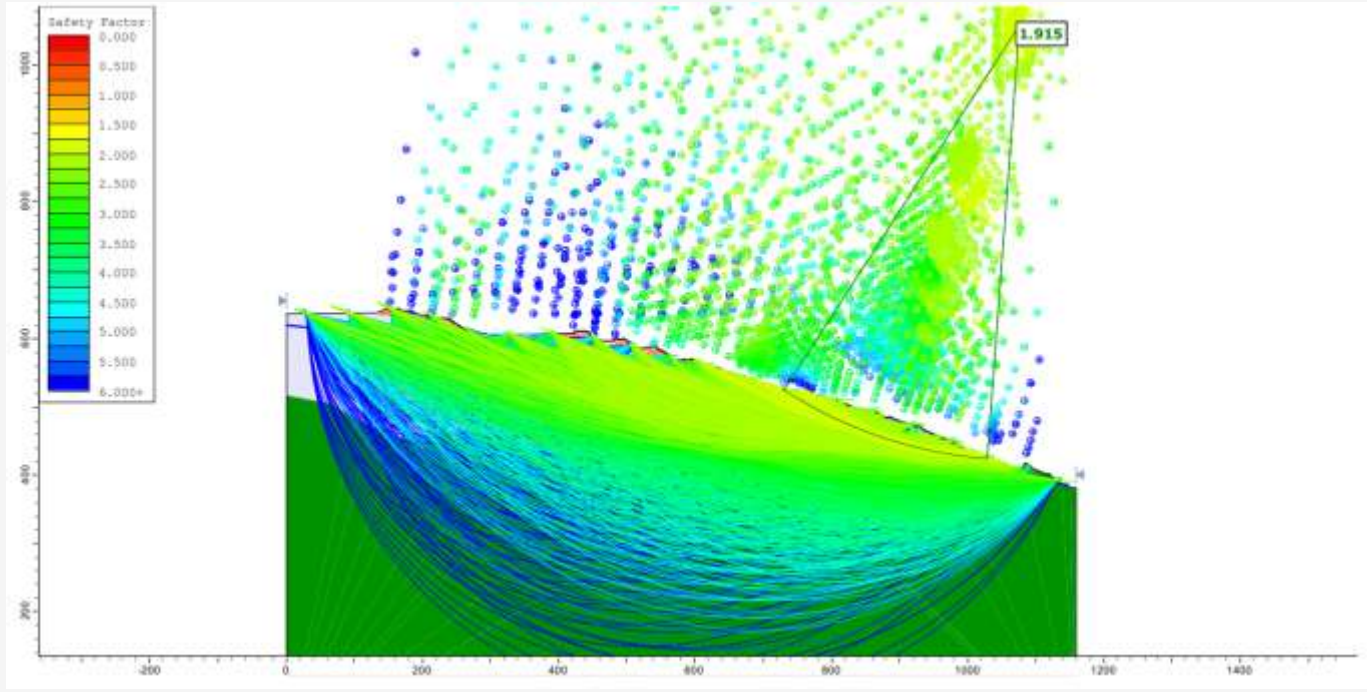
The purpose of this investigation was to check for the suitability of the Manila Bay seabed to be used as backfill materials. Teragrail mobilized two (2) barges, four (4) drilling teams, and two (2) drilling rigs for this project. The team was able to complete this project in about four (4) months. The boreholes ranged from 10-m deep to 40-m deep. Continuous undisturbed drilling was done from 0.0-m to 15.0-m while SPT Sampling was done from 15.0-m to 40.0-m depth. This was a 24-hr operation.

Retainer for Tailings Storage Facility (TSF) Dam Stability

SITIO PADCAL, TUBA, BENGUET

Client	**Philex Mining Corporation**
Date Completed	Ongoing

As a local consultant, Teragrail monitors Philex Mining Corporation's three Tailings Storage Facilities (TSF) at its Padcal Mine, operating for over sixty years, with conditions affecting stability. Teragrail's performance-based approach adopts proactive procedures to manage tailings facility performance data, ensuring objectives are met throughout the lifecycle. This includes monitoring deformations, piezometric pressures, seepage, and cracking. By validating performance comprehensively, safety and intended behavior are ensured. Teragrail's objective is to use site characterization data to establish performance goals critical for safe construction, operation, and closure. Quarterly, Teragrail certifies the TSFs as safe and stable.



MSE Wall Design and Build

TAGAYTAY

Client	**Confidential**
Date Completed	April 2021

Teragrail did the design of the Mechanically Stabilized Earth (MSE) Retaining Wall and the Construction of this as well for a high-end resort in Tagaytay Cavite.

Slope Stability Analysis and Detailed Engineering Design of Flood Control Structures

ALBAY, BICOL

Client	**DPWH-REGION V**
Date Completed	November 2021

Teragrail conducted the assessment and provided detailed engineering designs for the mitigation and reconstruction of the flood control structures.

Technical Due Diligence Studies for a 283 MW Solar Powerplant

SAN MARCELINO, ZAMBALES

Proponent	AC Energy
Owner's Engineer	Black & Veach
Client	**Powerchina Huadong Corp.**
	MIESCOR
Progress	100% Complete

Teragrail conducted several studies for two clients for a solar powerplant. This composed of the following: (1) Survey Works; (2) Geotechnical Investigation/Drilling of Approximately 50 boreholes; (3) Bored Pile Consultation; (4) Ground Penetrating Radar Works; (5) Electrical Resistivity Works (Wenner); (6) Thermal Resistivity Survey; (7) Special Laboratory Works (triaxial tests, direct shear tests, consolidation tests, etc); (8) Geological Mapping Works, (9) Hydrology and Flood Studies for 25-yr, 50-yr, and 100-yr return period and, (10) Downhole Seismic Survey.

Construction of Micropiles and Bored Piles for a 5 Storey Building

INTANDENCIA, INTRAMUROS, MANILA

Proponent	National Archive of the Philippines
Designer	Asphil Corporation
Client	**M.E. Sicat Construction Cor.**
Progress	100% Complete

Teragrail underwent the detailed engineering design and construction of 40+ micropiles and 10+ bored piles for a four (4) storey building in Intramuros. Teragrail was responsible for all drilling, welding, concrete pouring, and jet grout works. Prior to the start of construction, the team also conducted the Geotechnical Investigation and Evaluation for this project. In addition, Ground Penetrating Radar works were conducted to check for underground utilities. This was for phase 1 works. Teragrail was also commissioned to do the design and construction of the micropile and bored pile for phase 2, which entailed about 500 micropiles and bored piles in the area.

Detailed Engineering Design and Consultancy for Foundation Works

LOCATION CONFIDENTIAL

Designer	Teragrail Geology & Geotechnics
Client	**Meralco Industrial Engineering Services Corporation**

Teragrail conducted the detailed engineering design and consultancy for the foundation works for about twenty (20) transmission towers. This ranged from bored pile to shallow foundation depending on the type and strength of the subsurface material.

This project presented unique challenges as some soil layers were susceptible to liquefaction, demanding innovative solutions. We devised strategies to optimize the foundation design, prioritizing both safety and cost-efficiency. By carefully analyzing the subsurface conditions and implementing advanced engineering techniques, we mitigated the risks associated with liquefaction-prone soils. This not only ensured the structural integrity of the transmission towers but also minimized project costs, demonstrating our commitment to delivering value to our clients.

Geotechnical Investigation for 66 Boreholes

TAGUIG AND MAKATI

Client	**Confidential**
Progress	Completed

Given that the borehole locations are situated in the cities of Taguig and Makati, it was imperative to conduct a preliminary assessment for potential subterranean utilities. To fulfill this requirement, Teragrail efficiently mobilized our in-house resources, employing advanced tools such as a metal detector and ground-penetrating radar for a thorough examination of the areas in question.

Geotechnical Investigation and Drilling for Offshore Project

ORION, BATAAN

The objective of this investigation was to assess the suitability of the seabed and its subsurface for use as backfill materials. Teragrail deployed two teams and drilled more than 15 boreholes in the area, reaching depths of up to 30 meters below the seabed.

Soil Exploration of Hydro Powerplant Project

TAFT, EASTERN SAMAR

Teragrail conducted Geotechnical Engineering Investigation and Evaluation Report. A total of fourteen (14) boreholes were drilled to serve as a guide in the foundation design for the hydropower plant project. The borehole was located to cover the initial phase as well as to provide information on the succeeding phases of the construction program.

Structural Assessment and Survey Works for Jetty Trestle Project

MARIVELES, BATAAN

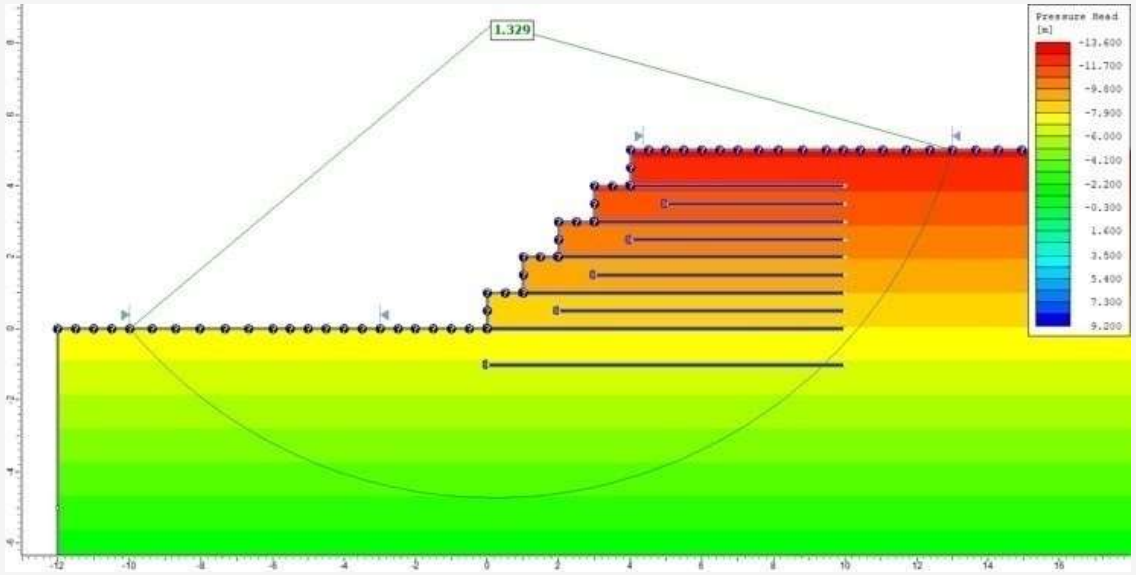
Teragrail conducted Structural Assessment and Geophysical Surveys such as Ground Penetrating Radar, Metal Detection, Seismic Survey, Rebar Scanning, and Rebound Hammer Testing along a jetty trestle.

Geotechnical Investigation, Evaluation and Design Works for a Geothermal Powerplant

LOCATION CONFIDENTIAL

Proponent	Confidential
Designer	Teragrail Geology & Geotechnics
Client	**First Balfour Inc.**
Date Completed	February 2022

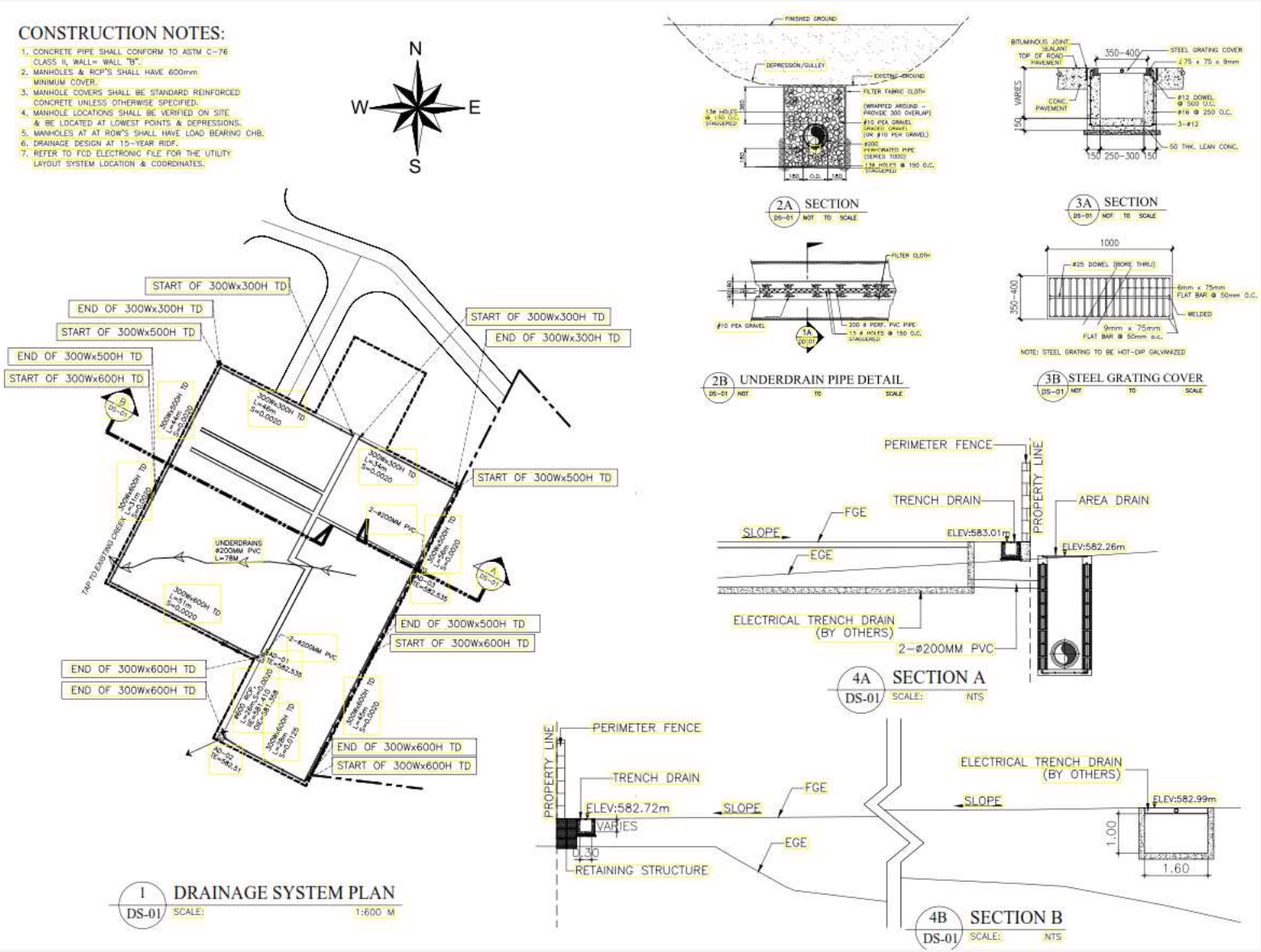
Teragrail undertook an engineering design process encompassing (1) Ground Improvement Works utilizing Stone Columns with a depth of up to 15.0 meters, (2) the meticulous design of Mechanically Stabilized Earth Retaining Walls, and (3) the development of Civil Design Works. Additionally, the team conducted geotechnical investigation and evaluation focusing on the Tanawon OHTL and PP-SY Areas within the power plant premises.



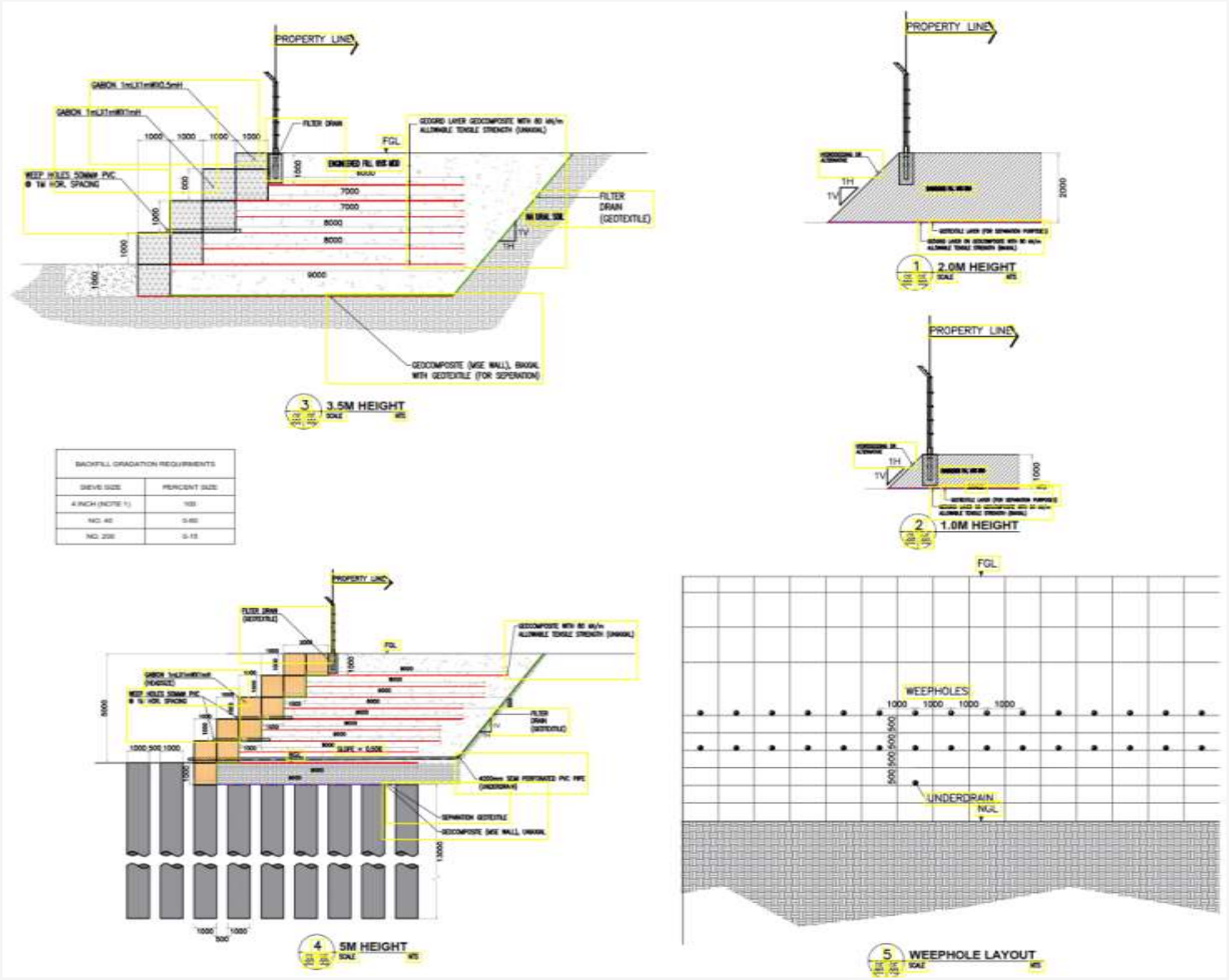
Geotechnical Investigation, Evaluation and Design Works for a Geothermal Powerplant

CONSTRUCTION NOTES:

1. CONCRETE PIPE SHALL CONFORM TO ASTM C-76 CLASS II, WALL= WALL "B".
2. MANHOLES & RCP'S SHALL HAVE 600mm MINIMUM COVER.
3. MANHOLE COVERS SHALL BE STANDARD REINFORCED CONCRETE UNLESS OTHERWISE SPECIFIED.
4. MANHOLE LOCATIONS SHALL BE VERIFIED ON SITE & BE LOCATED AT LOWEST POINTS & DEPRESSIONS.
5. MANHOLES AT AT ROW'S SHALL HAVE LOAD BEARING CHB.
6. DRAINAGE DESIGN AT 15-YEAR RIDF.
7. REFER TO FCD ELECTRONIC FILE FOR THE UTILITY LAYOUT SYSTEM LOCATION & COORDINATES.



Geotechnical Investigation, Evaluation and Design Works for a Geothermal Powerplant

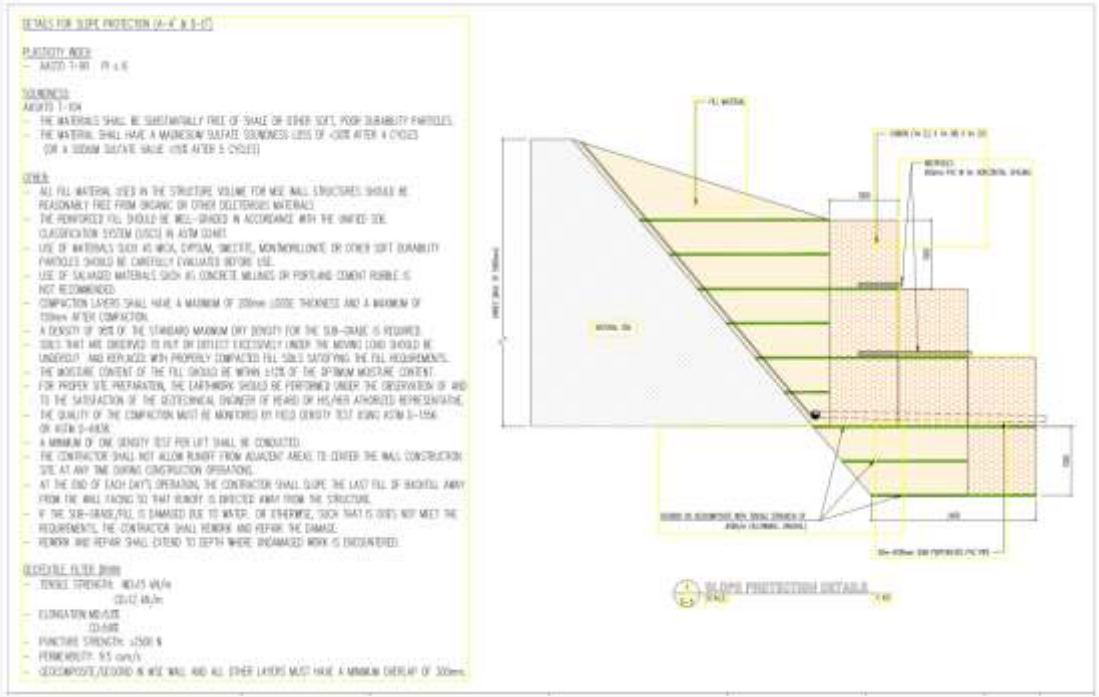


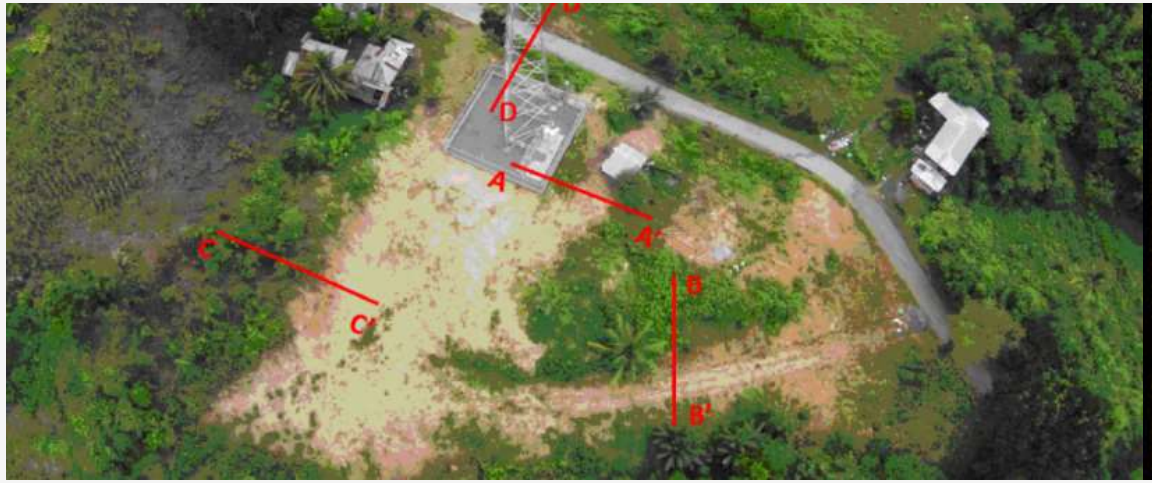
Geotechnical Evaluation, Slope Stability Analysis and Detailed Engineering Design for Unstable Slopes

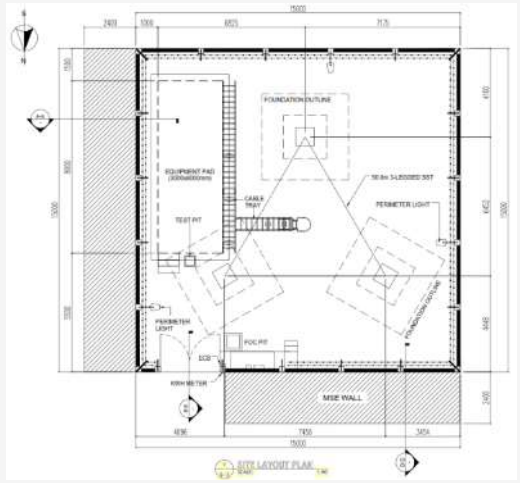
ORMOC CITY, LEYTE

Client	**Frontier Towers**
Date Completed	March 2022

Teragrail conducted a Geotechnical Assessment inclusive of a thorough evaluation, slope stability analysis, and detailed engineering design targeting unstable slopes associated with a transmission tower. Concurrently, the team performed rock testing utilizing the Schmidt Hammer, contributing to a meticulous and multifaceted approach in ensuring the stability and structural integrity of the slopes.







Topographic and Relocation Survey Works for 299-hectares Solar Power Plant

STA. MARIA, ISABELA, CAGAYAN

Client	**Emerging Power Inc.**
Date Completed	2023

Teragrail conducted Relocation Survey, Monument Setting, and Topographic Survey. The team conducted a thorough research in Department of Environment and Natural Resources - Region 2 (DENR-II) and National Mapping and Resource Information Authority (NAMRIA) to secure the established points onsite in compliance with the Department of Energy Mapping Requirements.

Surveying Works for 594-hectares Solar Power Plant

CASILAGAN, NUEVA ECIJA

Client	**Emerging Power Inc.**
Date Completed	2023

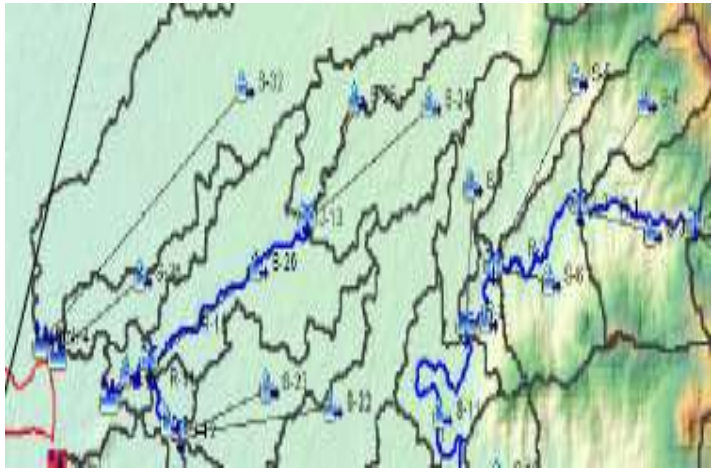
Teragrail conducted Relocation Survey and Topographic Survey in Nueva Ecija for Solar Power rewarded by Emerging Power Inc.

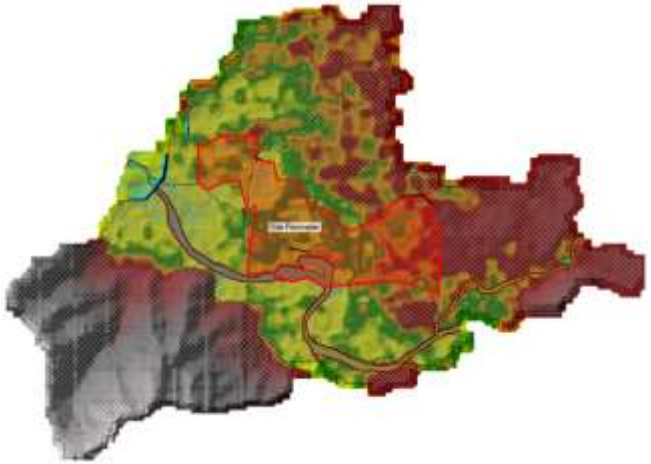
Hydrology and Flood Study Report for a Proposed Solar Power Plant

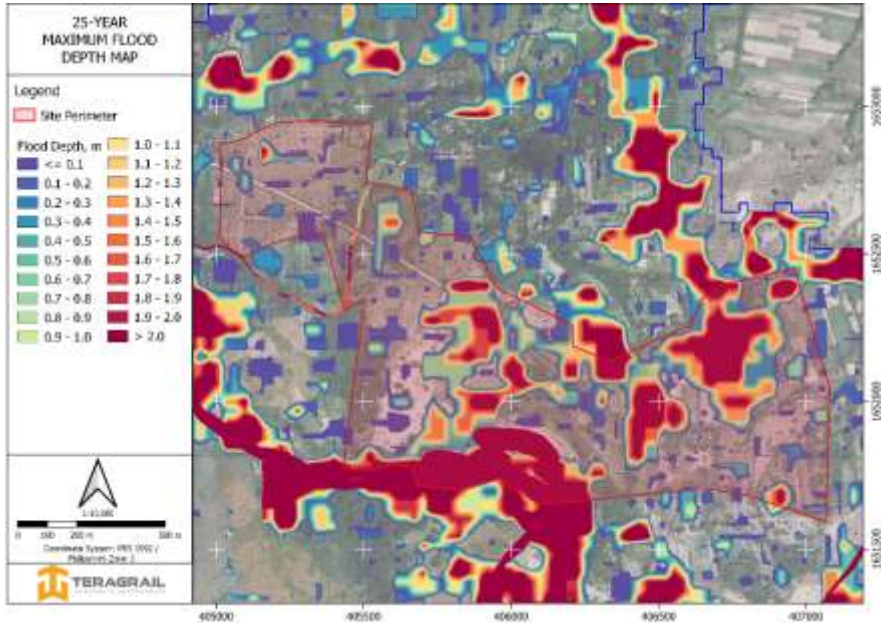
SAN ANTONIO, ZAMBALES

Client	**Emerging Power Inc.**
Date Completed	January 2023

Teragrail conducted a hydrology and flood study analysis of the property for a proposed solar power plant in San Antonio, Zambales. A hydrological model and flood model were both developed to produce flood maps from the results.





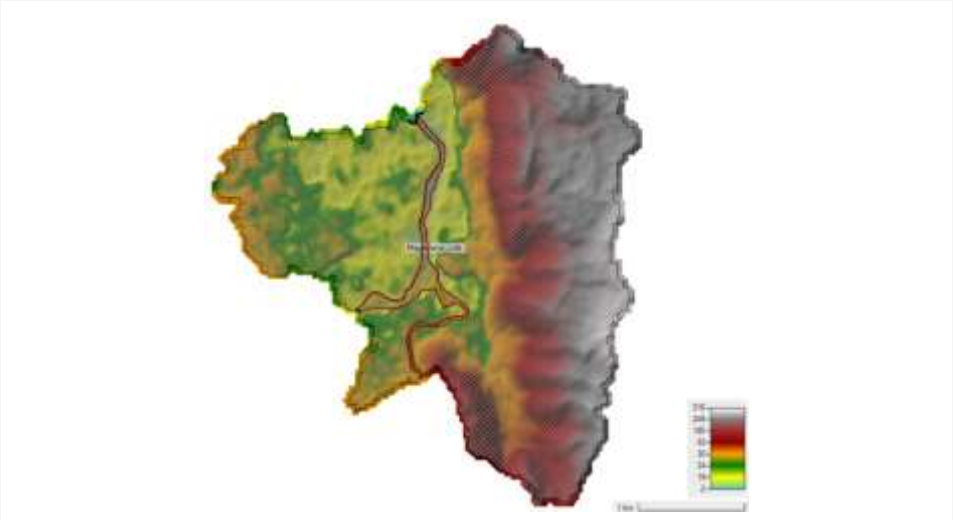


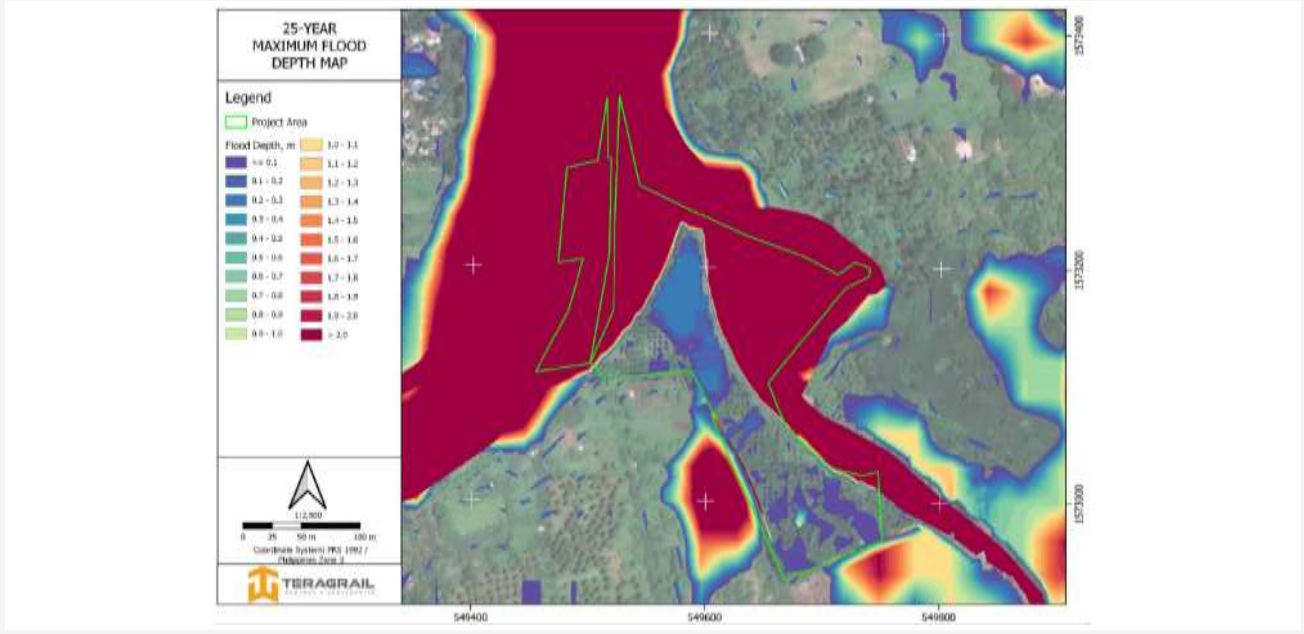
Hydrology and Flood Study Report for a Proposed Residential Lots

MAGDELENA, LAGUNA

Client	**Confidential**
Date Completed	November 2022

Teragrail conducted a hydrology and flood study of proposed residential lots in Magdalena, Laguna. A hydrological model and flood model were both developed to produce flood maps from the results.





Ground Improvement Using Geogrid Raft Foundation

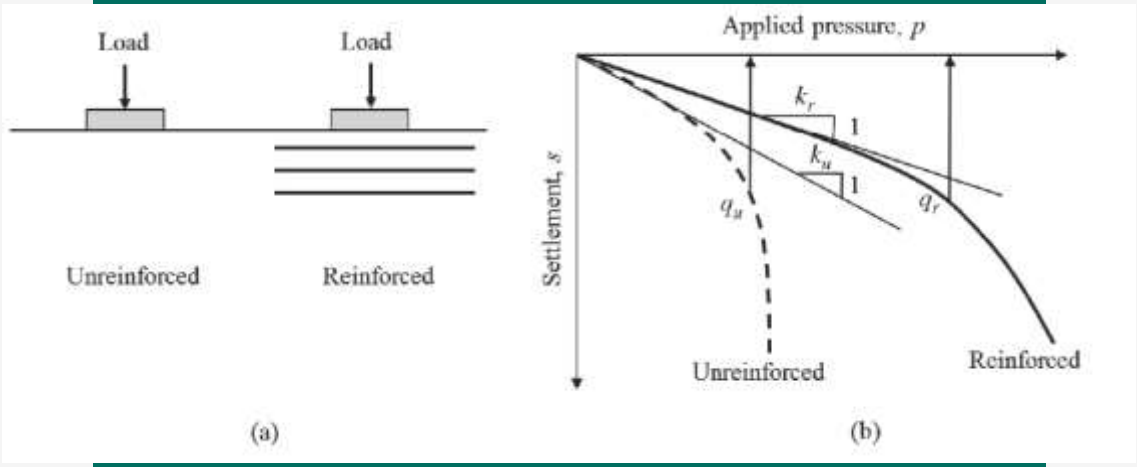
LUMBAN, QUEZON, AND GUMACA PROVINCES

Client/Proponent	**DSWD**
Progress	Completed

The presence of soft/loose soils resulted in a lower bearing capacity will require the need for deep foundation. However, Teragrail was able to check that the use of geogrid raft foundation will mitigate this issue. This technology is most suitable for spread footings, such as isolated footings and continuous footings. Reinforcements, such as geogrids have been used to improve the subsurface material under footings.

The use of Geosynthetic reinforcements can:

1) Improve the bearing capacity by load distribution,
2) Reduce total and differential settlement.



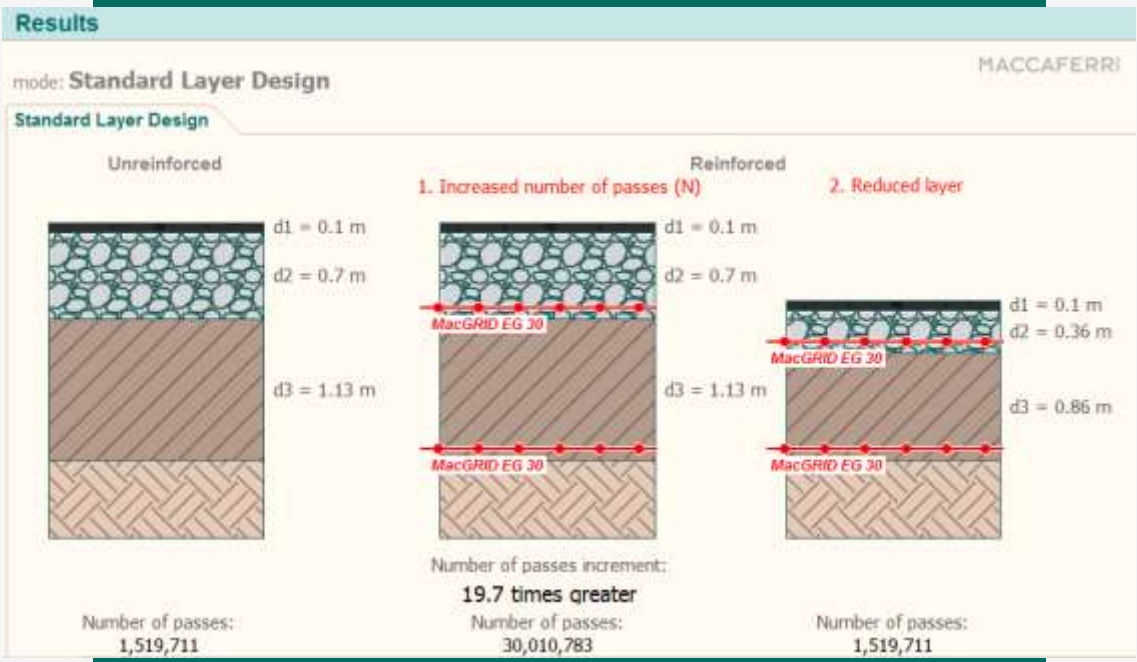


Image from Maccaferri Philippines

Ground Improvement Using Geogrid Raft Foundation

OUR EXPERIENCE

Offshore Projects

Offshore Geotechnical Engineering Study of Proposed Pampanga Delta Development Project Phase 2

MABINI, BATANGAS

Client	**Solid Firmament Construction Inc.**
Date Completed	March 2021

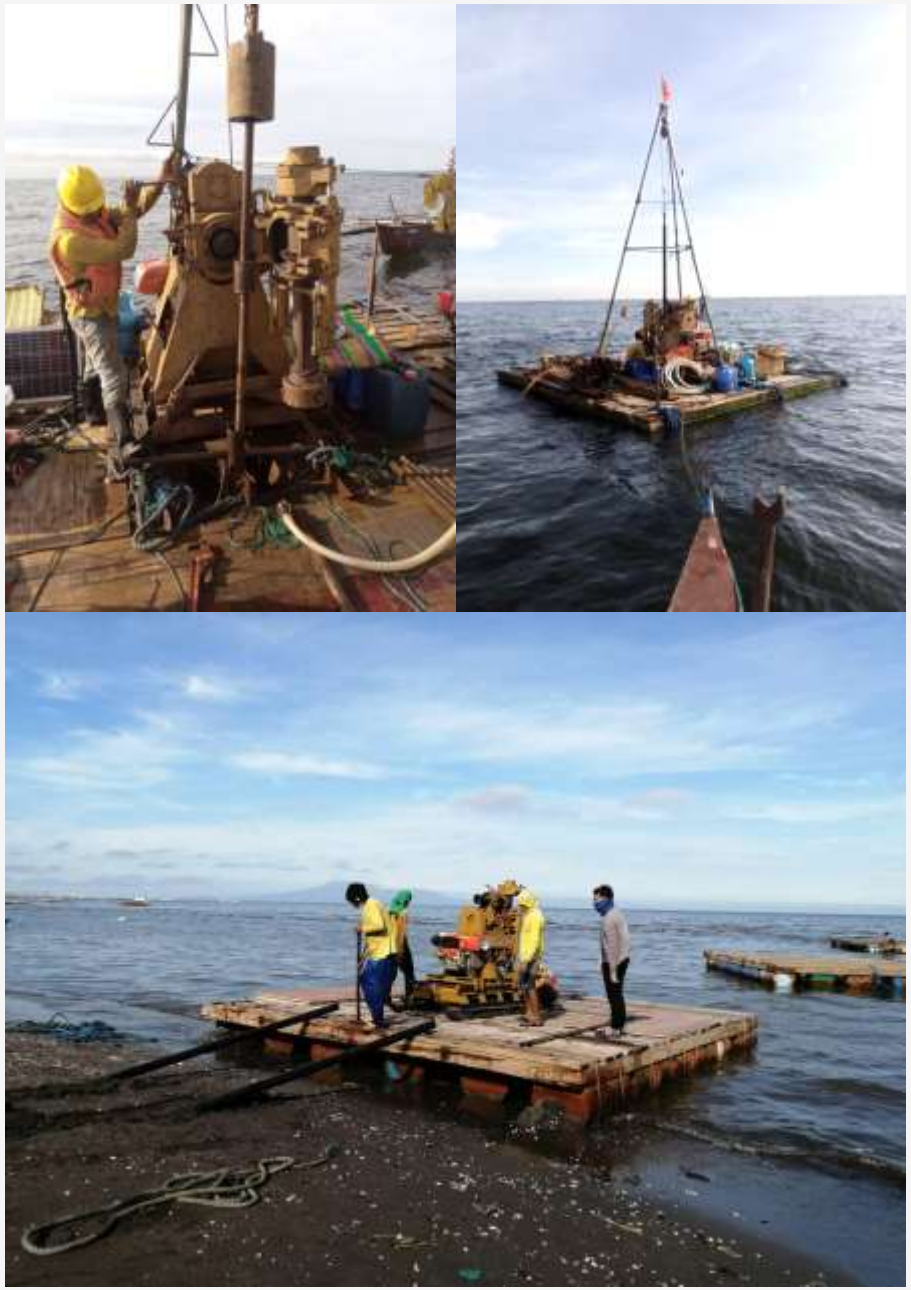
The PNOC-ESB Offshore Project aims to determine the underlying soil condition in Mabini, Batangas in order to arrive at a suitable foundation solution. Teragrail conducted a geotechnical investigation to support their studies. We drilled to a depth of 15 meters, with an average depth of 20 meters from the seabed.

Offshore Geotechnical Engineering Study of Manila Bay

MANILA BAY

Client	**Cargon Mining**
Date Completed	February 2021

Teragrail undertook an extensive offshore geotechnical investigation in the vicinity of Manila Bay, specifically for the purpose of Carbon Mining's special exploration. This intricate project involved deploying three specialized teams tasked with drilling a total of 12 boreholes to thoroughly assess the geological composition and potential carbon reserves beneath the seabed.



Offshore Geotechnical Investigation & Factual Report for PPA Navigation Sea Lane in Manila Bay

MANILA BAY

Client	**Cargon Mining**
Date Completed	July 2021

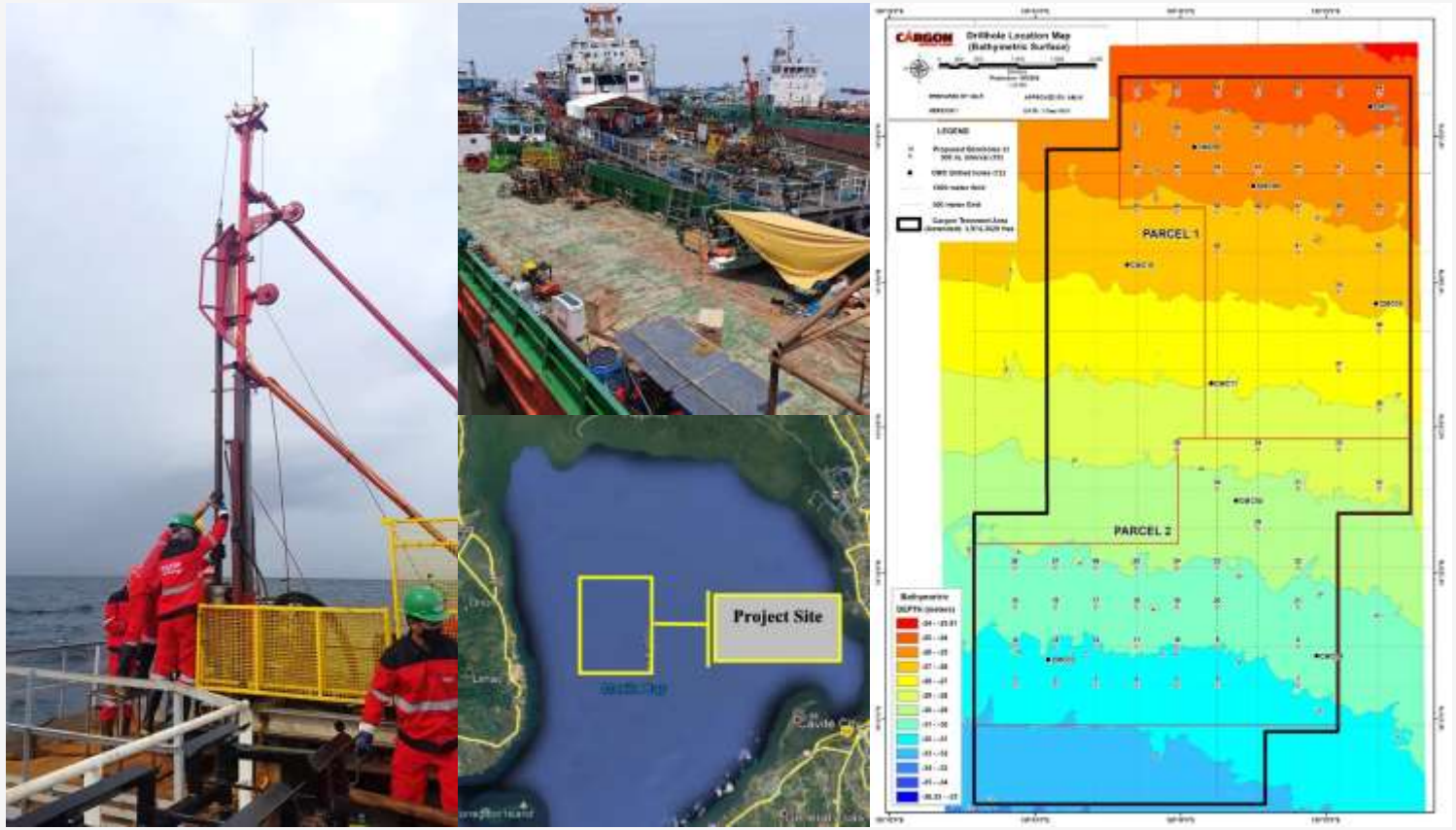
A barge equipped with a welded overhang platform was installed to facilitate the drilling operation. Wash boring, utilizing the rotary action of an NW-size drag bit, was employed to advance through the soil and weathered rock layers. As a result, ten (10) boreholes were successfully drilled, each reaching a depth of 10 meters. The entire process was documented in a detailed factual report.

Offshore Geotechnical Investigation & Evaluation Services for the Cargon Mining Corporatoin Government, Seabed and Quarry (GSQP) Permit

LIMAY, BATAAN

Client	**Cargon Mining**
Date Completed	July 2021

Teragrail performed soil investigation using Standard Penetration Test (SPT) sampling and rotary core drilling with two rigs, operating two shifts per day, to drill seventy (70) boreholes to a maximum depth of 40 meters below the seabed, collecting data for analysis and reporting to inform future project planning, all while adhering to safety protocols and regulatory compliance



Offshore Geotechnical Investigation in Orion, Bataan

ORION, BATAAN

Client	**Horizon Surveying Services**
Date Completed	July 2023

Teragrail drilled five boreholes around Orion, Bataan. The offshore investigation aimed to provide a comprehensive overview of the underlying soil and bedrock conditions at the project site. This report served as a guide for properly addressing and mitigating major geohazards, such as liquefaction, ground shaking, and flood risks in the area.

Offshore Geotechnical Investigation in Orion, Bataan

ORION, BATAAN

Client	**JRAE Company**
Date Completed	August 2023

In June 2023, Teragrail conducted extensive fieldwork that involved collecting data from several soil samples. The process began with the fabrication of a raft, followed by the drilling of two boreholes, each reaching a depth of 25 meters.

Offshore Geotechnical Investigation for Sta. Cruz, Occidental Mindoro

STA. CRUZ, OCCIDENTAL MINDORO

Client	**PERRC Construction and Development Corp.**
Date Completed	December 2023

Teragrail performed offshore soil testing in Sta. Cruz, Mindoro to evaluate seabed soil composition, stability, and suitability. However, adverse weather conditions, including rising tides and rough seas, hindered drilling progress, extending the project duration to 30 days.

Offshore Geotechnical Investigation for Manila Harbour Centre Reclamation Project

MANILA PORT BAY

Client	**Rill Builders, Inc.**
Date Completed	On-going

Teragrail is currently conducting offshore drilling near Manila Bay as part of the Manila Harbour Centre Reclamation Project. The purpose is to develop an Engineering, Procurement, and Construction (EPC) proposal aimed at reclaiming land for commercial, residential, and infrastructure development.

OUR EXPERIENCE

Residential Projects

Geotechnical Investigation Works for a 182-sqm Residential Property in Doña Soledad Better Living Parañaque

PARAÑAQUE, METRO MANILA

Client	**Virtucio**
Date Completed	January 2023

Teragrail conducted a thorough geotechnical investigation for the proposed residential construction in Dona Soledad. The team meticulously drilled two boreholes, each reaching a depth of 9 meters, to thoroughly evaluate the soil composition and ground conditions. This in-depth analysis was carried out simultaneously with the demolition phase, aiming to ensure comprehensive understanding and preparation of the site for subsequent construction activities.

Geotechnical Investigation Works for a Proposed Residential Property in Summer Pointe, Country Homes, Pasong Buaya

PASONG BUAYA, CAVITE

Client	**Private**
Date Completed	January 2023

Teragrail conducted soil testing, one borehole, within the residence located in Pudong Buaya, Cavite, with the intention of renovating the property. The borehole was drilled to a depth of 7.50 meters. Standard Penetration Tests and coring were performed as part of the borehole investigation. The borehole coordinates were located inside the property using the WGS84 projection.

Geotechnical Investigation for Baetiong Residence

QUEZON CITY, METRO MANILA

Client	**Baetiong**
Date Completed	January 2023

Teragrail conducted a drilling investigation to a depth of 7 meters at the proposed Beationg Residence as part of the process to provide thoughtful recommendations for determining the allowable bearing capacity within the desired depth of the footing. These recommendations serve as a basis for the construction and design of their residence.

Geotechnical Investigation Works for Yu Residence

QUEZON CITY, METRO MANILA

Client	**Yu**
Date Completed	January 2023

Teragrail prepared a geotechnical investigation report at the request of our client, Mr. Wayne Bryan Yu, aimed at thoroughly evaluating the soil conditions prevailing at the designated site earmarked for the construction of the Yu Residence. Teragrail diligently conducted the investigation, utilizing a single borehole drilled to an impressive depth of 10.0 meters.

Geotechnical Investigation Works for Project Balete

MUNTINLUPA CITY

Client	**NGDC**
Date Completed	April 2023

Teragrail conducted a soil investigation in Muntinlupa to obtain a comprehensive understanding of the underlying soil and bedrock conditions at the project site. This assessment aims to ascertain the feasibility and safety of the site for the intended residential House for Dela Cruz's. The project duration lasted only 10 days for completion.

Geotechnical Investigation Works for Dela Cruz Residence

BALETE, BATANGAS

Client	**PHINMA Properties**
Date Completed	May 2023

Teragrail was contracted by PHINMA Properties to assess the soil conditions at the proposed site for the Balete Project in Malabanan, Balete, Batangas. In response, Teragrail deployed two expert teams equipped for drilling operations. Over the course of the project, these teams successfully completed the drilling of 10 boreholes, each reaching a depth of 25 meters. This thorough exploration provided crucial data on the subsurface geology and soil composition of the site.

Geotechnical Investigation Works for 2-Storey with Basement

QUEZON CITY, METRO MANILA

Client	**Teng**
Date Completed	June 2023

Teragrail was tasked to conduct soil testing for a two-story residential house with a basement. Samples obtained during the drilling process were subsequently subjected to routine laboratory tests to classify the materials and assess their engineering properties. These test results were then utilized to provide recommendations regarding the suitability of the soil for the construction of the residential structure and the basement.

Geotechnical Investigation in Versailles, Las Piñas

LAS PIÑAS CITY

Client	**Eliwork Residential Bldg Construction**
Date Completed	August 2023

Teragrail conducted a geotechnical investigation in Versailles, Las Piñas. This involved drilling three boreholes to depths ranging from 5.85 to 8.00 meters, with each borehole undergoing Standard Penetration Tests. The assessment aimed to identify and address any potential site challenges, ensuring the success of the project.

Geotechnical Investigation in St. Portofino Heights, Bacoor

BACOOR, CAVITE

Client	**Eliwork Residential Bldg Construction**
Date Completed	October 2023

Teragrail conducted a soil investigation in the proposed residential in St. Potofino Heights to ensure the project site is safe from liquefaction and expansion, revealing the presence of collapsible soils at depths of 0.00-1.00m in BH-01 and 0.00-2.00m in BH-03. This knowledge helps engineers and planners anticipate risks and apply measures like soil stabilization or specialized foundations to ensure project safety and durability.

Our Valued Clients

Expertise with passion and purpose like no other

At Teragrail, we embrace projects of every scale, firmly believing that no endeavor is too big or too small. Our extensive portfolio boasts involvement in thousands of projects across diverse industries, showcasing our versatility and capability. From inception to completion, Teragrail's track record is a testament to our unwavering commitment and proficiency in delivering a wide array of environmental and geotechnical services.

750+
Holes drilled

2650+
Samples tested

52+
Extensive reports completed

95+
Offshore/onshore projects completed

>100m
Deepest borehole drilled yet

>450m
Largest diameter drilled yet

OUR VALUED CLIENTS

including Cargon Mining Corporation, Pasay City Harbor Corporation, Greenlight Renewables, and many others.

TERAGRAIL.COM

TERAGRAIL
GEOLOGY & GEOTECHNICS

Experience Higher Quality Services
at a Lower Cost!

Have questions? Get in touch!

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