EXECUTIVE SUMMARY

A. Project Fact Sheet

TABLE ES-1 PROJECT FACT SHEET

Project Name	:	Proposed Nickel and Chromite Mining Project
Project Proponent	:	NORWEAH Metals and Minerals Company, Inc./ SBT Mining Inc
Address		Boa, Cagdianao, Dinagat Island
Nature of Project	:	Mining and Quarrying
Project Type		2.1.2. Extraction of metallic ores/minerals
Project Location	:	Boa, Cagdianao, Dinagat Island within Parcel III of Surigao Mineral Reservation
MPSA No.	:	MPSA No. 241-2007-XIII-SMR
Total Project Area	:	226.0235 hectares
Contact Person	:	Hilario G. Paguitan Chairman, CEO +6386 365 1471
Email Address	:	norweahmetalsminerals@yahoo.com
EIS Preparer		Land Vector Surveying and Consulting Firm

The company was a duly registered business firm established on April 23, 1992 and was registered with Securities and Exchange Commission (SEC) on the same date with SEC registration No. ASO92-002754. The company was organized to acquire, explore, and develop mineral land areas prospected by the Founding Chairman in the areas like Surigao Mineral Reservation and other Mineral Land areas in the country.

In its early stage of operation, the company was engaged in Chrome Ore Trading with Small Scale Mining operations at Dinagat Island, Surigao del Norte. Its trading operations was expanded all the way to Eastern Samar, Palawan, and Surigao del Sur. The company was able also to trade Chrome Ore locally with local Chrome Ore Smelters and likewise to Chrome Ore exporters.

Project Components

Component	Description
Exploration	Activities include site preparation, topographic and location survey, geol mapping, test pitting, laboratory analysis, trenching and core drilling.
Construction and development	This component will commence after the advanced exploration completed. This involves the construction of haul and access roads, causey stockpiles and dumps, pollution control devices and support facilities suc office building, housing, security posts workshop, warehouse, fuel de nursery and other guard and security facilities; laboratory, drainage ca water and power utilities
Operation phase	NORWEAH will adopt surface mining method in extracting nickel and chromite. Contour method of surface mining will be employed. The following are the activities during the operation: actual extraction of the ore, implementation of progressive rehabilitation, continued implementation of EMP. EMoP and SDMP, hauling of ore to the designated area
Processing and shipping	This component of mining involves the following activities: segregating ore waste rock, transfer of waste rock to waste dumps, transfer of ore to the ore stockpile area, solar drying of ore to reduce moisture between 20 an per cent, shipping of solar dried and clean ore
Abandonement	Decommissioning will be undertaken once the economic extractio optimized. Decommissioning and mine closure should be strictly accordance with the approved FMRDP. The activities are: remova equipment, Rehabilitation of mined-out areas, mine yards, waste dumps siltation traps and ponds, transfer/donation of fixed structures to host LGU

Total Project Cost: Php. 5,000,000,000.00

B. PROCESS DOCUMENTATION OF THE CONDUCT OF EIA

The EIA Team

Environmental Impact Assessment is a multi-disciplinary undertaking which look into the potential effects of the project into the bio-physical environment and to the people. In order to carry out the activities in EIA, a multidiscipline team was organized. The EIA team is composed of the following experts:

EIA Team Member	Field of Expertise/Module
Silverio Magallon, Jr, Ph.D.	Project leader/ Social Expert
Carmelita P. Martinez, MSETM, PhD	Environmental Specialist, Water Chemistry, Marine and freshwater ecology, water quality, air and noise Environmental Profiling and Assessment/ Land Module,
Ana P. Ocenar, PhD	Biologist, Freshwater Ecology, Marine Biology
For. Rosemarie Pidut	Forester, Terrestrial Flora and Fauna, Soil Quality

The EIA Study Schedule and Area

The Environmental Impact Assessment was conducted for a period of months following the guidelines of DAO 30 – 03 and DAO 2017 – 15. The work started with the information, education and communication followed by the delineation of the impact area using the topographic map. After which, the delineated areas were validated on the ground. The provisions of DAO 30 series of 2003 were used as the guideline in identifying potential the areas that will be impacted by the project. The impact areas are categorized as direct which is defined as the project site, the areas where the infrastructure and the facilities will be constructed, and the outfall of the wastes; indirect impact zones are the areas outside the project site but will be affected indirectly by the project like the neighboring barangays and coastal areas. The EIA study covers the assessment of the bio-physical condition and the socio-economic condition of the affected community of Barangay Boa. In the analysis of socio-economic impact, secondary data were used complemented with the perception survey. The details of the activities and the timetable are presented in the following Gantt Chart:

Activity	TIMELINE												
	2021						2022						
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
Public Perception Survey and IEC													
Public Scoping													
Technical Scoping													
a. Field Data Collection (People, Land, Water, Air)													
b. Field Data Collection (Hydrology)													
Data Tabulation and Processing / Laboratory Analysis													
Module Report Writing													
Air Quality Assessment													
Submission of EIS Modules													
Technical Review (1st Round)													
Public Hearing													
Technical Review (2nd Round)													
Submission of Revised EIS Report													
ECC Issuance													

The EIA Methodology

In assessing the potential impacts of the Proposed Nickel and Chromite Project, standard procedures based on the Guidelines stipulated in DAO 30 – 03 and DAO 2017 - 15. Both secondary and primary data were gathered from the Provincial Planning and Development Office of Dinagat Islands, MPDO of Cagdianao and Barangay Boa where project is located, as well as other concerned agencies such as DENR-NAMRIA, PAGASA, DENR EMB, MGB among others. The sampling methodologies adopted in the conduct of the various assessments and in the collection of samples are outlined below:

EIA Elements		Methodology
Land	Land Use	- Gathering of secondary data - Review of secondary data - Site observation and validation
	Natural Hazards	- Gathering of secondary data - Review of secondary data
	Terrestrial Biology	- Site observation - Transect walk - Quadrat sampling
Water	Hydrology/Hydrogeology	- Review of secondary data - Site observation - GIS
	Water Quality	- Water sampling and Lab analysis - In-situ analysis of pH, DO and temperature - Site observation
Air	Meteorology	- Review of secondary data
	Air Quality	- Ambient air sampling - Air Dispersion Modelling
	Noise level Measurement	- Direct measurement using standard noise level meter
The People	Socio-economic Profile	- Review of secondary data - KII, FGD - Perception survey

SUMMARY OF SITE CHARACTERIZATION

The results of the site assessment are summarized as follows:

EIA Elements	Summary of Baseline Condition
Land	The Municipality of Cagdianao is rich in mineral hence most of the land in the municipality is classified as mineral land. Further, because many of these mineral lands have slopes above 18%, a lot of expenses are classified as forest reserves which are protected and are for rehabilitation.

	Approximately 37.12 hectares within the project site is classified as land above 50% Slope or very steep, 2.94 hectares is within a riparian zone, and 75.70 hectares are within Key Biodiversity Areas.
Geology/Geomorphology/Geologic hazards	The area and its neighbors have significant relief, with steep terrain of ultrabasic/ultramafic mountains. Ground movements and landslides along unstable slopes are potential hazards caused by earthquakes at the project site. Other risks, like liquefaction, fissuring, and subsidence, are not anticipated in the region. Even though no large faults were discovered in the vicinity, mass shifts triggered by severe earthquakes might result in tension racks. Creep, droop, and slide can all cause these ruptures. Debris slide may occur if exposed to significant rainfall, which can oversaturate the areas. Barangay Boa is a coastal barangay. This makes it very prone to flooding. Heavy rains brought by typhoons can aggravate the water level at nearby rivers while strong winds can cause large waves flooding the coastal barangay. It is evident that a substantial chunk of the project area is susceptible to flooding.
Pedology	The soil composition indicates that it is not suitable for crop production. Cassava and pineapple are the only crops suitable for plantation. Soil pH results show that all three sampling stations had soil classified as neutral or within the standard of 6.5-7.5. Moreover, soil with pH levels between 6.5-9 is considered drier than usual. In terms of organic matter, all samples had organic matter considered to be average.
Terrestrial Biology	The terrestrial ecology assessment of the proposed project is based on the signed and approved technical scoping checklist for the Environmental Impact Statement of the Project. Moreover, this document contains the results of extensive monitoring of terrestrial biodiversity and ecology in the proposed Mining Project, a 226.0235 hectares project site of NORWEAH Metals and Minerals Co., Inc. (NMMCI), the MPSA Holder. The site is located at Brgy. Boa Municipality of Cagdianao, Dinagat Island within Parcel III of Surigao Mineral Reservation. Two (2) field visits were conducted in December 11-12, 2021 and May 14-15, 2022 to complete the fieldwork for wet and dry seasons.
Hydrology and Hydrogeology	There are 3 rivers within the projects site, two of which are unnamed rivers and the third one is Guadalupe River/Mayatoy River. There is no available data on the classification of the 3 rivers as of now.
Oceanography	Through available models and data from the National Mapping and Resource Information Authority or NAMRIA, the map shows that water depth near the mining site becomes as deep as 20 to 80 meters below sea level as you go further northeast.
Water Quality	Water quality of the three river systems are within the water quality guidelines. The marine water samples also indicate good water quality. Mayatoy river was used as a recreational area as it is frequently visited by

	local tourists for bathing. Heavy metal concentrations are generally low except for presence of Nickel in trace quantities.
Coastal/Marine and Fresh Water Ecology	tPlankton assemblage assessment showed that 24 taxa from six phytoplankton groups from the three river systems were identified. The most dominant group was Bacillariophyta, with eight taxa, while Cryptophyta, Dinophyta, and Euglenophyta had the least, each with one taxon identified. Mayatoy River had the highest density of the three rivers, while Punong River had the least based on the recent assessment. Diversity of plankton was high. The most striking detail was the presence of mayflies (Ephemeroptera: *Ephemera* sp. & *Cynigmina* sp.) in the Upstream station of Mayatoy River. These organisms only exist in very clean water. Shrimps were also observed in these were indicator species of the status of the river. Diversity for freshwater macroinvertebrates was considered low, but with even species distribution. With these details, it was concluded that the health of the three river systems varied: Mayatoy was considered healthy but low in diversity; Tabok-sa-Sapa was generally declining, and Punong River was mostly stable. However, these conclusions were considered on the fact that a calamity heavily struck Dinagat Islands prior to the initial assessment and that succession was still in place. Marine ecology monitoring is yet to be conducted due to strong current in the past months which hindered divers to conduct the assessment.
The Air	Region XIII (Caraga) has a Tropical Type II Climate which is characterized by no distinct dry and wet season. Rainfall happens throughout the year especially in November and February. Storm are mostly felt in areas facing the Pacific Ocean, this means the Barangay Boa is particularly vulnerable to typhoons. Precipitation is approximately 2741 mm yearly with an average temperature of 26.8°C. The results of air quality monitoring for 24-hour at the Project site. The results show the concentrations of particulates (TSP, PM10, & PM2.5), SO2, and NO2 and for trace metals 24-hour averaging period are all below the CAA limit of 230 µg/Ncm for TSP; 150 µg/Ncm for PM10; 150 µg/Ncm for NO2; and 180 µg/Ncm for SO2. The heavy metals concentrations are below the method detection limit in all air sampling stations. The results show the concentrations of particulates (TSP, PM10, & PM2.5), SO2, and NO2 for 24-hour averaging period are all below the DENR standards. Sources of noise at the time of monitoring were generally from the community residence, vehicles passing at the area, operation of chainsaw and radio.
The People	Cagdianao is a third-class coastal municipality of Dinagat Island province. The people of Barangay Boa affected by the proposed project faces many problems in which, most of them are the results of the current devastation of typhoon Odette in the province. Based on multiple response analysis, the number one most common problem they are facing is unemployment (18.59%), the second is poverty (17.13%), third is lack of food (12.32%), fourth is insufficient educational support (11.20%), and fifth is the lack of infrastructure and transportation (8.06%). Other respondents

	also mentioned agriculture, education, health, government aid and livelihood programs, waste disposal issues and problems.

SUMMARY OF EIA

The environmental impact assessment (EIA) was contracted by Land Vector Survey Firm. The EIA covers the different modules as stipulated in DAO 30-03.

The summary of impacts, mitigating/enhancement measures and the monitoring plan are summarized in the matrix below.

Project Phases, Key Environmental Aspects, Wastes, Issues, Built-in Measures

Project Activity	Potential Impact	Proposed Mitigating Measures	Performance /Target Efficiency
Pre-Construction Phase			
Land	Compatibility of land use	Zoning certificate	100%
Construction Phase			
Release of Sox, NOx, PM and dust from construction equipment Noise from construction equipment	Air pollution Noise pollution	• Use of low emission construction equipment • Regular water sprays/ sprinkling in construction site • Use of PPE among workers • Construction operation during day time • Install traffic signs/signages and hiring of spotters • Regular maintenance of equipment and vehicles	• 90%
Accidents	Endanger the health and safety of community and workers	• Creation and strict implementation of 5S and health and safety protocols • Regular safety inspection, meetings, and re-orientations • Provision of first aid kits in strategic locations	• 90%

Solid wastes such as papers, packaging material and construction debris	Land pollution	• Dispose of waste in accordance with RA 9003. • Practice segregation and 3Rs	• 100%
Oil and grease from construction vehicle	Land pollution	• Regular maintenance of vehicle • Put sawdust on the area of contamination	• 95%
Clearing and grubbing resulting to generation of vegetal waste	Loss of vegetation Land pollution	• Conduct of inventory of species • Balled important and endangered species for preservation • Dispose of vegetal wastes in accordance with RA 9003	• 95%
Overburden and excavated materials from construction of tailings pond	Land pollution	• Re-use overburden in nursery and rehab works later • Re-use excavated materials in land development in other areas	• 95%
Sediment laden surface run-off	Water pollution	• Construction of temporary settling ponds	• 100%
People	- Displacement and loss of livelihood - Fear of non-employment due to possibility of hiring non-local laborers - Fear of decrease of water supply due to degradation of watershed - Fear of their health and safety	• Develop and implement IEC to change the mind-set of host communities toward the project • Hiring of locally qualified labor. • Involve the community in the design, formulation and implementation social responsibility program • Conduct skill and inventory assessment of local labor force • Develop appropriate livelihood program for the host community especially women and OSY	• 100%
Operation Phase			

- Land clearing - Surface mining of laterite deposits - Stockpiling of mined ore - Transport and shipment of produced ores	<u>Land</u> - Removal of top soil - Alteration of topography - Change in land use	• Block mining • Progressive revegetation • Practice responsible mining • Apply best mine practices • Consider existing topography in building support facilities • Provision of erosion control structures	• 100%
	<u>Water</u> Increase, TSS, heavy metal and turbidity of surface and marine waters	• Provision of siltation ponds • Proper maintenance of drainage system • Progressive rehabilitation of mined-out areas	• 95%
	<u>Air</u> - Increase in PM10, SOx, and NOx in the air - Increase level of noise	• Proper and regular maintenance of vehicles and equipment • Watering of dust generating mounds and roads • Establishment of buffer zone around the mine site • Tree planting	• 95%
	<u>Marine Ecosystem</u> - Coral bleaching - Hampered growth of marine organisms - Reduction in marine diversity	• Provision of siltation ponds • Progressive rehabilitation	100%
	<u>Terrestrial Ecosystem</u> - Habitat degradation and fragmentation - Loss of wildlife - Vegetation removal and smothered due to stockpiling	• Retention of vegetation in areas with low mineral deposits • - Planting of endemic tree species • Progressive rehabilitation of mined-out areas • Strict observance of ANR regulations • Maintenance of riparian areas • Provision of buffer zones	95%
	<u>Economic</u> - Generation of revenues for LGU from taxes, permits, and royalties - Employment generation	• Benefits from development programs thru implementation of SDMP which is equivalent to 1.5% of operating cost • Total taxes – 60% to the national government and 40% to local government • Development of SME	100%

	- Population congestion - Peace and order problem - Security breaches	• Alternative livelihood for the host communities • IEC on nature of jobs available and the required qualification • Consultation on job requirement • Skills training • Livelihood opportunities for the host community and immediate vicinity • Coordination with BLGU to control of entry of establishment • Formulate and implement effective IEC program	
Abandonment Phase			
- Rehabilitation of mined-out areas - Dismantling of structures	- Filling open pit with waste rock - Erosion of newly filled soils - Restoration of vegetative cover in the mined-out area - Restoration of wildlife habitat - Return of fauna and increase in population of small animals - Reduction and eventual termination of employment - - Termination of revenues from taxes, permits and royalties	• Proper drainage and soil erosion control measures • Use endemic species • Restore habitat by improving vegetation • Promote alternative livelihood • Conduct IEC for decommissioning • Provide counselling	100%