GEOSYNERGY SOLUTION

COMPANY PROFILE

PT. GEO SINERGI UTAMA

● GEOTECHNICAL ● ENVIRONMENTAL ● WATERWELL ● GROUND SURVEY

CONSULTING & ENGINEERING

About GeoSynergy Solution

GeoSynergy Solution is a specialized consultancy services under legal company name of PT. Geo Sinergi Utama. We have established our premises in Jakarta with focusing services throughout Indonesia Region.

The company was formed by some expertise with world class consultancy background in the past and developing into high quality consultancy services with local resources. Our expertise has work experiences in Indonesia, Southeast Asia, Australia, and Middle East.

Scope of Services

GeoSynergy Solution provides consultancy services focusing in mining, oil & gas and construction industries with our capability in geotechnical, hydro and environmental. GeoSynergy is known as sole distributor and applicator for advance groundwater instrumentation in Indonesia (for Heron Instrument Inc., Canada).

Area of services:

Mining:

- Exploration
- Open pit mining
- Geotechnical
- Environmental
- Water Well
- Geochemistry

Oil &Gas :

- Site Investigation for Jack up Rig, Platform and Pipeline Alignment
- Foundation Engineering
- Driveability Study
- Offshore Cable and Pipeline Laying Review
- Environmental Review
- Ground Survey and Topography

Construction:

- Site Investigation for building, bridge, dam, road, plant
- Foundation Engineering
- Slope Stability
- Surveying
- Soil Improvement
- Road and Highway alignment review
- Embankment and Landfill Assessment

Our Expertise

Our expertise in consultancy services is listed below. Other specialist support such as GIS engineer and CAD dafter are provided on specified work purpose.

Alexander Dian, B.Eng, M.AusIMM, M.ISSGE

Alexander Dian is an experienced geotechnical engineer with 17 years' experience in geotechnical and geological engineering for the civil facilities, mining and offshore oil & gas industries. His experience covers site investigation, geotechnical mapping, geotechnical and tunnelling instrumentation, *insitu* testing, geohazard surveys, geotechnical design for open pit, mining infrastructure, dams, deep foundation design and review, pipeline routes, offshore structures and jetties. Alexander Dian has geotechnical and geological experience in coal, laterite nickel, gold and copper, as well as offshore marine sediments, at various locations across Indonesia, Southeast Asia, Australia and the Middle East.

Andre IE, B.Eng, M.Eng, M. Engineers Australia

Andre is an environmental consultant with experience with 15 years in Region of Australia and Indonesia. His postgraduate was obtained from Chemical Engineering in Melbourne University Australia. He has been involved in Phase I and II of large scale contaminated soil and groundwater projects. He has managed and conducted Phase I and II Soil and Groundwater Investigation Studies and Environmental Impact Assessment for several manufacturing and oil & gas sector.

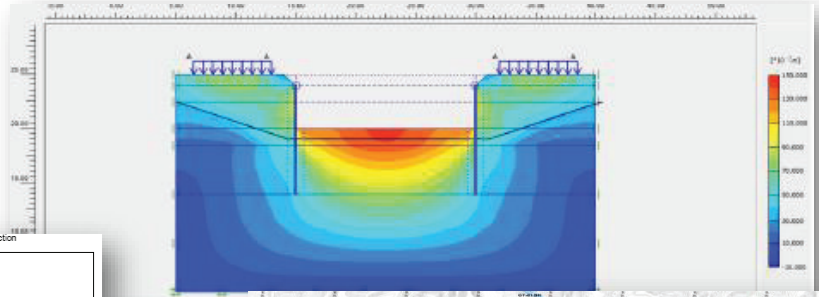
Exta Hadisetyanti, B.End

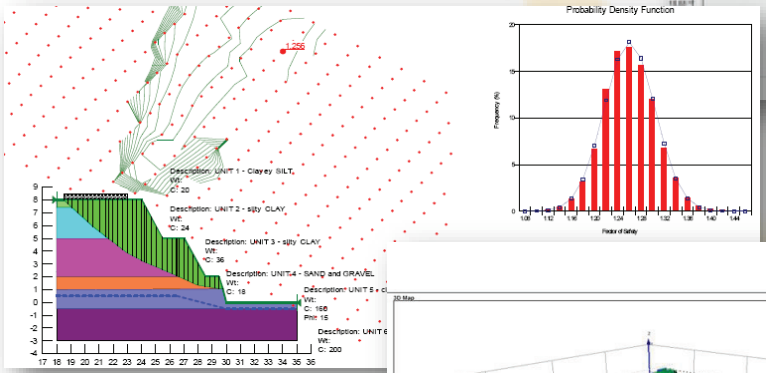
Exta is a senior geotechnical consultant handling soil and rock laboratory within 17 years experiences. She has experiences working in earthwork construction and open pit mining for nickel laterite and coal commodities. She has excellent capability in quality control and quality assurance for laboratory data with growing significantly in field investigation and *insitu* testing.

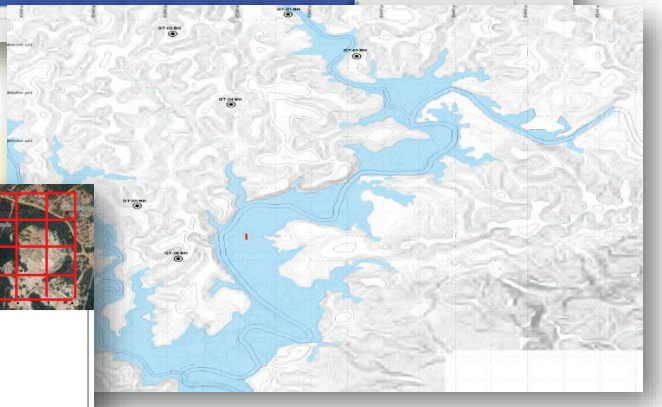
Engineering Capabilities

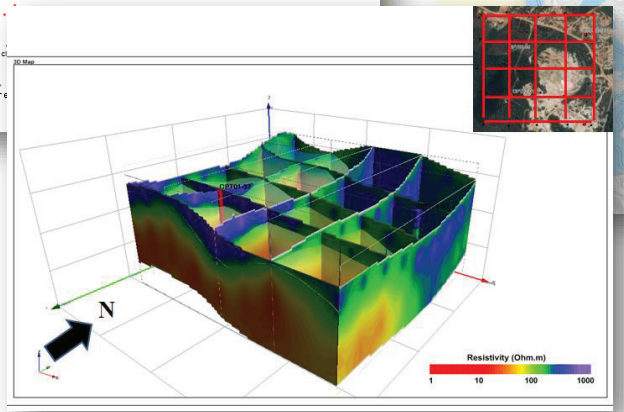
GeoSynergy has capabilities in problem solving using most updated engineering tools :

- **Slope Stability**
- **Finite Element Method**
- **Sub-ground database**
- **CAD and GIS**
- **Foundation Design Engineering**
- **Risk Assessment**
- **Hydrologic Leachate Analysis**







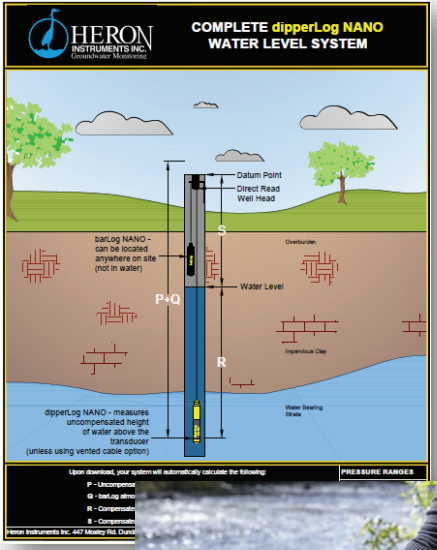


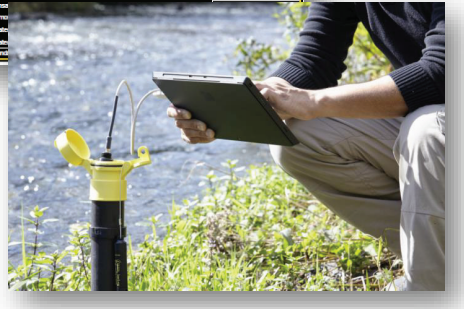
Groundwater Monitoring Expert

GeoSynergy has specialized in groundwater monitoring with supporting from Heron Instrument Inc. Canada. GeoSynergy uses reliable and robust equipment to conduct hydrogeology testing and pumping, long-term groundwater monitoring and contamination monitoring.

The line-up of groundwater monitoring equipment and borehole instrumentation is as listed:

No.	Equipment	Purpose
1	Water Level	Simple groundwater measurement
2	DipperT	Groundwater measurement and raising/falling head testing in well hole
3	DipperLog	Continuous groundwater and advance raising/falling head testing in well hole
4	ConductivityPlus	Measure conductivity in water, showing seepage and different water quality
5	Temperature meter	Measure groundwater temperature difference
6	Oil/Water Interface	Measure standing and thickness of hydrocarbon in groundwater system
7	Magnetometer	Locate abandoned casing or steel material in borehole
8	Depth Indicator	Locate depth of hole while working in onshore or offshore drilling
9	Dipper Tough	Measure contaminated groundwater
10	Camera Borehole Inspection	Provide drilling wall condition (video and picture format)





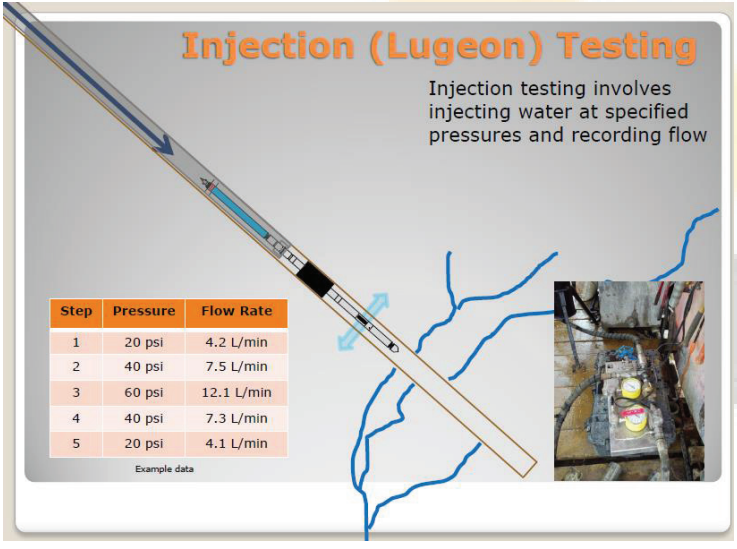
Groundwater Monitoring Instrumentation

GEOSYNERGY SOLUTION

HERON INSTRUMENTS INC.
Groundwater Monitoring

Geotechnical and Hydrogeology Instrumentation

No.	Equipment	Purpose
1	Inflatable Packer (Swips type)	Packer (Lugeon) Testing
2	Camera Borehole	Borehole and groundwater inspection
3	Hydraulic CPT 5 tonnes	CPT testing
4	Dynamic Cone Penetration (DCP)	*Insitu* CBR and bearing capacity
5	Hand Auger	Surface soil sampling
6	Sandcone Density	*Insitu* density measurement



Geotechnical (Soil and Rock) Laboratory

Point Load

Direct Shear

Triaxial (with pore pressure)

Uniaxial Compression Test

Oedometer Test

Soil Properties Testing

Laboratory : Jakarta & Kendari

Expertise Experience

Our expertise experience has been involving at some number of experiences in some multi-discipline projects throughout Indonesia and Southeast Asia Region.

Year	Project	Location	Scope of Services
2021	Geotechnical Investigation for Jetty Area	Pomalaa, Southeast Sulawesi	Geotechnical Assessment for Jetty and Facilities
2021	Resistivity Survey, Water well Drilling and Installation	Cileungsi, Bogor	Water well development for Landfill Consumption
2020	Resistivity Survey, Water well Drilling and Installation	Bahodopi, Central Sulawesi	Water well development for Mine Area Consumption
2020	Geotechnical Investigation and Design for Pomalaa MHR (Vale)	Pomalaa, Southeast Sulawesi	Geotechnical Assessment for Main Haul Road in Vale Pomalaa
2020	Additional Geotechnical Investigation for FeNi Smelter Project	Bahodopi, Central Sulawesi	Geotechnical and Hydrogeology Assessment for Smelter Facilities in Vale Bahodopi
2020	Geotechnical Investigation for Ore Preparation Plant	Pomalaa, Southeast Sulawesi	Geotechnical Assessment for Ore Preparation
2019	Geotechnical Investigation for FeNi Smelter Project	Bahodopi, Central Sulawesi	Geotechnical and Hydrogeology Assessment for Smelter Facilities in Vale Bahodopi
2019	Geotechnical Assessment for Quarry in Vale Pomalaa	Pomalaa, Southeast Sulawesi	Geotechnical and Hydrogeology Assessment for Quarry in Vale Pomalaa
2019	Geotechnical Assessment for Quarry in Vale Bahodopi	Pomalaa, Southeast Sulawesi	Geotechnical and Hydrogeology Assessment for Quarry in Vale Pomalaa
2018	Geotechnical and Hydrogeology Assessment for Bahodopi Block 2	Bahodopi, Central Sulawesi	Geotechnical and Hydrogeology Assessment for Nickel Mine
2019	Geotechnical and Hydrogeology Assessment for Underground Coal Mine (Pama)	Central Kalimantan	Geotechnical and Hydrogeology for Proposed Underground Coal Mine Facilities
2019	Water well Drilling and Installation	PPLi Cileungsi, West Java	Water well development for landfill facility
2019	Hazardous Landfill Study (and Design) for PLTU Ketapang (PT PLN Persero)	Ketapang, West Kalimantan	Landfill Study and Design for FABA material (KLHK compliance)
2019	Hazardous Landfill Study (and Design) for PLTU Sanggau (PT PLN Persero)	Sanggau, West Kalimantan	Landfill Study and Design for FABA material (KLHK compliance)

Year	Project	Location	Scope of Services
2018	Geotechnical and Hydrogeology Assessment for Bahodopi Block 3	Bahodopi, Central Sulawesi	Geotechnical and Hydrogeology Assessment for Nickel Mine
2018	Due Diligence for Coal Mine Open Pit	Tabang, East Kalimantan	Geotechnical and Hydrogeology Assessment for Due Diligence in Coal Mine
2018	Jetty Design for ATM Coal Mine	Berau, East Kalimantan	Geotechnical Assessment for Jetty Facilities
2018	Open pit Design for ATM Coal Mine	Berau, East Kalimantan	Geotechnical and Hydrogeology Assessment for Open Pit (JORC Compliance)
2017	Baseline Study for Proposed Landfill	Lamongan, East Java	Geotechnical Investigation and Resistivity Survey for Proposed Landfill Area
2017	QA QC for Ground Improvement Work using Deep Cement Mix at MITT Port	Thilawa, Myanmar	QA QC Ground Improvement using Deep Cement Mix
2017	QA QC Construction for Landfill	Bogor, West Java	QA QC for landfill preparation including geomembrane installation
2016	Baseline Study for Proposed Landfill	Karawang, West Java	Geotechnical Investigation and Resistivity Survey for Proposed Landfill Area
2016	Baseline Study for Proposed Landfill	Riau	Geotechnical Investigation and Resistivity Survey for Proposed Landfill Area
2016	Soil Testing and Sampling for Earthwork Quality	Bogor, West Java	Soil Testing using Sandcone and Speedy Moisture Content and Reviewing Sampling Testing
2016	Onshore Geotechnical Investigation at PHENC Bunyu	Bunyu, North Kalimantan	Geotechnical Design for Onshore Pipeline Alignment and Foundation Design
2016	Reviewing Ground Improvement Design using Deep Cement Mix at MITT Port	Thilawa, Myanmar	Geotechnical Review for Ground Improvement using Load Transfer Method
2015	Ground Improvement Design using PVD at MITT Port	Thilawa, Myanmar	Geotechnical Investigation Review and Ground Improvement Design
2015	Field Permeability Testing and Review for Suban-16 Wellpad	Jambi	Hydrogeology field testing and reviewing proposed landfill area
2015	Landfill Assessment and Design (Hazardous Waste Material)	Bogor, West Java	Multidiscipline in Geotechnical, Hydrogeology and Leachate System Design for Landfill Cell Development
2014	Bridge Foundation Assessment	Tembesi, Jambi	Geotechnical Assessment for Bridge Design
2014	Shell Station Deep Cut Assessment	Jakarta	Geotechnical Design for Underground Tank Facilities
2013	(Not named) Plant facility	Bogor, West Java	Environmental Audit

GeoSynergy Premises

Administration Office

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Operation & Laboratory

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Laboratory Kendari

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