## EIA SUMMARY FOR THE PUBLIC (ESP)

### 1. PROJECT DESCRIPTION

#### a. Project Fact Sheet

| | | Existing | Proposed |
|---|---|---|---|
| **Project Name** | | Homonhon Chromite, Lateritic Nickel and Iron Ores Mining Project | Homonhon Lateritic Nickel/Iron Project |
| **Project Location** | | Barangays Cagusu-an, Pagbabangnan, Casuguran and Culasi, Homonhon Island, Guiuan, Eastern Samar | Barangays Cagusu-an, Pagbabangnan, Casuguran and Culasi, Homonhon Island, Guian, Eastern Samar |
| **Project Category & Type** (based on Annex A of MC 2014- 005) | | Category A - ECP, extraction of metallic ore (onshore) with an annual extraction rate of ≤ 5,000,000 MT and an area of ≥ 800 hectares | |
| **Existing ECC** | | ECC-CO-1507-0020 dated January 12, 2016 issued to Cambayas Mining Corp. for Surface mining and direct shipment of lateritic nickel and iron ores as well as mining and processing of chromite ores (Annexes ES-5 and ES-6) | |
| **Project Size** | *Area* | 3,516.2015 hectares | 2,016.2015 hectares |
| | *Annual Production* | | |
| | *Extraction: Lateritic Nickel/ Iron Ore* | ≤ 5,000,000 WMT | ≤ 5,000,000 WMT |
| | *Chromite ore* | ≤ 748,800 MT | none |
| | *Production: Chromite Concentrate* | ≤ 120,000 MT | none |
| **Project Cost** | | PhP 338,833,000.00 | PhP 138,103,000.00 |
| **MPSA Ref. No** | | MPSA 292-2009 VIII | MPSA 292-2009 VIII Amended A |
| **MPSA Area** | | 3,516.2015 hectares | 2,016.2015 hectares |
| **Mining Area** | | 100 ha for chromite<br>800 ha for laterite | 800 hectares |
| **Mining Method** | | Open cut ore mining | Open cut ore mining |
| **Commodity** | | Chromite ore & Lateritic Nickel/Iron ore | Low nickel-high iron ore |
| **Project Duration** | | **> 12 YEARS**<br>@ 5M WMT maximum production per year. Total extraction will be 57M WMT Ni/Fe and 8,236,800 MT Cr with 1.32M Cr concentrate | **10 YEARS**<br>The mine will start producing 2.5M WMT of ore on the 1st Year and will ramp up to its peak extraction of 5M WMT from Years 2 to 10. Total extraction will be 47,418,317 WMT ore and 10,002,908 WMT waste for a total of 57,421,225 WMT. |
| **Major Project Components** | | Mining Blocks/Pits - 64 (900 ha) | Mining Blocks/Pits – 60 (800 ha) |
| | | Waste Dump (6.25 ha) | Waste/ Overburden Dump (9 ha) |
| | | Stockpile Area (21 ha) | Stockyard (14 ha)<br>Pieryard (2.5 ha) |
| | | Haul Roads (5ha) | Haul Roads (6 ha) |
| | | Causeway | Causeway (0.60 ha) |
| | | Settling Ponds (25.72 ha) | Settling Ponds (21.22 ha) and drainage system |
| | | | Nursery (1 ha) |
| | | | Fuel Storage Facility (0.5 ha) |

| | Existing | Proposed |
|---|---|---|
| | Admin Bldg, Exploration Bldg, Laboratory, Nursery, Mine Camp, Fuel Depot (2 ha) | Motorpool/Contractor's Camp (0.5 ha) |
| | | Laboratory and Sample Storage (0.025 ha) |
| | Contractor's Camp, Powerhouse, Vehicles & Motorpool (1.1 ha) | Powerhouse (0.01 ha) |
| | | Field Office (0.05 ha) |
| | | Employees Quarters (0.02 ha) |
| **Project Proponent** | **Cambayas Mining Corp.**<br><br>Contact Person: **Mr. Alfred C. Tan** (EVP/ General Manager) & **Engr. Francisco J. Arañez, Jr.** (VP for Operations)<br><br>1502 Trade and Financial Tower, 7th Ave cor 32nd St., Bonifacio Global City, Taguig City | **NICKELACE, Inc.** |
| | | Mr. Min Yang<br>Chairman<br><br>Contact Person: **Mr. Leoben Luis T. Evangelista** – COO |
| | | Unit 3012, Tower 2, High Street South Corporate Plaza<br>26th Street, 9th Avenue, Bonifacio Global City, Taguig City, 1634 |
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| | | Fax No.: (02) 7341-2267 |
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| **EIA Preparer** | CMC In-house consultants and employees | VTGI In-house consultants and employees |
| | Contact Person: Francisco Arañez, Jr. | Contact Person: Digna Evangelista |
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| | | Email address: digna.evangelista@verrumterra.com |

## 1-1 PROJECT LOCATION AND AREA

The propose project will be located in Barangays Casuguran, Pagbabangnan, Culasi and Cagusu-an, Island of Homonhon, Municipality of Guiuan, Province of Eastern Samar. It has a total area of 2,016.2015 hectares covered by MPSA No. 292-2009-VIII Amended A.

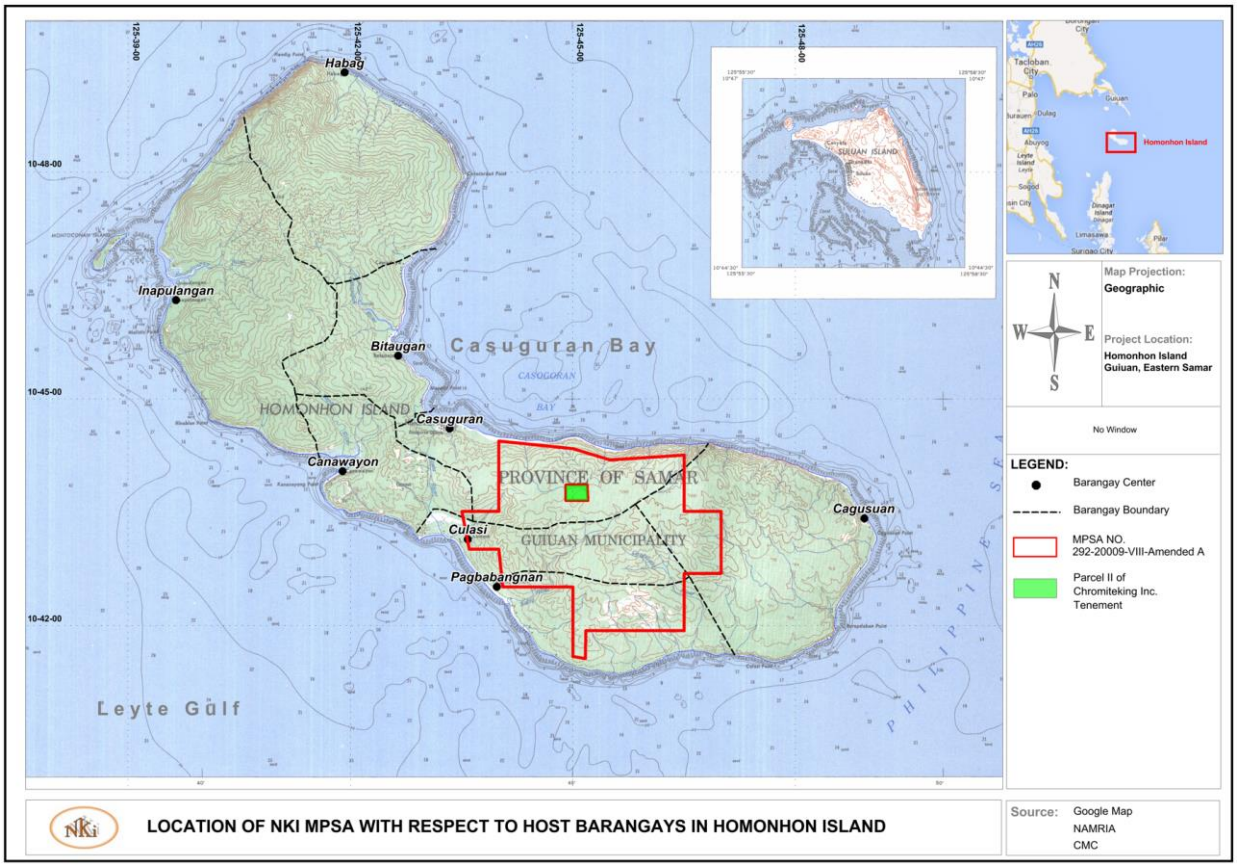
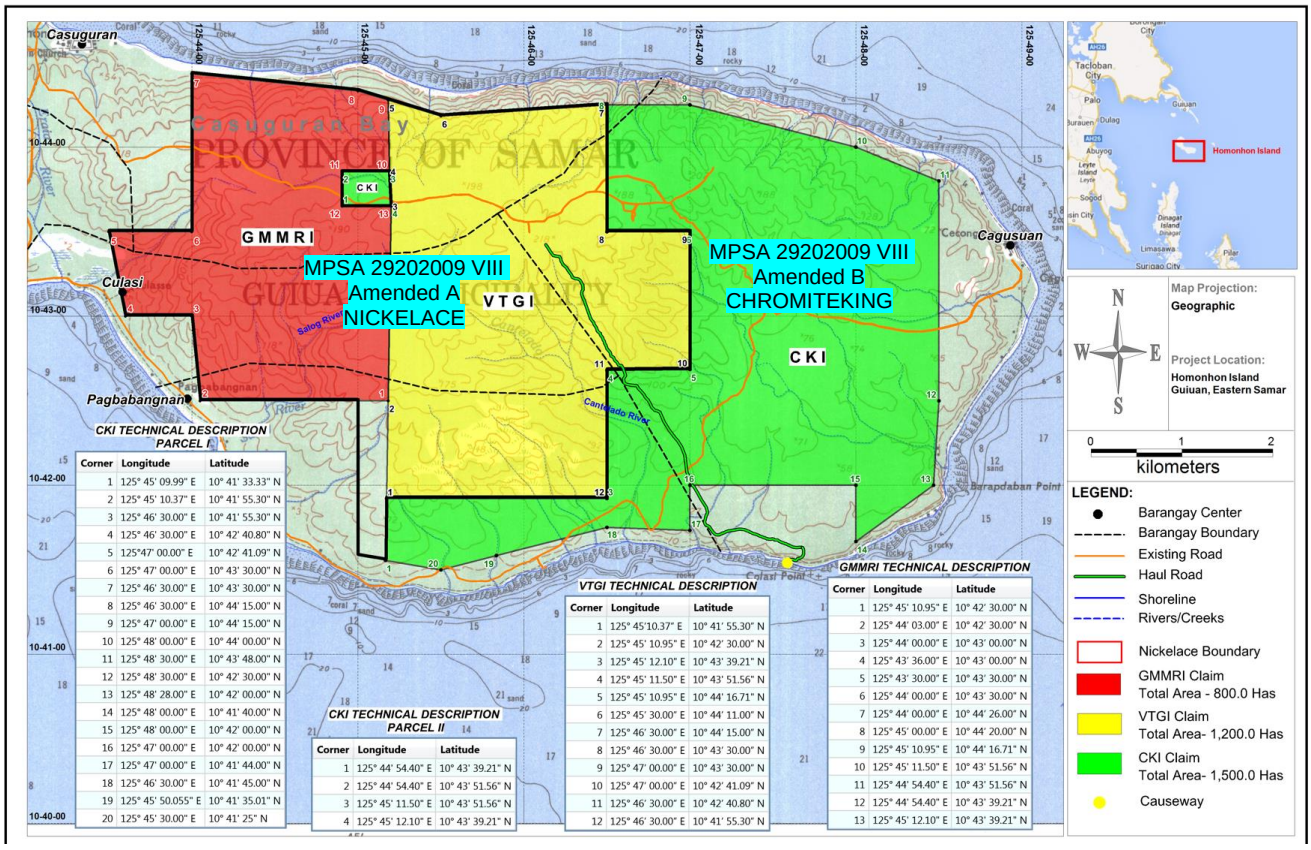



*Figure 1-1 Location of NKI MPSA with Respect to Host Barangays in Homonhon Island*




| Corner | Longitude | Latitude |
|---|---|---|
| 1 | 125° 45' 09.99" E | 10° 41' 33.33" N |
| 2 | 125° 45' 10.37" E | 10° 41' 55.30" N |
| 3 | 125° 46' 30.00" E | 10° 41' 55.30" N |
| 4 | 125° 46' 30.00" E | 10° 42' 40.80" N |
| 5 | 125°47' 00.00" E | 10° 42' 41.09" N |
| 6 | 125° 47' 00.00" E | 10° 43' 30.00" N |
| 7 | 125° 46' 30.00" E | 10° 43' 30.00" N |
| 8 | 125° 46' 30.00" E | 10° 44' 15.00" N |
| 9 | 125° 47' 00.00" E | 10° 44' 15.00" N |
| 10 | 125° 48' 00.00" E | 10° 44' 00.00" N |
| 11 | 125° 48' 30.00" E | 10° 43' 48.00" N |
| 12 | 125° 48' 30.00" E | 10° 42' 30.00" N |
| 13 | 125° 48' 28.00" E | 10° 42' 00.00" N |
| 14 | 125° 48' 00.00" E | 10° 41' 40.00" N |
| 15 | 125° 48' 00.00" E | 10° 42' 00.00" N |
| 16 | 125° 47' 00.00" E | 10° 42' 00.00" N |
| 17 | 125° 47' 00.00" E | 10° 41' 44.00" N |
| 18 | 125° 46' 30.00" E | 10° 41' 45.00" N |
| 19 | 125° 45' 50.055" E | 10° 41' 35.01" N |
| 20 | 125° 45' 30.00" E | 10° 41' 25" N |

| Corner | Longitude | Latitude |
|---|---|---|
| 1 | 125° 44' 54.40" E | 10° 43' 39.21" N |
| 2 | 125° 44' 54.40" E | 10° 43' 51.56" N |
| 3 | 125° 45' 11.50" E | 10° 43' 51.56" N |
| 4 | 125° 45' 12.10" E | 10° 43' 39.21" N |

| Corner | Longitude | Latitude |
|---|---|---|
| 1 | 125° 45'10.37" E | 10° 41' 55.30" N |
| 2 | 125° 45' 10.95" E | 10° 42' 30.00" N |
| 3 | 125° 45' 12.10" E | 10° 43' 39.21" N |
| 4 | 125° 45' 11.50" E | 10° 43' 51.56" N |
| 5 | 125° 45' 10.95" E | 10° 44' 16.71" N |
| 6 | 125° 45' 30.00" E | 10° 44' 11.00" N |
| 7 | 125° 46' 30.00" E | 10° 44' 15.00" N |
| 8 | 125° 46' 30.00" E | 10° 43' 30.00" N |
| 9 | 125° 47' 00.00" E | 10° 43' 30.00" N |
| 10 | 125° 47' 00.00" E | 10° 42' 41.09" N |
| 11 | 125° 46' 30.00" E | 10° 42' 40.80" N |
| 12 | 125° 46' 30.00" E | 10° 41' 55.30" N |

| Corner | Longitude | Latitude |
|---|---|---|
| 1 | 125° 45' 10.95" E | 10° 42' 30.00" N |
| 2 | 125° 44' 03.00" E | 10° 42' 30.00" N |
| 3 | 125° 44' 00.00" E | 10° 43' 00.00" N |
| 4 | 125° 43' 36.00" E | 10° 43' 00.00" N |
| 5 | 125° 43' 30.00" E | 10° 43' 30.00" N |
| 6 | 125° 44' 00.00" E | 10° 43' 30.00" N |
| 7 | 125° 44' 00.00" E | 10° 44' 26.00" N |
| 8 | 125° 45' 00.00" E | 10° 44' 20.00" N |
| 9 | 125° 45' 10.95" E | 10° 44' 16.71" N |
| 10 | 125° 45' 11.50" E | 10° 43' 51.56" N |
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| 12 | 125° 44' 54.40" E | 10° 43' 39.21" N |
| 13 | 125° 45' 12.10" E | 10° 43' 39.21" N |

*Figure 1-2 Location of MPSAs of NKI and CKI showing its Operator*

### 1-1.1 PROJECT ALTERNATIVE

Table 1-1 summarizes the selection of alternatives for the project features.

*Table 1-1 Selection of Alternatives for the Project Features.*

| Project Parameter | Alternatives | Comparative Impact/s |
|---|---|---|
| Mining Method | Location, dimension and physical properties of the orebody as well as project economics and consideration of health, safety and the environment determine the choice of a mining method.<br><br>Surface mining is employed when the deposit occurs near the surface, where overburden is thin or when the deposit is structurally not suitable for underground excavation (tunnelling) | No comparison has been established since surface mining is the only feasible method to extract the ore body.<br><br>Current mining operation and the proposed expansion shall be mined thru surface mining. The deposits are shallow and extended to mean depth of only 12 meters. Five lithological units are distinguished.<br>In descending order, limonite overburden, limonite, transition, saprolite and basement ultramafics. Since the deposit is shallow the limonite is marketable, the choice of mining method is surface mining.<br><br>Surface mining will entail ground clearings and alteration of slopes. The consequences are erosion and sedimentation and turbidity of streams which will affect the surrounding sea. To manage the impacts NKI will develop and mine the deposit in parcels and blocks. Complementing this minimize disturbances approach is the recovery of topsoil and progressive rehabilitation where in rehabilitation works will immediately commence once the parcels are mined out on the following year. |
| Processing Method | The processing method is dictated by the market requirements, type and volume of ore, site conditions, community sensitiveness and availability of investment capital.<br><br>Typically, ore sales are priced based on the payable mineral content which is the agreed percentage contained in the shipment. This percentage varies depending on the ore type, grade of the ore, customer's quality requirements and the supply and demand balance. Ores with higher mineral content have higher playability. Hence, there is incentive for value adding or further processing. | |
| | The country currently produces four types of laterite commodity – very low nickel/ high iron ore, medium grade nickel and high nickel regardless of iron content and nickel mixed with sulphide which can grade 50% nickel or higher.<br><br>The only processing for limonite ore is drying to reduce the moisture content from about 40% to 32% by weight. The alternatives for moisture reduction include the use of dryers that may be run by fossil fuels and windrowing and solar drying. | The possible market for limonite is China, Japan or possibly India.<br><br>For limonite windrowing and solar drying will be implemented. The limonite ore will be pilled 2 meters high and 10 to 20 meters long and will be 6 meters apart. The windrows will turn every 2-3 hours either by a hydraulic excavator or pay loader to dry the ore under the sun. The dried ore will either be transferred to a bigger heap pile or just be covered with tarpaulin to wait shipment. |
| | The country currently produces four types of laterite commodity – very low nickel/ high iron ore, medium grade nickel and high nickel | The possible market for limonite is China, Japan or possibly India. |

| Project Parameter | Alternatives | Comparative Impact/s |
|---|---|---|
| | regardless of iron content and nickel mixed with sulphide which can grade 50% nickel or higher.<br><br>The only processing for limonite ore is drying to reduce the moisture content from about 40% to 32% by weight. The alternatives for moisture reduction include the use of dryers that may be run by fossil fuels and windrowing and solar drying. | For limonite windrowing and solar drying will be implemented. The limonite ore will be pilled 2 meters high and 10 to 20 meters long and will be 6 meters apart. The windrows will turn every 2-3 hours either by a hydraulic excavator or pay loader to dry the ore under the sun. The dried ore will either be transferred to a bigger heap pile or just be covered with tarpaulin to wait shipment. |
| Ore transport system: Land Transport | Land transport by truck | Trucks provide the greatest flexibility and least capital cost since the distance of less than 10km. the disadvantage however is dust, noise, increased traffic and likelihood of accident. |
| Ore transport system: Sea Transport | Sea Transport by barge to the ore ship using a crane to unload the ore from the barge | The use of barges involves a double handling of materials. Hence longer time will be needed to complete a shipment. The navigational lanes have to be managed during this period to assure the free passage of barges to and from the ore ship offsetting this handicap is the shorter causeway needed, smaller environmental footprint and capital cost will therefore be lower. |
| | Sea transport by loading directly to the ore ship | Direct ship loading will greatly facilitate the shipment of ores. However a longer causeway will be needed in order to achieve the required draft. The environmental footprint and the capital cost will therefore be bigger and higher. |
| Power | Utilized generator sets | Island barangays are served with electricity through generator sets either privately owned or operated by the barangay council. However, electricity shortages are frequent and subscribers experience weekly power failures, often lasting 24 hours. |

## 1-2 PROJECT COMPONENT

### 1-2.1 Major Components

NKI is planning on extracting nickeliferous laterite ore from identified areas that has been explored.

Key components, with corresponding location and sizes/capacities are presented in **Table 1-2**. These major components compose the whole project footprint with a total area of 2,016.2015 hectares. Site Development Map of the project is presented in **Figure 1-3**.

*Table 1-2 Major Components of the Project*

| Major Component | Description | Location | Changes |
|---|---|---|---|
| Mine Areas | MPSA No. 292-2009-VIII<br>Amendment A covers a total mine tenement area of 2,016. 2015 hectares. Surface / Contour or benching mining method would be used in the extraction of ores. | Barangays Casuguran, Cagusu-an, Culasi and Pagbabangnan, Homonhon Island, Municipality of Guiuan, Eastern Samar. | None |
| Waste Dump or Overburden Stockyard Area | Generated overburden waste is estimated using the average overburden thickness of 1 meter, and the total area exposed by developmental works. | Project site area | None |
| | The mine waste will be utilized as backfill for mined-out areas. The thickness will range from 0.8 to 1.5 m depending on the final pit profile. Some of the waste | Project site area | None |

| Major Component | Description | Location | Changes |
|---|---|---|---|
| | material will be used for construction of environmental structures such as settling pond dikes, perimeter and safety berm construction and other related development, repair and maintenance works. | | |
| Ore stockpile / stockyard area | The mined ore would be brought to designated ore stockpile/stockyard within the mine site for sorting and beneficiation. The company will designate two (2) ore stockpile/stockyard areas situated in between the mine pits and the port area. Each ore stockpile/stockyard area will have an approximate area of 50,000 m2 or 5.00 hectares. | Project site area | None |
| Haul Roads | The proponent will develop additional haul roads in addition to the existing haul roads and lessen the usage of barangay roads.<br>Portion of existing barangay roads will only be used to haul the ore from the mine pit sites going to the port area. | Project site area | None |
| Causeway | Existing causeway in the area is being utilized by the previous chromite operations | Barangay Cagusu-an | None |
| Fuel Storage facility | To be located within the vicinity of the campsite. | Brgy. Cagusu-an | None |
| Nursery Area | Located within the vicinity of the campsite | Brgy. Cagusu-an | None |
| Settling Ponds | Situated in strategic places in the MPSA area | Brgys Casuguran, Cagusu-an, Culasi and Pagbabangnan | None |
| Support Facilities | Campsite and other offices and Motorpool area are to be built within the MPSA area, i.e.field office, Employees Quarters, Motorpool, laboratory and sample storage and powerhouse | Brgy. Cagusu-an | None |

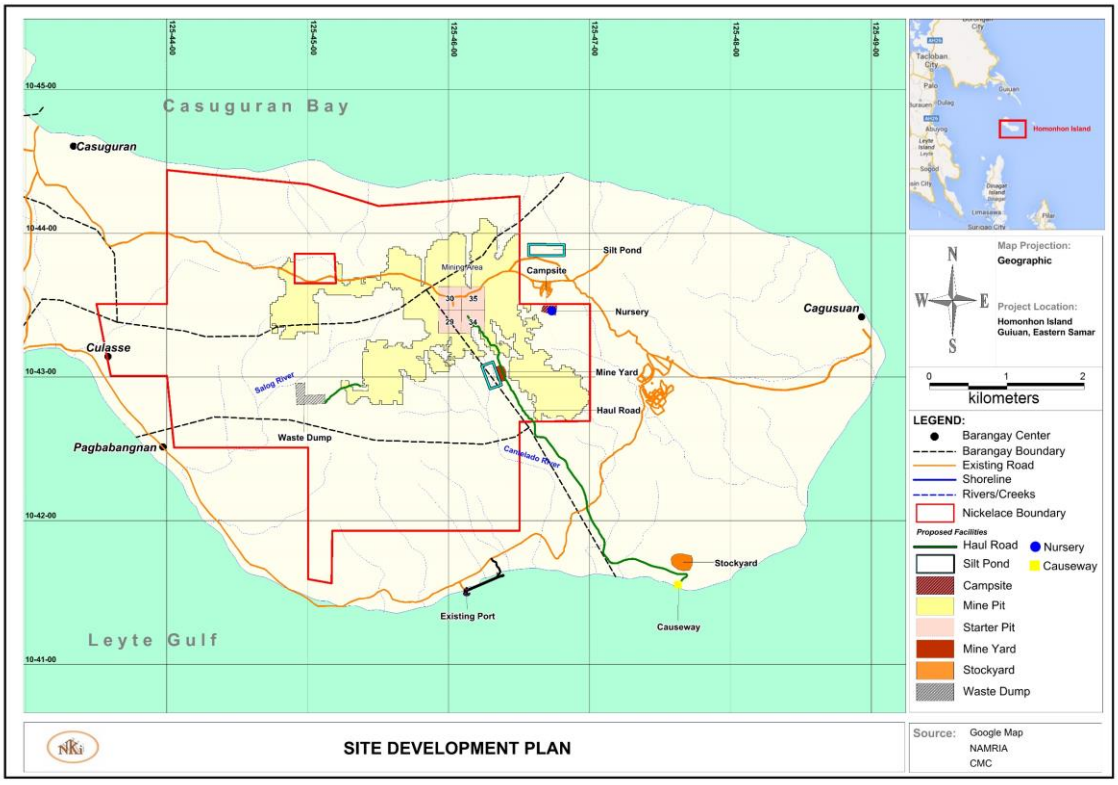


*Figure 1-3 Site Development Plan*

### 1-2.2 Other Support Facilities

*Table 1-4 Other Support Facilities*

| OTHER SUPPORT FACILITIES | DESCRIPTION | LOCATION |
|---|---|---|
| Field Offices | Administrative office of staff | Within proposed field office area |
| Assay Laboratory | X-Ray Fluorescence (XRF) | Within the vicinity of the proposed field office area |
| Clinic | Clinic with registered nurse for emergency and first aid needs of the workers and staff will be station in the mine site. | Within the vicinity of the proposed field office area |
| Housing (bunkhouse/ staff house) | Accommodation of the workers and staff like bunkhouses staff houses will be constructed for the project. | Within the vicinity of the proposed field office area |
| Motorpool | For the repair and maintenance of equipment and vehicles | Within the vicinity of the proposed field office area |
| Staging Area / Parking Area | Staging area for parking of heavy equipment and service vehicles. | Within the vicinity of the proposed field office area |
| Fuel supply | Provision of overhead fuels storage tanks with a capacity of 20,000 Litres each. | Within the vicinity of the proposed field office area |
| Logistics, Security & Communications | Means of communications are thru cellular phones, radios and internet connection; Security post strategically installed. | Entrance gate to the mine site, stockyard and on-site housing. |

### 1-2.3 Pollution Control Devices and Corresponding Facilities being Served or Connected

*Table 1-5 Pollution Control Devices and Corresponding Facilities*

| POLLUTION CONTROL DEVICES | DESCRIPTION | LOCATION |
|---|---|---|
| Settling Ponds and Drainage System | Strategically located within and around the mining area to properly address surface runoff and siltation. The ponds are interconnected with the drainage canals, and series of silt traps and collector sumps. There will be 10 ponds with total area of 21.22ha and capacity of 535,391 tons. The 3 ponds were built in 2020 with total area of 11.4 ha and capacity of 284,942 tons. A perimeter canal is likewise proposed to ensure that surface runoff is contained and managed within the project site before discharge into receiving water bodies. | Within strategic locations in the mine site. |
| Water Lorries | Applied during hauling to minimize dust emission | Applied in active hauling |
| Nursery | Nursery is established complete with plotting sheds and planting plots for wildlings.<br><br>Endemic species will be primarily raised in the nursery. Seeds and wildlings will be collected and raised as planting materials | Nursery established to cater to the needs of the progressive rehabilitation program of the abandoned site. |
| Oil-water Separator | Established to control oil spill from Motorpool area | Motorpool |
| Ecological Center | Establishment of Ecological center composed of materials recovery facility and composting facility. | Compost is used in the nursery established by the company for its rehabilitation program.<br><br>Segregation of biodegradable and non-biodegradable waste is practiced |

| POLLUTION CONTROL DEVICES | DESCRIPTION | LOCATION |
|---|---|---|
| | | by the company. Hazardous wastes are managed based on provisions of RA 6969. |

## 1-3 PROCESS / TECHNOLOGY

### 1-3.1 Lateritic nickel and iron mining operation

NKI shall stick to the mining process and technology stipulated in the existing EPRMP, and hence, comparison of existing and proposed is not applicable.

Mine operation will deliver ore at the required size, grade and volume to the various end-users. The study developed, evaluated and analyzed the planned mine operation shall have a peak production of 5,000,000 WMT of nickel/iron laterite ore annually. This is roughly corresponding to 34,000 WMT per day operation. The equipment evaluation was done at the assumed waste to ore handling of 0.21 to 1, which calls for a combined waste to ore handling capacity of almost 43,000 WMT of nickel ore and wastes per day.

In this project, the contour or strip mining will be used to mine the nickel ores. The main parameters to be observed are:

- At least 3-meter bench height; berm width at least 5 meters; bench slope at least at 60°; average pit slope shall be at least 45°
- Multi-level mining that provides flexibility in handling various grades and tonnages
- Mined-out areas may be used as waste dumps
- Multiple mining areas will be programmed as the need arises

One active mining area will be maintained at all times to provide flexibility in operations and grade control. Mining area will start from the lowest elevation progressing upwards to higher elevations. Earth-moving equipment like backhoes, excavators or shovels and loaders in combination with dump trucks will be utilized. All run-of-mine ores will be hauled direct to drying stockyards or loading stockyards in preparation for processing.

The typical cross section of mining is shown in **Figure 1-4** and the general mining flowsheet is shown in Error! Reference source not found.**1-5**.

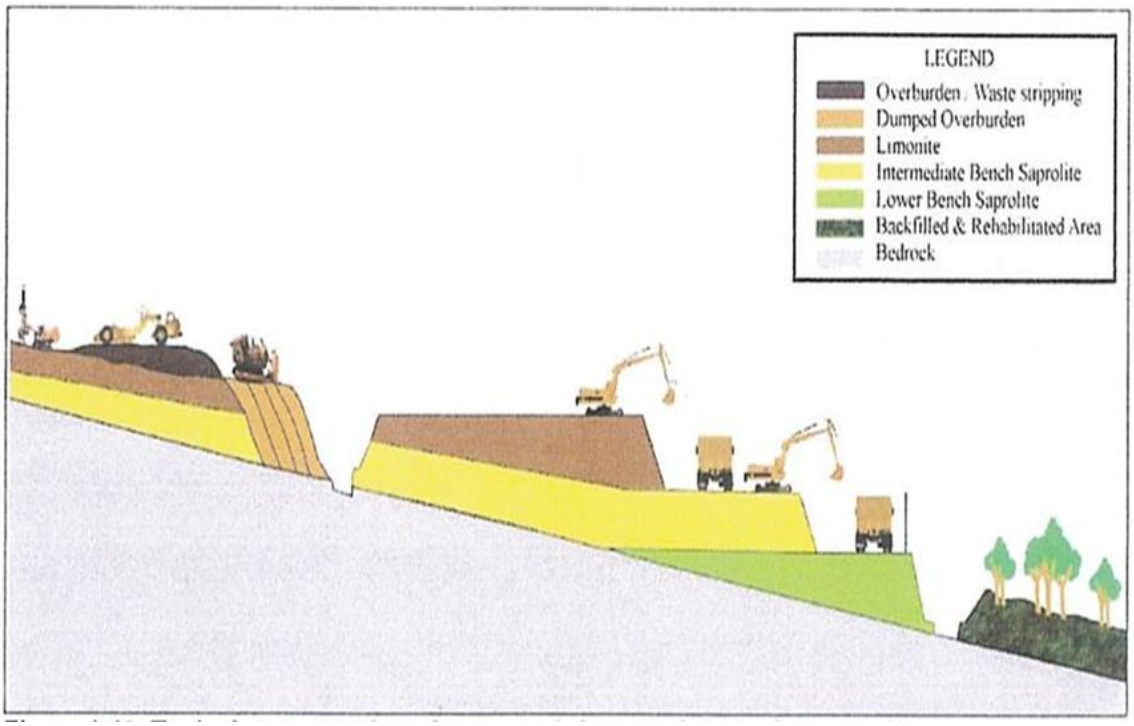


*Figure 1-4: Section of a Contour Mining Method*

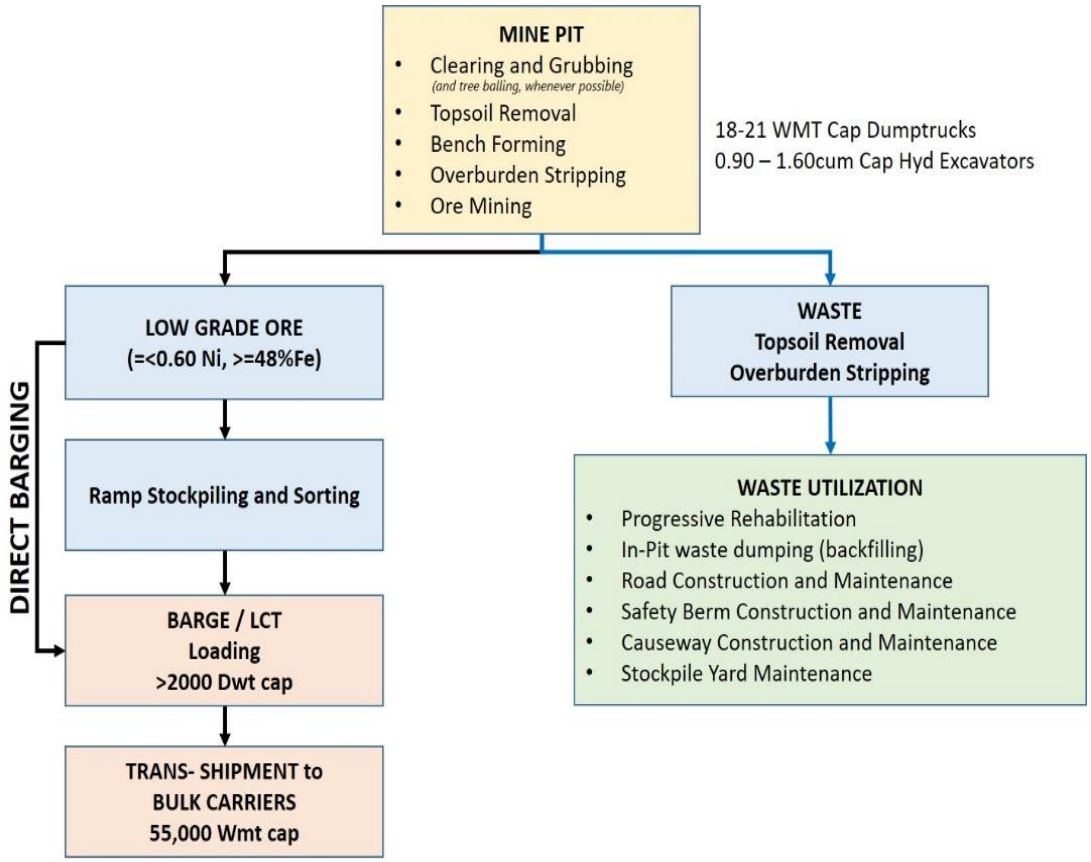


*Figure 1-5 Process Flow of Lateritic Nickel/Iron Mining Operation*

## 1.5 SUMMARY OF IMPACTS AND MANAGEMENT PLAN (IMP)

*Table 1-6 Summary of Main Impacts and Residual Effects*

| PROJECT ACTIVITIES | POTENTIAL IMPACT | MITIGATING MEASURES | TARGET EFFICIENCY | RESIDUAL EFFECTS |
|---|---|---|---|---|
| **PRE-CONSTRUCTION PHASE**: No perceived impacts. The pre-construction phase in the EPRMP reports covers activities like planning, engineering design, and procurement of equipment. | | | | |
| **CONSTRUCTION PHASE** | | | | |
| Site Clearing, Removal of vegetative cover, Excavation | Loss of vegetation, wildlife species & habitat | • Site is mostly grassland/barren and there are no trees to be cut nor wildlife.<br>• Revegetation and enhancement of buffer zone; In/installation of culverts at selected portions of the mine access for ground vertebrate to migrate and cross through. | 100% replacement of vegetation | No adverse residual effects |
| | Potential impact to marine waters due to soil erosion, siltation, and flow of stormwater runoff. | Setback distances from the sea for all activities; Appropriate dumping of soil wastes into the Waste Dump; If possible, avoid working outdoors during wet and rainy conditions; Temporary drainage ditches and sediment traps/pond around the construction area | 100% conveyance of runoff & silt to ponds/traps | • No residual effects<br>• Compliance to MGB |
| | Soil/Land Contamination Due to Improper Waste and/or Garbage Disposal | Provide area to stockpile construction wastes before hauling; Provide proper solid waste disposal – by 3rd Party; Implement waste segregation & good housekeeping. | 100% compliance to RA 9003 | No residual effects; |
| Use of heavy vehicles and construction equipment | Potential contamination of soil and water bodies due to accidental spills of fuel/oils | • Same measures for soil management will be implemented.<br>• Daily monitoring of hydraulic system including the hose & use of se dipping pan in case of leak | 100% no soil contamination | • No residual effects<br>• Compliance to MGB |
| | Potential Impacts to Air Quality due to dust emissions | Cover haulage trucks; water spraying; Enforce speed limits; Revegetate disturbed areas | 100% compliance to RA 8749 | No residual effects |
| | Possible increase of noise level | Provide silencers and mufflers; Construction done only during daytime; Proper maintenance of the equipment and vehicles. | 100% compliance to Noise Standards | No residual effects |
| Equipment refueling, maintenance & operation | Potential contamination of soil & water bodies due to accidental spills of fuel or lubricating oils | • Proper maintenance and regular inspection of vehicles and construction equipment.<br>• Designation of a motorpool<br>• Collection of used oils in containers for disposal by 3rd party<br>• Proper training of vehicle operators especially on spill prevention and containment. | 100% compliance to RA 6969 | No residual effects. |
| Movement of Workers | Potential increase in BOD & coliform level of water bodies due to generation of domestic wastes. | • Provide temporary facilities (“portalets”) for workers.<br>• Strictly impose proper waste disposal and proper sanitation.<br>• Conduct Effluent Monitoring | 100% compliance to RA 9275 and Sanitation Code | No residual effects |
| | In-migration. | Prioritize hiring of construction workers to local residents | 100% compliance to Labor Code | Business, livelihood are positive impacts |
| | Physical injuries arising from accidents | Daily toolbox meeting; Always wearing of PPEs. First aid kit available at all times; Observance of safety practices and training of construction workers; Established Emergency Preparedness and Response Program including regular emergency drills; Good housekeeping. | 100% compliance to OSH Standards | No residual effects |
| **OPERATIONS PHASE** | | | | |

| PROJECT ACTIVITIES | POTENTIAL IMPACT | MITIGATING MEASURES | TARGET EFFICIENCY | RESIDUAL EFFECTS |
|---|---|---|---|---|
| Mining/Ore Extraction<br><br>Ore stockpiling<br><br>Ore hauling<br><br>Ship loading<br><br>Motorpool operation<br><br>Operation of other mine facilities | • Disruption of/ incompatibility with existing land use & land tenure issue/s<br>• Impairment of visual aesthetics | Progressive rehabilitation; Good housekeeping; Discussions with informal land tenants that will be affected by road development. Pay for crop damages; funds for the improvement of existing historical site; Landscaping and gardening in non-mineralized areas. | 100% resolution of issues. | Future landuse after mining shall be agroforestry &/or ecotourism |
| | Solid waste generation | Implementat of ecological solid waste management system; waste segregation; good housekeeping; impose on the contractors and all workers to observe proper waste disposal and proper sanitation. | 100% compliance to RA 9003 | No residual effects |
| | • Change in landform / topography<br>• Change in subsurface geology | • Install network of drain canals with series of sediment traps<br>• Progressive rehabilitation with recontouring and stabilization<br>• Benching and installation of bench drainage to prevent soil erosion.<br>• Installation of coconet and planting of creeping vines to improve the slope stability. | 100% compliance to mining plan & FMRDP | Change is permanent but to be left in stable conditions. |
| | Potential Rockslides/ Landslides / Mass Movement | • Maintaining slope stability by proper engineering measures<br>• Reduction of cut slopes by terracing<br>• Prevention of increase in internal water pressure by vegetation cover<br>• Adequate drainage control | 100% stabilized slopes and efficiency of erosion control | Improved measures against potential landslides |
| | Potential inducement of flooding | • Installation and proper maintenance of drainage system.<br>• Water and silt in settling ponds monitored. Silt content should not exceed 50% of its capacity.<br>• Regular desilting of settling ponds, and more frequent or as needed during rainy season. | 100% conveyance to ponds & no overflowing. | • No residual effects |
| | Potential impact to water quality of nearby creeks and seas due to erosion, siltation, and flow of stormwater runoff. | • Avoid unnecessary removal of overburden. All major clearing to start during dry season<br>• Topsoil stockpiling for future reuse.<br>• Establish dumpsites in strategic locations far from the drainage ways.<br>• Provision of adequate drainage system & regular desilting of the sedimentation ponds<br>• Proper benching and installation of bench drainage.<br>• Installation of coconet and planting of creeping vines to improve the slope stability.<br>• Avoidance of very steep slopes whenever necessary and practical.<br>• Quarterly Monitoring of Effluent | • 100% compliance to RA 9275<br>• 100% conveyance of runoff water to settling ponds<br>• 100% stabilized slopes and erosion control | • Lesser potential for erosion and siltation. |
| | Degradation of Air Quality due to dust and noise emission | • Proper maintenance of equipment to reduce dust and noise.<br>• Regular watering of haul roads | 100% compliance to RA 8749 & noise standards | No residual effects |
| | Disruption of groundwater / aquifer | • Deep-ripping of compacted soil surfaces.<br>• Avoid penetration of aquifers. Mining above the natural springs w/ buffer of at least 50m.<br>• Conduct geo-resistivity study | Zero disruption of groundwater | No residual effects |
| | • Soil erosion / loss of topsoil/overburden<br>• Change in soil quality/fertility | • Spoil piles shall be properly placed and stabilized to reduce soil erosion.<br>• Phased site preparation and surface mining. Avoid unnecessary land clearing.<br>• Stripped topsoil shall be immediately reused as potting medium in the nursery or in rehabilitation<br>• Spoil piles and ore stockpiles shall be placed away from the waterways<br>• Proper maintenance of waste dump for slope stability, drainage, temporary vegetative cover, etc. | 100% compliance to RA 7942 | • No residual effects.<br>• Mine wastes are to be re-used in the rehabilitation. |

| PROJECT ACTIVITIES | POTENTIAL IMPACT | MITIGATING MEASURES | TARGET EFFICIENCY | RESIDUAL EFFECTS |
|---|---|---|---|---|
| | • Vegetation removal and loss of habitat<br>• Threat to existence and/or loss of important local species<br>• Threat to abundance, frequency and distribution of important species<br>• Hindrance to wildlife access | • Establishment of Ecotones in densely vegetative areas located near the mine site.<br>• Geo-engineering technologies to ensure that the diversion will not further affect productive lands.<br>• Progressive rehabilitation, revegetation at 1:50 cut and plant ratio & enhancement of mined-out pits.<br>• National Greening Program, Mangrove Rehabilitation Project and Mine Forest Program<br>• Establishment/maintenance of at least one plant nursery.<br>• Installation of culverts at selected sites of mine access for ground vertebrates to cross through.<br>• Conduct annual biodiversity monitoring/assessment | • 100% rehabilitation/ re-vegetation of disturbed areas<br>• 100% compliance to R.A. # 9147 | • Enhanced floral community due to reforestation.<br>• Enhanced habitat for faunal species. |
| | • Change in drainage morphology/inducement of flooding / reduction in stream volumetric flow Change in stream water depth<br>• Depletion of water resource / competition in water use | • Progressive rehabilitation and well-designed drainage system with its components strategically constructed to lessen the transport of soil materials to the rivers.<br>• Dumps and piles to be located away from water bodies, areas prone to surface runoff & landslides.<br>• Proper disposal of wastewater to be observed throughout the project<br>• Water from the settling ponds is also being considered for reuse.<br>• Rainwater collection system being considered to minimize surface water extraction. | 100% conveyance of runoff water to settling ponds and 100% no overflowing of ponds. | No residual effects |
| | • Disruption in water circulation pattern, littoral current, and coastal erosion and deposition | • Network of drain canals to efficiently route runoff towards existing natural drainage system.<br>• Geo-engineering technologies should be employed to ensure that the diversion will not further affect other productive lands. | 100% conveyance to siltation ponds/traps | • No residual effects<br>• Compliance to DENR, EMB, MGB |
| | • Degradation of groundwater, surface and marine water quality | • Contaminated rainwater in the maintenance area will be treated in the oil and water separator.<br>• Installation of catch basin & silt pond to mitigate runoff from direct discharge to the water bodies.<br>• Ensure no contamination of groundwater thorough soil compaction.<br>• Conduct regular water sampling/ monitoring | • 100% conveyance to silt ponds/traps<br>• 100% comply to DENR standards | • No residual effects<br>• Compliance to DENR, EMB, MGB |
| | • Threat to existence and/or loss of freshwater species of important local habitat & to abundance, frequency and distribution of species | • Establish a vegetated buffer zone that extends inland from the high-water mark.<br>• River water quality parameters will be maintained within baseline or natural ranges.<br>• Construction/installation of culverts at selected portions of the mine access for ground vertebrate to migrate and cross through. | • 100% implementation of control management. | • No adverse residual effects |
| | • Impairment of habitats and nesting areas of freshwater fish and cause disruptions in juvenile fish life cycle stages due to solid wastes (plastics). | • Rigid waste management disposal and recycling system to ensure that no solid and liquid wastes spill out onto river systems.<br>• River clean-up drives.<br>• IEC on ecological solid waste management | • 100% compliance to RA 9003 | • No adverse residual effects |
| | Marine ecology<br>• Threat to existence and/or loss species of important local habitat<br>• Threat to abundance, frequency and distribution of species | • Contain erosion at source by installing a series of filters, settling ponds, and silt curtains<br>• Impacted water from the clearing and grubbing of the open pit mine will be diverted to the silt traps.<br>• Periodic monitoring of TSS in coastal waters fed by rivers from the project site<br>• Curtailment of domestic wastewater pollution using 3-chambered septic tanks shall be installed.<br>• Waste minimization will be practiced in all aspects of project operation<br>• Implement Oil Spill Contingency Plan with the intent of giving guidelines<br>• River rehabilitation and siltation mitigation projects & assist in management of nearby MPAs | • 100% implementation of control management.<br>• 100% observance of biodiversity monitoring & study | No adverse residual effects |

| PROJECT ACTIVITIES | POTENTIAL IMPACT | MITIGATING MEASURES | TARGET EFFICIENCY | RESIDUAL EFFECTS |
|---|---|---|---|---|
| | • Greenhouse gas emissions | • Proper maintenance of vehicles and equipment following manufacturer's manual.<br>• Speed limits for vehicles and equipment plying public roads.<br>• Implement compensation tree planting | 100% compliance to RA 8749. | No adverse residual effects |
| | • Degradation of air quality<br>• Increase in ambient noise level | • Implement Energy Conservation Plan; use alternative power source such as solar power.<br>• Watering of roads & proper scheduling of ore extraction and hauling.<br>• Regular preventive maintenance of equipment and vehicles<br>• Imposition of speed limits along access roads & provision of covers and mufflers for haul trucks<br>• Monitoring at the off-site ambient air quality monitors<br>• Enclosure of equipment emitting high level noise<br>• Providing protective gears or personal protective equipment (PPE) such as masks and ear plugs | 100% compliance to RA 8749 and noise standards | • No residual effects.<br>• Dust and noise pollutants do not stay in air environment |
| | • Public health and safety<br>• Employment and livelihood opportunities for locals<br>• Delivery of supplemental basic social services<br>• Uncontrolled developments around the project site | • Provision and maintenance of signages demarcating mine buffer zone.<br>• Practice good housekeeping.<br>• Provide the affected local people with supplemental livelihood training<br>• IEC on nature and qualification of jobs the proponent needs.<br>• Prioritize local labor in employment.<br>• Strict screening of migrant labor<br>• Generation of livelihood opportunities, local entrepreneurs to provide support services to the project | 100% compliance to OSH Standards | No residual effects |
| | Unauthorized entry of outsiders and establishments & disrupt peace and order | • Coordination with the Barangay LGU to ensure only authorized establishments are in the area.<br>• Buffer zones will be established and maintained around the perimeter | 100% compliance to Labor Code | Positive residual effects on employment |
| | In-migration might cause health and safety issues, social conflicts, & increase in pollution due to improperly handled solid and liquid wastes. | • Establish and maintain strict hiring policy for migrant workers; Require all local job applicants to secure working permit from LGU; Provide Health clinic manned by a Doctor, Nurse and Health workers; Partner with the LGU for the implementation of the SDP; acilitate trainings for Project-related Disaster Risk Reduction Management in the Barangays | • 100% compliance to Labor Code<br>• 100% compliance to SDMP and SHP | Positive residual effects on employment |
| **DECOMMISIONING AND ABANDONMENT PHASE** | | | | |
| Rehabilitation of mined-out areas<br><br>Dismantling of structures | • Loss of topsoil, soil nutrient loss, alteration of topsoil characteristic<br>• Contamination of soil with hydrocarbon residues from spilled oil and fuel | • Top soil stripped from mine surface should be stockpiled in level, well drained area and grassed.<br>• inverse super elevation in bench design for sediment runoff to settle in land-side contour canal.<br>• Regular desilting of contour canals.<br>• Refilling (fuel) and maintenance of equipment shall be limited to rehabilitation equipment<br>• Construct a concrete platform with oil collection sump with oil and grease separator unit. | 100% implementation of FMR/DP and EPEP | Attainment of agreed future land use |
| | • Erosion and/or collapse of rehabilitated areas.<br>• Solid waste generated from dismantling of structures in the site. | • Apply geotechnical considerations in the final pit design.<br>• Proper and regular maintenance of vegetative slope protection, contour canals and drainage<br>• Low survival of tree plantations and revegetation to be promptly replanted<br>• Ensure that contour canals are provided in all benches<br>• Development of project site to serve the agreed final land use | 100% implementation of FMR/DP and EPEP | Attainment of agreed future land use and transformation of the once barren area to lush greenery |

| PROJECT ACTIVITIES | POTENTIAL IMPACT | MITIGATING MEASURES | TARGET EFFICIENCY | RESIDUAL EFFECTS |
|---|---|---|---|---|
| | • Re-establishing vegetative cover<br>• Return of the avifauna and increase in population of small animals | • Use indigenous species that were once thriving in the area for reforestation - no exotic specis.<br>• Shrubs and other plants removed due to land clearing will be replanted and nursed in the nursery for eventual replanting into project site for site rehabilitation. | 100% implementation of FMR/DP and EPEP | Attainment of agreed future land use |
| | • Retrenchment<br>• Loss of livelihood | • Prepare the communities that participate in the project through capability building and assistance in the development of alternative sustainable livelihood based on resource strengths in the area and in accordance with DAO 2021-13 on Biodiversity-friendly Enterprise.<br>• Implement satisfactory retrenchment package & assist workers in job hunting to other mining firms. | 100% acceptable to workers and host communities. | Self-sustaining community and skilled workers able to take on jobs in other areas. |

### 1.6 Identified Stakeholders (Direct and Indirect Impact Areas

**Existing**

The DIAs are the whole area of MPSA 292-2009 VIII of CMC covering **3,516,2015** hectares as well as the port of CKI as well as the haul road going to this port. The direct impact barangays are Casuguran, Culasi, Cagusu-an, and Pagbabangnan, Island of Homonhon, Municipality of Guiuan, Province of Eastern Samar.

**Proposed**

The DIAs are the **2,016.215**-ha area of NKI where the mining activities and most of the facilities are located. In addition, the area occupied by other facilities such as causeway, pieryard and portions of the haul road from stockyard to pieryard/causeway. The direct impact barangay are the same 4 barangays enumerated in the existing, which are: Casuguran, Culasi, Cagusu-an, and Pagbabangnan.

The IIAs are the areas around the tenement area and the other facilities, as well as the surrounding coasts of the 4 barangays.

Below are the Identified Stakeholders for the Project per DAO 2017-15:

1) Local Government Unit
    a) Province of Eastern Samar
    b) Municipality of Guiuan
    c) Barangay Cagusu-an
    d) Barangays Casuguran
    e) Barangay Culasi
    f) Barangay Pagbabangnan,
2) Government Agencies
    a) DENR-EMB Region VIII
    b) Mines and Geosciences Bureau (MGB)
    c) Forest Management Bureau (FMB)
    d) Department Of Health Region VIII (DOH)
3) PO/NGO
4) Local Insitutions
    a) Schools
    b) Churches
    c) Hospitals
    d) Private Companies

## 1.7 Project proponent's statement fo commitment and capability to implement necessary measures to prevent adverse negative impacts

This is to certify that the proponent, **NICKELACE, INC. (NKI),** is capable and committed to implement the necessary mitigating measures to minimize adverse effects and enhance the beneficial impact that might be caused by the proposed **HOMONHON LATERITE NICKEL/IRON PROJECT** located at Barangays Casuguran, Culasi, Cagusu-an, and Pagbabangnan, Island of Homonhon, Municipality of Guiuan, Province of Eastern Samar.

**Mr. Min Yang**
Chairman
Nickelace, Inc.

In witness hereof, we hereby set my hand this _____ day of _____ 2021 at _____, Philippines.

## 1.6 AVAILABILITY OF THE REPORT

For more information and copy of EIS: Download the whole version of the EIS at http://eia.emb.gov.ph Click the banner of Notice of Public Hearing/Consultation then look for Homonhon Nickel/Iron Mining Project. You may also visit the following offices:

1) **EMB Region VIII**
   Office Address: DENR Compound, Jones Street, Tacloban City
   Telephone No.: (053) 832-1088

2) **Municipality of Guiuan Municipal Planning and Development Office (MPDO)**
   Office Address: Guiuan Municipal Hall, Homonhon Island Eastern Samar
   Telephone No.: 0970-0233-300