



EXECUTIVE SUMMARY

A. PROJECT FACT SHEET

Project Name	Proposed Nickel Laterite Mining Project																
Project Location	Barangays Pantukan and Adlay, Carrascal, Surigao del Sur and Barangay Cagdianao, Claver, Surigao del Norte																
Project Type	Resource Extraction – Nickel Laterite Mining																
Project Area	2,320.0881 hectares (ha) under MPSA 322-2010-XIII SMR issued on February 11, 2010																
Project Capacity	5,000,000 Metric Tons (MT) of ore per year																
Project Description	<p>4D Ventures and Dev't Inc. (4DVDI) will operate MPSA 322-2010-XIII SMR (Annex ES-1) that involves the extraction and direct shipment of nickel laterite. This MPSA Holder is formerly of North Dinagat Mineral Resources Corporation (NDMRC) but now assigned to 4DVDI. The mining area is located in Barangays Pantukan and Adlay, Carrascal in Surigao del Sur and in Barangay Cagdianao, Claver in Surigao del Norte covering an area of 2,320.0881 has.</p> <p>A Deed of Assignment (Annex ES-2) has been executed with 4D Ventures and Dev't Inc. on September 21, 2020 and has been submitted for registration with the Mines and Geosciences Bureau (MGB) on June 7, 2021.</p> <p>Copies of the Securities and Exchange Commission (SEC) registration of 4DVDI are provided in Annex ES-3.</p> <p>Ore extraction will primary be done through “open cut” method specifically hillslope cutting. It is actually a “cut and fill method” wherein the slope is cut, the overburden is stockpiled near the active, the ore is extracted, and finally the overburden is returned to fill the mined-out area. Bulldozers, backhoes, payloaders, and breakers will be used in the process. Large saprolite ore boulders will be broken into sizes that could facilitate handling and mechanical breakers or people will be used for such activity. Payloading to hauling trucks will follow suit. The ore is eventually hauled to the causeway of Malayan Nickel Mining Corporation wherein an Authority to Use has been issued on Jan. 11, 2022 (Annex ES-4). He ore will be then loaded into a barge or LCT and finally, into the ship to transport it to the processing plant in Mainland China.</p>																
Project Components	<table border="1"> <thead> <tr> <th>Components</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Major components</td> <td>Mining Area / extraction area</td> </tr> <tr> <td>Stockpile area</td> </tr> <tr> <td>Mine Road Network</td> </tr> <tr> <td>Hauling Road Network</td> </tr> <tr> <td rowspan="5">Support facilities</td> <td>Campsite and related facilities</td> </tr> <tr> <td>Assay Laboratory</td> </tr> <tr> <td>Motor pool</td> </tr> <tr> <td>Powerhouse and Power Supply System</td> </tr> <tr> <td>Elevated Tank and Water Distribution System</td> </tr> <tr> <td></td> <td>Warehouse</td> </tr> </tbody> </table>		Components	Description	Major components	Mining Area / extraction area	Stockpile area	Mine Road Network	Hauling Road Network	Support facilities	Campsite and related facilities	Assay Laboratory	Motor pool	Powerhouse and Power Supply System	Elevated Tank and Water Distribution System		Warehouse
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		Fuel Storage Facility
		Road Network
		Nursery
		Parking Areas
		Promenade Area
		Stockyard
		Stockpile Areas
		Nursery Extension
		Sampling House
		Pump boat House
		Checker House
		Trapal Men House
		Collector Sump
		Sampling Houses
	Satellite Nursery	
	Pollution Control Facilities	Siltation ponds / silt traps / contour settling ponds
		Sabo dam
MRFs		
Hazardous waste storage area		
Disposal of residual wastes		
Non-hazardous waste storage/lay-down areas		
	Oil-water separators	
	Septic tanks	
Manpower	The Company will employ 500 (295 on Mine Operator side and 205 on Mine Contactor side) employees at the peak of its operation. During the development year (Year 0), the project will initially employ 60 personnel, majority being local skilled. This number will gradually increase over the years.	
Project/Investment Cost	PhP 309,838,841.00	
Profile of the Proponent		
Name of Proponent	4D Ventures and Dev't Inc. thru a Deed of Assignment with North Dinagat Mineral Resources Corporation (NDMRC)	
Address		
Authorized Signatory/ Representative	Mr. Dave Lerio President	
Contact Details	Mobile No.: 0917-8972470 Email address: davelerio@gmail.com	
Profile of the Preparer		
EIA Preparer	Mediatrix Business Consultancy	
Address	L29 Joy-Nostalg Center, 17 ADB Ave., Ortigas Center, Pasig City	
Contact Person	Matilde R. Jimenez-Fernando General Manager	
Contact Details	Telephone No.: (02) 689 7114 Mobile No.: +63917-5064499 Email Address: mediatrixbusinessconsultancy@gmail.com	



B. EIA PROCESS DOCUMENTATION

EIA Team

The EIA Study was conducted by a multidisciplinary team of specialists and consultants of Geo Environmental Consultancy, Inc. (GECI) and Mediatrix Business Consultancy (Mediatrix), in close coordination with 4D Ventures and Dev't Inc. (4DVDI). The Information, Education and Communication (IEC), Public Scoping, Technical Scoping, baseline survey, and impact assessment were carried out by GECI. On the other hand, the revision and updating of the Environmental Impact Statement Report (EISR) were conducted by Mediatrix. The composition of the EIA Team is presented in **Table ES-1**. The sworn statements of accountability of 4DVDI, GECI, and Mediatrix are presented in **Annex ES-5**.

Table ES-1: EIA Team Composition

EIA Team	Areas of Expertise	EMB Registry No.
Mediatrix Business Consultancy		
Matilde J. Fernando	Team Leader, Socio-Economics and Legal Framework	IPCO-035
Fritzie Jane Salido	Water and Air Module	IPCO-114
Ria Caramoan	Air Module	IPCO-106
Xairus De Guzman	Geology Module	IPCO-058
Benjamin Francisco	Freshwater Ecology and Marine Biology	IPCO-038
Mark Angelo Bucay	Terrestrial Ecology	
John Benrich Zuniga		
Alexis Fernando	Field Assignment and Drone Operation	IPCO-034
Juvinal Esteban	IEC and Community Relations	IPCO-091

EIA Schedule

The EIA Study was commenced by conducting Information, Education and Communication (IEC) and Public Scoping activities. Technical Scoping was conducted with the EMB and EIA Review Committee (EIARC) members on February 11, 2016 at the Conference Room of EMB Central Office, DENR Compound, Visayas Ave., Diliman, Quezon City and based on the agreed scope of work, the collection of primary and secondary data was conducted. Data collected were processed, analyzed and evaluated for impact assessment and formulation of Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP). The data and information were written into an EISR and the final version of the EISR will be submitted to the EMB-Central Office for ECC application. The major activities undertaken to complete the EIA were listed in **Table ES-2**.

Table ES-2: EIA Study Schedule

Activity	Date
IEC Activities	November 2012, April 2021
Public Scoping	February 5, 2016
Technical Scoping	February 11, 2016
Primary and Secondary Data Gathering	
Geology and Geological Hazards	February – March 2016, April 2021
Pedology	February – March 2016, April 2021
Hydrology/Hydrogeology	February – March 2016, April 2021
Terrestrial Ecology	January 2016, April 2021
Water Quality	January 2016, April 2021
Freshwater and Marine Ecology	January 2016, April 2021
Air Quality and Noise	February – March 2016, January 2018



Activity	Date
Perception Survey	February 5-14, 2016, June 2021
Preparation of EISR - revision	March to June 2021
Resubmission of EISR to EMB	July 23, 2021
First EIARC Meeting	February 18, 2022
Public Hearing	April 5, 2022
Second EIARC Meeting	
ECC Issuance	

EIA Study Area

The EIA Study area for the project covers the 2,320.0881 hectares MPSA in Barangays Pantukan and Adlay, Carrascal in Surigao del Sur and in Barangay Cagdianao, Claver in Surigao del Norte. The study area also includes the watersheds hosting the mining operational area; streams draining the mining claim including Marga River, Adlay River, and Kay-ongan River; coastal waters where these rivers drain and causeway site.

EIA Methodology

The EIA for the project conforms to the Revised Procedural Manual for DAO 2003-30 and DAO 2017-15 in the conduct of the following activities, to wit: (i) IEC and Scoping, (ii) collection of primary and secondary data, (iii) identification/prediction/assessment of environmental impacts, (iv) formulation of EMP and the (v) development of EMoP. The baseline information are mainly primary and secondary data which were obtained from the local government units (LGUs) and other government agencies. Data collected were based from the approved EIA Scoping and Screening Form presented in **Annex ES-6**, which was finalized during the Technical Scoping. **Table ES-3** shows the pertinent data, sources, and methodologies used for the conduct of EIA Study.

Table ES-3: EIA Methodology

EIA Study Module	Parameters/Scope	Methodology and Approach on Impact Assessment
Land		
Geology/ Geomorphology, Pedology, Land Use and Classification	Reconnaissance, land use, land classification assessment, slope, soil types and classification, erosion	<ul style="list-style-type: none"> Assessment of the compatibility of the project vis-à-vis approved land use plan and zoning classification. Review of available reports, geologic literature and information from Mines and Geosciences Bureau (MGB), Philippine Institute of Volcanology and Seismology (PHIVOLCS), Philippine Atmospheric, Geophysical and Astronomical Services (PAGASA), and National Mapping and Resource Information Authority (NAMRIA) Assessment of construction and operation impacts based on the construction and operation activities of the project, and the susceptibility of the project area to natural hazards.
Terrestrial Ecology		<ul style="list-style-type: none"> Conduct of field survey using transect, quadrat, and cruising method. Assessment of impacts based on the construction and operation activities of the project to the existing ecosystem.
Water		
Hydrology/ Hydrogeology	Regional hydrogeology, catchment and drainage system	<ul style="list-style-type: none"> Review of existing literatures and maps from DENR and MGB. Discharge measurement of streams using flotation method. Computation of monthly streamflow using area discharge ratio method for ungauged streams Measurement of streams and rivers using curvimeter and topo map Calculation of water balance



EIA Study Module	Parameters/Scope	Methodology and Approach on Impact Assessment
		<ul style="list-style-type: none"> Assessment of impacts based on the construction and operation activities of the project to the existing environment and the susceptibility of the project area to flooding.
Water Quality	Physico-chemical and bacteriological characteristics of freshwater and effluent	<ul style="list-style-type: none"> Review of existing water quality monitoring reports. Sampling and analysis of water Assessment of impacts based on the construction and operation activities.
Freshwater Ecology	Benthic habitats, species, composition, density, and diversity of sea grass resources and associated macro benthic algae in front of the project site, commercially-important macro invertebrates in the inter-tidal areas, plankton community	<ul style="list-style-type: none"> Use of primary and secondary data and interviews Assessment of impacts based on the construction and operation activities of the project to the existing ecosystem.
Marine Ecology		<ul style="list-style-type: none"> Review of existing literatures Conduct of manta tow, transect, quadrat, visual census, pond net, and sampling Assessment of impacts based on the construction and operation activities.
Air		
Meteorology/ Climatology	Monthly average rainfall, climatological normal and extremes, wind rose diagrams, and frequency of tropical cyclones	<ul style="list-style-type: none"> Assessment of impacts based on the construction and operation activities. Calculation of GHG emissions using emission factor-based estimation method prescribed in The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard, Revised Edition, World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI), 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National GHG Inventories and 2014 IPCC Assessment Report. Projection of monthly average temperature and rainfall and frequency of extreme events.
Air Quality and Noise Level	Ambient air quality and noise levels	<ul style="list-style-type: none"> Review of existing literatures Conduct of sampling and analysis for PM10, NO2, and SO2 Assessment of impacts based on the construction and operation activities of the project to the existing air quality
People		
Socio-economic and Public health	Morbidity and mortality trends, Demographic data of impact area: <ul style="list-style-type: none"> - Number of households and household size - Land area - Population - Population density /growth - gender and age profile, - literacy rate, profile of educational attainment Socioeconomic data: Main sources of Income, Employment rate/ profile, sources of livelihood, Poverty incidence, commercial establishments and activities, banking and financial institutions	<ul style="list-style-type: none"> Conduct of IEC, Public Scoping, and Perception Survey Review of CLUP and other secondary data from LGUs and PSA. Assessment of impacts based on the results of IEC, Public Scoping, perception survey and construction and operation activities of the project.
Environmental Risk Assessment		
Risk Assessment	Safety risks and physical risks	Conduct consequence and Frequency analyses using the methodology described in the Revised Procedural Manual (RPM) for DAO 2003-30



Public Participation Activities

An extensive and comprehensive IEC campaign about the Project and the EIS System was conducted to ensure a meaningful and active participation of well-informed stakeholders – affected residents, host communities, LGUs, relevant agencies, the EMB and the local DENR in the EIA process.

IEC

The IEC was conducted on 03-25 May 2021 to provide updated information about the proposed Project and to encourage the concerned stakeholders to participate in the EIA Study. The IEC was conducted through a provision of IEC materials to the officials and residents of the host municipalities and barangays. IEC materials and photos taken during the IEC are presented in **Annex ES-7**.

Perception Survey

The perception survey was conducted to the host barangays of the project on February 5-14, 2016 and 03-25 May 2021 by 4DVDI thru Mediatrix to cover the respondents in all host barangays. The sample of the perception survey questionnaire is presented in **Annex ES-8** while the results are discussed in the People Module.

Public Scoping

Public Scoping was conducted on February 5, 2016. The Public Scoping was conducted to provide information about the proposed Project and to collect site-specific issues, concerns and inputs to the EIA Study. Consultations were done through Public Scoping and these were attended by barangay officials and residents and LGU Officials. No opposition to the project was raised during the process.

The summary of issues raised during public participation activities is presented in **Table ES-4**. However, the invitation letters, attendance sheets and photos taken during Public Scoping cannot be presented as the former caretaker of documents passed away in year 2020 and no document handover/transfer has been made.

Table ES-4: Summary of Issues Raised during Public Participation Activities

Activity	Issues Raised	Response/Committed Action	Public Perception
IEC	<ul style="list-style-type: none"> Boundary issues 	Resolution rests with the DILG and the LGUs concerned	Mining in the area is widely accepted by the residents.
Public Scoping	<ul style="list-style-type: none"> Employment Dust generation Siltation and stream discoloration, Lack proper coordination with LGUs, municipal boundaries Participation of Indigenous People (IP) during rehabilitation Protection of watershed of water supply source. 	To be included in the EIA Study including the corresponding mitigating measures.	Mining in the area is widely accepted by the residents but wishes the mining would not push through
Perception Survey	<ul style="list-style-type: none"> Adverse impacts of the project to air and water quality 	Results will be presented in the EISR	Residents perceived mining as a hope to improve their lives.
	<ul style="list-style-type: none"> Livelihood 	This will be part of the SMDP	



C. EIA SUMMARY

Summary of Alternatives

Ore extraction will primary be done through “open cut” method specifically hillslope cutting. It is actually a “cut and fill method” wherein the slope is cut, the overburden is stockpiled near the active, the ore is extracted, and finally the overburden is returned to fill the mined-out area. Bulldozers, backhoes, payloaders, and breakers will be used in the process. Large saprolite ore boulders will be broken into sizes that could facilitate handling and mechanical breakers or people will be used for such activity. Payloading to hauling trucks will follow suit. The ore is eventually hauled to the causeway and in turn loaded into a barge or LCT and finally, into the ship to transport it to the processing plant in Mainland China. No processing will be done in the project site except to separate the hi-grade ore from the low-grade ore.

Summary of Key Environmental Impacts and Management Plans

Table ES-5 presents the summary of key environmental impacts of the project and the corresponding management plan and mitigating measures.

Table ES-5: Summary of Key Environmental Impacts and Management Plan

Activity per Project Phase	Potential Impacts	Mitigating / Enhancement Measures	Rating/Performance of Mitigating Measures
Construction Phase			
Vegetation Clearing	Reduction of vegetation and fauna disturbance and/or displacement	<ul style="list-style-type: none"> Replacement of trees cut as per DMO 05 of 2012 with endemic species combined with fruit bearing trees to be planted at the buffer zone of the MPSA. Establishment of bamboo plantation following the instruction of the DENR Secretary to establish Bamboo Plantation for the Mining Sector (contractors/ permittees/ permit holders) equivalent to 10% of the declared mined-out areas and 10% of the final mine area. 	100% replacement of removed vegetation as per DMO No. 05 of 2012 and DENR Secretary's instruction for a Bamboo Plantation
	Potential siltation of nearby bodies of water due to surface water run-off	<ul style="list-style-type: none"> Provision of temporary bunds around the stockpiles of overburden wastes and drainage systems to convey the storm run-off to siltation ponds. Provision of siltation ponds 	100% conveyance of run-off water to siltation ponds
	Air pollution due to generation of dust from site/access road preparation	<ul style="list-style-type: none"> Sprinkling of water at least once a day along the access road and project area Sprinkling of water at least twice a day during hot weather, one in the morning, one in the afternoon 	100% compliance with RA 8749
Development of access roads, mining areas, and support facilities	Degradation of surface water quality due to contamination from domestic wastewater	<ul style="list-style-type: none"> Provision of Septic Tanks with regular desludging by third party contractor as needed, usually once every two years and two (2) Wastewater Treatment Facility for domestic wastes 	100% no discharge of untreated domestic wastewater to nearby bodies of water
	Siltation of surface waters	<ul style="list-style-type: none"> Provision of settling ponds as sediment barrier structure Provision of sediment barrier structure such as silt booms during port construction 	100% compliance with RA 9275
	Contamination of surface and ground water quality due to accidental oil spill	<ul style="list-style-type: none"> Provision of oil residue recovery and reuse system Implementation of oil spill contingency plan 	100% compliance with RA 9275
Operational Phase			
Extraction and hauling of materials and materials transport	Siltation to streams due to erosion of exposed soil and Overburden materials	<ul style="list-style-type: none"> Progressive rehabilitation and revegetation of mined out quarries and planting barren lots to prevent soil erosion as per DMO 05 of 2-12 	100% compliance to TSS standards



Activity per Project Phase	Potential Impacts	Mitigating / Enhancement Measures	Rating/Performance of Mitigating Measures
		<ul style="list-style-type: none"> Utilize the recovered topsoil for re-soiling or as soil cover on waste dumps and other disturbed areas for rehabilitation and revegetation. All stockpiles shall be maintained and managed below the angle of repose of 45°. Continue to implement sediment and erosion control plan Proper drainage design at the bench toes and access roads, to control the flow of runoff water, and divert it to series of 2 stage siltation ponds (5m. width x 10m. length x 5m. depth = 250 m³) Rainwater and runoff collecting systems from crusher platform shall be provided with primary and secondary silt traps 	
	Generation of domestic wastewater that may contaminate the soil and receiving body of water	<ul style="list-style-type: none"> Provision and proper maintenance of Septic Tanks with regular desludging by third party contractor as needed, usually once every two years and settling ponds for runoff water 	100% conformance to DENR effluent standards (RA 9275)
	Generation of solid wastes	<ul style="list-style-type: none"> Proper management of domestic solid i.e. provision of Material Recovery Facility for proper waste management and Hazardous Materials Facility (segregation, collection, minimization, reuse, recycle, treatment and disposal) 	100% compliance to RA9003
	Generation of hazardous wastes from waste oil/grease and spills from the heavy equipment and vehicles	<ul style="list-style-type: none"> Provision of 2,000 liter storage capacity for used oil provided with bund wall Regular (at least once a year) hauling of hazardous waste by DENR accredited transporter and treater 	100% no oil spills and compliance to RA6969
	Generation of fugitive dust during mining operations	<ul style="list-style-type: none"> Regular water spraying (minimum once a day, twice a day for hot weathers) of exposed dusty areas during high winds, and dry months. Establishment of a 20 – meter wide buffer zone planted with different species combination of shrubs, small and medium sized trees around the mine sites such as commercial hardwood tree species such as Gmelina and Santol as well as fruit-bearing trees/ herbs/ shrubs such as Papaya, Mango, Coconut, star apple and santol (endemic) and other endemic species such as but not limited to narra, molave, banaba, mamalis, and bitaog (endemic) as per DMO 05 od 2012. 	100% no dust be seen in the area