

EXECUTIVE SUMMARY (ES)

ES 1.0 Project Fact Sheet

Table ES-1 Project Fact Sheet

Name of Project	PROPOSED MARINE AGGREGATES AND OTHER RELATED MATERIALS (OFFSHORE) QUARRY PROJECT
Ownership	Government Seabed Quarry (GSQP) No. OMR-005-2021-111 issued on May 21, 2021
Project Location	Municipal Waters of Limay, Province of Bataan
Project Category per EMB MC 2014-005	“Environmentally Critical Project (ECP) 2.1 Mining and Quarrying Project 2.1.3 Extraction of Non-Metallic Minerals \geq 75,000 MT or Area \geq 20 hectares regardless of capacity extraction of non-metallic minerals such as Aggregates (sand, stone, gravel, including dredging with or intended for recovery and use of materials).
Total Area	3,974.3028 hectares
Total Volume to be Dredged	Minimum of 154 Million Tons per Year or Minimum of 70 Million Cubic Meters
Extraction Rate	77-88 Million Tons per year or 35-40 Million Cubic Meters per year
Project Cost	PhP 1.00 Billion
Components	Dredging of sand and other related materials in support to the 265 Hectares Pasay Harbour Reclamation Project
Proponent Name	CARGON MINING CORPORATION CARLOS S. GONZALEZ President AESCHYLUS M.J. VALENZUELA Corporate Head Geologist Landline No.: 8-3967500; 8-3967509
Proponent Address	Corporate Office: 30 th Floor, High Street South Corporate Plaza, Tower 1, 26th Street Cor 9th Avenue, Bonifacio Global City, Taguig City, 1634 Metro Manila Field Office : Purok 1, Binoklutan, Botolan, Zambales Head Office : Ulticon Builders Comp., Don Julian Rodriguez Ave., Ma-a, Davao City
EIA Preparer / Consultant	Teragrail Geology and Geotechnics CLEMENT CHRISTIAN A. FAJARDO 23 Jacinto Street, Phase 3B BPS Imus Cavite Mobile No: +63 908 636 5350 Email: inquiry@teragrail.com

ES 1.1 Project Description Summary

Project Overview:

The ECC application covers seabed quarry thru dredging by suction using Trailer Suction Hopper Dredger (TSHD). The proposed project covers **3,974.3028 hectares under Government Seabed Quarry Permit (GSQP) No. OMR-005-2021-111 issued on May 21, 2021**, to be located within the Municipal Waters of Limay, Province of Bataan in support to the proposed 265-Hectares Pasay Reclamation Project which is about 21.5km northeast from the site. Cargon Mining Corporation has entered into Memorandum of Agreement (MOA) between approved 265 Hectare Pasay Harbour Reclamation site for the supply of suitable dredge fill materials, the Philippine Reclamation Authority (PRA) has granted the Notice to Proceed (NTP) to the proposed reclamation project.

Cargon Mining Corporation has secured Letters of No Objection (LONOs) from various agencies such as National Commission on Indigenous People (NCIP), Philippine Ports Authority (PPA), Department of Environment and Natural Resources-Biodiversity Management Bureau (DENR-BMB), Department of Information and Communication Technology (DICT), Department of Energy (DOE), Department of Transportation (DOTr), Municipality of Limay and Philippine Reclamation Authority (PRA).

ES.2.0 Process Documentation of the Conduct of EIA

The content of the EIS report was established during the conduct of Technical Scoping on 21 June 2021. As prescribed by the DENR-EMB under the Revised Manual for Coverage Screening and Standardized Requirements under the PEISS, the appropriate type of documentation for this project is the Environmental Impact Statement (EIS).

ES.2.1 The EIA Team

Table ES-2 presents the list of EIA Preparers with corresponding field of expertise.

Table ES-2. EIA Team

NAME OF PREPARER'S	FIELD OF EXPERTISE	EMB Registration No.
Clement Christian A. Fajardo	Team Leader/ Geology and Hydrogeology	None
Engr. Venice Montemayor	Asst. Team Leader Report Integration, and Water, EMP	IPCO No. 260
Engr. Ronald Pahunang	Air and Hydrodynamic Modelling	IPCO No. 173
Ms. Nadia P. Conde	Socio-Economics	IPCO No. 102
Engr. Rodel Olivares	Chemical, Hazardous, EMP	IPCO No. 132
Ranier I. Manalo	Marine Assessment	None
Cargon Mining Corporation	Legal documents, Project Description, and Process	Proponent

ES 2.2 EIA Study Area and Schedule

Based on the conduct of the study and pursuant to DAO 2017-15 on the identification and delineation of Direct Impact Area (DIA) and Indirect Impact Area (IIA), this report came up with the conclusion ten (10) Coastal Barangays were considered Direct Impact Area (DIA) for socio-economic and environmental aspects while the Indirect Impact Area (IIA) are the adjacent Municipal Waters of Mariveles and Cavite for its environmental aspect during the dredging operation.

The EIA Study area focused on the Direct Impact Area (DIA) of the project area in 3,974.3028 hectares identified as the People specifically Fisherfolks from the ten (10) coastal were considered for Information Education Campaign (IEC) in a form of Focused Group Discussion (FGD) and Public Participation, impact on water for marine ecology, water pollution due to dredging operation and people (fisherfolks) currently using the area as fishing ground for possible diversion.

Table ES-3 presents the activities that were conducted for this study.

Table ES-3. EIA Area and Schedule

EIA Aspect	EIA Study Area	Date conducted
Sediment Sampling	Three (3) Stations were collected within the GSQP area	November 2020
Surface Water	Seven (7) River Stations within the Municipality of Limay identified as: Station 1-Aguawan River, Station 2-Limay River, Station 3-Alas Asin River, Station 4-Lucanin River, Station 5-RipRap River, Station 6- Santol River, and Station 7-Bulok River	April 7, 2021
Marine Sampling	Ten (10) Sampling stations: Five (5) inside the GSQP Area and Five (5) Outside of the GSQP	April 7, 2021
Marine Ecosystem Assessment	Coastal areas of Municipalities of Limay and Mariveles: The study site was about 11.5 kms from the proposed project site offshore of Limay, Bataan. This monitoring survey focused on the assessment of the reef areas, mangrove forests, benthic flora of seagrass / seaweeds communities, reef fishes, and fish catch	April 6-7, 2021 for the pre-survey reconnaissance and April 12-16, 2021
Hydrodynamics Modelling	Within the GSQP area	April 24, 2021
Air and Noise Sampling	Twelve (12) Stations: Seven (7) for Limay, Bataan and Five (5) for Mariveles, Bataan	April 8-9, 2021
People	Information Education Campaign (IEC) thru Focused Group Discussion (FGD)	
	Barangays Alangan, Kitang 2 & Luz, Kitang 1, Lamao, Landing, Poblacion, Reformista, Townsite, San Francisco De Asis, Saint Francis 2 and Wawa, Municipality of Limay and Barangays Baseco Country, Mountain View, Sisiman, Alasasin, Alion, Batangas II, Ipag, Camaya, Poblacion and San Carlos, Municipality of Mariveles	April 8-14, 2021
	Barangays Poblacion, Kitang 1, Reformista, Wawa, San Francisco De Asis, Municipality of Limay,	April 26, 2021
	Barangays Lamao, Francis II and San Francisco De Asis, Municipality of Limay	May 5, 2021
	Barangay Landing, Municipality of Limay	May 11, 2021
	Perception Survey for Municipalities of Limay and Mariveles	April 9-14, 2021

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	Public Scoping with Forty-Eight (48) Participants: LGU's (Province, Municipality, Barangays Landing, Lamao, Wawa and San Francisco De Asis), PPA, BFAR Central and BFAR Region 3, Philippine Coast Guard, Philippine Coast Guard - Bataan MEPGRP, FRMD, Nuclear Free Bataan Movement (NFBM), SP Bataan, PENRO Bataan, CENRO Bataan, MGB Region 3, Pangisda Bataan, Cargon Mining Corporation, EMB Central and Teragrail Geology and Geotechnics	May 28, 2021
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ES 2.3 EIA Methodologies

Table ES-4 shows the corresponding activities along with its methodology:

Table ES-4 EIA Methodology

SCOPE/ACTIVITIES	METHODOLOGY
LAND	
Sediment Sampling	Sediment samples from the borehole cores. Approximately five (5) kilograms of sample were collected and kept in a thick plastic bags tied with a straw and labelled accordingly
WATER	
Baseline Surface Water Downstream	Based on DAO 2016-08
Baseline Marine Water	Based on DAO 2016-08
Baseline Benthic and Coastal Marine Ecosystem	<u>Coral Reefs and associated lifeform</u> - Manta Tow, Line Intercept Transect (LIT) <u>Seagrass / Seaweeds Assessment</u> - Quadrat Transect <u>Mangrove / Beach Forest</u> - Transect Line Plot <u>Fish Visual Census</u> - Line Intercept Transect (LIT) <u>Fishery Resource</u> - Fish landing and market survey Detailed methodologies were adapted from the Survey Manual for Tropical Marine Resources 2nd Edition by English et al. 1997
Hydrodynamics Modelling	Currents (continuous and discrete), station depth, water temperature, bottom soil samples, and transparency or turbidity were measured or collected
AIR AND NOISE	
Baseline Air Quality Sampling (12-Stations)	Based on DENR NAAQGV for Criteria Pollutants based on 1-hour averaging time
PEOPLE	
Public Participation	Based on DAO 2017-15 Perception Survey Conducted with strict observance of Health Protocol Focused Group Discussion with strict observance of Health Protocol Public Scoping Videoconference via Zoom

ES 2.4 Public Participation Activities

ES 2.4.1 Information Education Campaign (IEC) Activities

IEC activities were conducted to identified ten (10) coastal barangays between April 8-14, 2021 for initial introduction of the proposed project, Focused Group Discussion (FGD) on April 26, 2021, May 5, 2021 and May 11, 2021 at Barangay Offices of Lamao, Kitang 1, Kitang 2/Luz, Saint Francis 1, Saint Francis de Asis, Wawa, Reformista, Poblacion, Townsite and Landing. The IEC was conducted following IATF Health Protocol such as wearing of face masks and strict implementation

of physical distancing. The participants mostly were from the barangay council office and some selected fisherfolks organization such as Samahang Mangingisda. **Table ES-5** presents the issues raised during the FGD.

ES 2.4.2 Initial Perception Survey Conducted for Coastal Barangays

The initial survey was conducted last April 9-13, 2021 from 9am to 5pm by local residents of Bataan following IATF Rule in terms of observance of physical distancing. There were about One Hundred Sixty-Four (164) respondents: Municipality Limay with Ninety-Six (96) and Municipality of Mariveles with Sixty-Eight (68). Some of the perceived negative impacts of the respondents are: Can Damage the Sea, Can Damage the Corals, Damage Mother Nature, Water Pollution and Depletion of Fish.

ES 2.4.3 Public Scoping

Public Scoping was conducted on May 28, 2021, Friday with Forty-Eight (48) participants: LGU’s (Province, Municipality, Barangays Landing, Lamao, Wawa and San Francisco De Asis), PPA, BFAR Central and BFAR Region 3, Philippine Coast Guard, Philippine Coast Guard - Bataan MEPGRP, FRMD, Nuclear Free Bataan Movement (NFBM), SP Bataan, PENRO Bataan, CENRO Bataan, MGB Region 3, Pangisda Bataan, Cargon Mining Corporation, EMB Central and Teragrail Geology and Geotechnics.

Table ES-5 below presents the summary of issues and concerns during the Public Scoping.

Table ES-5 Major Issues and Concerns during Public Scoping Activity

Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	How it was Addressed in the EIS
Engr. Victor Ubaldo – LGU – PGENRO of Bataan	<ol style="list-style-type: none"> 1. Based on the plotting your proposed area and it shows that it is within the Municipal Waters of Limay and Mariveles. 2. Why is this scoping limited to Limay Only, whereas the coverage at least a third is within the Mariveles Municipal Waters? 3. Baseline information of the Marine environment if possible and submit any adverse impact if they will be any, can be provided to the province 4. You have sent a letter to the Sanguniang Panlalawigan thru the presiding officer our Vice Governor Garcia requesting for a Letter of No Objection to you activities, please bear in mind that the fisheries code, best jurisdiction over municipal waters on municipal government, so if you need a SB Provincial Resolution, that should come from Municipal SB, Sanguniang Bayan of Limay and Mariveles, if you will pursue this 3,900 hectares , let me correct you that it is not 18km away from the shore, its only 15km from the edge of the municipal water ng Limay and Mariveles, kindly correct discrepancy 5. You should be able to show that the area is indeed silted that needs dredging, otherwise if it is the natural sand seabed that you be dredging, you will be disturbing the natural condition of the seabed. 	<ol style="list-style-type: none"> 1. Based on the QSCP permit, the proposed site is within the Municipal Waters of Limay. 2. As mentioned, final coordinates are within the Municipal waters of Limay, Chapter 1, Table 1-1, page 1-5. 3. Part of the EIS consist of baseline for Marine environment, reflected in Chapter 2, Section 2.2.5, page 2.2-53. 4. The company shall secure BFAR Letter of No Objection (LONO). The site is a about 13km (Point 3-4 of the coordinates) shoreline of Barangay Poblacion and 11.0km (Point 1-2 of the coordinates) shoreline of Barangay Lamao, Chapter 1, Figure 1-4, page 1-11. 5. The seabed elevation down to approximately 12.0 meters are very soft to soft clays with some amount of silts. Annex 2.1 A Geotechnical investigation Report

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Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	How it was Addressed in the EIS
	6. The proposed area is within a very busy navigational lane. Also, the site is fronting a proclaimed fishery reservation in Limay.	7. The proponent shall coordinate regularly with the Philippine Coast Guard (PCG) for every dredging and transporting works, Chapter 3 Impact Management Plan, page 3-3 (for dredging) and page 3-5 (for transporting)
Alvin Pura – Barangay Lamao	1. What about the Mandamus, effect of the population of the fish during operation	The proponent shall strictly implement the Impact Management Plan (IMP) presented in Chapter 3, Zero discharge of domestic waste to Manila Bay, 100% compliance with the following: RA 9003, DAO 1992-29 and DAO 2013-22, page 3-3 to 3-5
	2. The Project will help in some way deepen Manila Bay. Area is sandy silty but still support fisheries productivity being a connection from the nearshore to the open water. Thus, these are still fishing area for municipal fisherfolks particularly with Limay. In its operation of 2 ½ years, I would recommend to compensate fisherfolks to the area being fished x days they cannot fish due to the operation. Total compensation should be divided among active fisherfolks as they alternately fish in the area. Also support to fish catch data monitoring of the Municipal Agriculture Office from these fisherfolks should be funded from data gathering to presentation (biannually starting at the operation and completion of the project)	This is part of the Social Development Plan (SDP) subject to final discussion with the affected fisherfolks, Chapter 5.
	3. The Project help some aspect but in anyway the effects should we or the proponent give emphasize specially the fisherfolks issue. Mitigation and the proper Management should go day to day basis for the effects have to be lessen.	This is part of the Social Development Plan (SDP) subject to final discussion with the affected fisherfolks, Chapter 5 and Chapter 3, page 3-3 for mitigation.
Derek Cabe Nuclear Free Bataan Movement (NFBM)	1. What is the impact on the current clean-up of Manila Bay? 2. Comprehensive baseline study on the marine ecology on this project, and impact on the potential damage on marine ecosystem. Loss of species and fragmentation. 3. Effect on the disturbance of seafloor or seabed and what is the area of the quarry.	1. There will be no impact to the current clean of the Manila Bay, for as long as the proponent will strictly implement the EMP as presented in Chapter 3, Zero discharge of domestic waste to Manila Bay, 100% compliance with the following: RA 9003, DAO 1992-29 and DAO 2013-22, page 3-3 to 3-5 2. Part of the EIS consist of baseline for Marine environment, reflected in Chapter 2, Section 2.2.5, page 2.2-53. 3. The total area of the GSQP is 3,974.3028 Hectares, Chapter 1, page 1-1 and Annex ES-C for the GSQP Permit. Post scenario of the bathymetry or seabed profile is presented in Figure 1-11, page 1-41.
	4. Are we allowed to do fishing during operation? 5. Coherence with SC Mandamus 6. Comprehensive Baseline data/ studies 7. Disturbance to Marine Ecosystem/ Marine Life 8. Loss of species and fragmentation of or loss of ecosystem structure and function 9. Rehabilitation Plan/ Abandonment Phase	4. Yes you will still be allowed to do fishing but with observance to the radius of the vessel as silt curtain will be installed for safety and protection, Chapter 1, page 1-31 and Figure 1-9, page 1-34 Items 5-9 reflected in Chapter 3, IMP

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Sector or Representative Who Raised the Issue/ Suggestion	Issues/Suggestions Raised by Stakeholder	How it was Addressed in the EIS
BFAR – Sandra V. R. Arcamo	<ol style="list-style-type: none"> 1. It is not just simply siphoning the sand and silt. It's simply because manila bay is a fishing ground, if you are going to disturb the bottom, how are you going to affect the fisheries in the bay 2. You are already encroaching the commercial area which is very small, the population of the commercial fishers in Manila Bay is also using that small commercial area 	This is part of the Social Development Plan (SDP) subject to final discussion with the affected fisherfolks, Chapter 5 and Chapter 3, page 3-3 for mitigation.
	<ol style="list-style-type: none"> 3. Hope there is a screening from EMB because this is under Mandamus. 4. If you look at the Mandamus ruling there is a big task on fisheries. It does not add up to the restoring the Manila Bay. 	Others issues not related to the proposed project
Engr. Vivencio Frianeza – Provincial	<ol style="list-style-type: none"> 1. Kindly clarify the 18km from the shore, how near or far on the seashore of Limay especially point 1 and 2, actually since that is the nearest seashore 2. Can you include in your mitigating measures consider artificial coral reef to compensate the coral reef that will be left? 3. Kindly provide all related studies 	<ol style="list-style-type: none"> 1. The site is a about 13km (Point 3-4 of the coordinates) shoreline of Barangay Poblacion and 11.0km (Point 1-2 of the coordinates) shoreline of Barangay Lamao, Chapter 1, Figure 1-4, page 1-11
MOC	<ol style="list-style-type: none"> 1. How many radius not allowed to fish? 	Yes, you will still be allowed to do fishing but with observance to the radius of the vessel as silt curtain will be installed for safety and protection, Chapter 1, page 1-31 and Figure 1-9, page 1-34
ENS Betenio PCG	<ol style="list-style-type: none"> 1. Do you have a contingency oil spill plan in case of accidental oil spill? For the different waste to be generated aboard ship, do you have an accredited waste collectors to collect the wastes. If there are, kindly provide the PCG a copy of the accredited waste collectors that you are going to tap and a copy of the oil spill contingency plan. I'd like to suggest that these will be included also as one of the attachments for the eia. 	Contingency Plan is attached in Annex 2.2-D – Manila Bay Oil Spill Contingency Plan and Annex 2.2-E – Oil Spill Prevention and Response Plan.
Barangay Lamao – Rosario Perez Kagawad	<ol style="list-style-type: none"> 1. Fisherfolks, livelihood not only in Limay but in Bulacan, Cavite and Pampanga considering that Manila Bay is a Fishing basket of Central Luzon and here in Lamao, we are making project for breeding areas of fishes/nesting fishes 	This is part of the Social Development Plan (SDP) subject to final discussion with the affected fisherfolks, Chapter 5 and Chapter 3, page 3-3 for mitigation.
Kapitan Leila Cruz – Barangay Lamao	<ol style="list-style-type: none"> 1. If dredging is by suction, not only garbage but also the nesting fishes at the same time those fishes that will be caught, kindly study because this affect the fisherfolks 	Creation a Multi-Sectoral Monitoring Team (MSMF) Monitoring to monitor the impact of the project to the current fishing activity, Chapter 6, page 6-4 and Draft MOA is presented in Annex 6.1
Edlyn Rosales – Pangisda Bataan (NGO)	<ol style="list-style-type: none"> 1. SC Mandamus, let us not sideway the RA 10654 which states that we need to sustain the status of the sea/ocean and prohibited sea/ocean to convert into other use 2. We have about 124,000 families/fisherfolks around the Manila Bay 3. Millions are dependent for food, can Cargon Mining Corporation provide food to the affected fisherfolks 4. Can we request copy of the document to EMB and how we can submit opposition for this project 	<ol style="list-style-type: none"> 1. The proposed seabed quarry project is not altering nor converting into other use, this is extraction of sands on the seabed and considered temporary in nature. 2-4. This is part of the Social Development Plan (SDP) subject to final discussion with the affected fisherfolks, Chapter 5 and Chapter 3, page 3-3 for mitigation.
BFAR – Arlyn M. Region 3	<ol style="list-style-type: none"> 1. Was the proponent or from previous experience where they were able to provide compensation for the affected stakeholders 	Yes, and this will be part of the SDP under Chapter 5.

ES 3.0 EIA Summary

ES 3.1 Summary of Alternatives

The project area is a potential site source for dredge fill materials considering the parameters following Section 15(a) of DAO 96-40, the following offshore areas on seabed quarrying/dredging application were considered under provisions of DAO 2000-25, 'Implementing Rules and Regulations of Executive Order No. 153 "Authorizing the Utilization of Offshore Areas Not Covered by Approved Mining Permits and Contracts as Sources of Dredge fill Materials for Government Reclamation Projects and Other Purposes":

- More than 1,500 meters distance from the nearest coastline (mean low tide level) of land or island(s) and where the seabed depth is less than 30 meters measured at mean sea level;
- More than 1,000 meters distance from the nearest boundary of a declared National Integrated Protected Area System (NIPAS) component or Protected Area such as marine park/reserved, fish sanctuary, etc.;
- More than 500 meters from all sides of production oil rigs and platforms, piers/ports, navigational sea lanes;
- More than 2,000 meters distance from both sides of submarine cables, pipelines, bridges and other facilities/infrastructure, unless written consent is obtained from the concerned party;
- More than 1,000 meters distance from coral reefs, shoals and banks with endangered Marine Habitat as delineated by PAWB-DENR; and
- Exclusion/buffer corridors of 15 seconds of geographic coordinates, approximately measuring 450 meters wide, as reckoned from the boundary/perimeters of valid and existing Permit/Contract Mining Areas.
- The initial applied GSQP location of the proponent covered Municipalities in Limay and Mariveles, Province of Bataan and Cavite City with total area of 6,210.3887 Hectares. However, due to several studies undergone by the proponent, the total area was reduced to **3,974.3028** Hectares through the amendment of the GSQP which covers only the Municipality of Limay, Province of Bataan.

ES 3.2 Summary of Main Impacts and Residual Effects after Applying Mitigation

The summary of Impacts and Residual effects is provided in Table ES-6.

Table ES- 6 Summary of Main Impacts and Residual Effects

Activity / Resource Likely	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Target Performance/ Efficiency
CONSTRUCTION/OPERATION PHASE- DREDGING ACTIVITY/OPERATION			
	Water Pollution		
	Brought about by silt disturbance within the quarry area	<ul style="list-style-type: none"> • Installation of silt curtains around the dredging vessel and around the perimeter area of dredging area/activities • 500-meter buffer zone around the GSQP area 	100 % Compliant to RA 9275 and DAO 2016-08 standards outside the silt curtain area
	Generation of untreated/improper disposal of domestic wastewater	<ul style="list-style-type: none"> • Properly maintained on-board sanitary facilities • Collection and disposal will be done by a DENR accredited hazardous waste hauler and treater 	100% No Dumping activity Zero discharge of domestic waste to Manila Bay.

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Activity / Resource Likely	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Target Performance/ Efficiency
Dredging/Removal of seabed by suction and Vessel Loading	Due to indiscriminate improper dumping of solid wastes and toxic substances	Ensure that its on-board contractors shall practice onsite segregation and establish storage facility of the following: 1. Solid wastes such as paper, plastic, cans and bottles 2. Hazardous wastes such as used oil, busted lamps, oily rags, etc. The above waste materials shall be hauled and disposed of by a DENR accredited hauler and treater.	100% No Dumping activity 100% compliance with the following: • RA 9003 • DAO 1992-29 and DAO 2013-22 and its Revised Procedural Manual
	Air and Noise Pollution		
	Air pollution due to emission of CO and NOx	The vessels used for transporting shall have regular Preventive Maintenance System (PMS)	100% Compliant to RA 8749 in terms of air quality standards
	Noise generation	Use of efficient silencers on equipment and other noise dissipating device on all equipment to be used. Observe allowable work hours to limit noise.	100% Compliant with Noise Standards
	People		
	Impact on the livelihood of fisherfolks using the area for fishing and decrease of fish catch production of affected fishermen	<ul style="list-style-type: none"> Provision of more appropriate fishing gears to organized fishers to enable them to fish further in a different offshore area Implement SDMP 	100% Compliance to livelihood and Fish Aggregating Device (FAD) 100% Implementation of SDMP
	Hazard and Safety in case of Tsunami/Storm surges Health and Safety due to exposure to Operation Hazard	<ul style="list-style-type: none"> Strictly implement the PCG rule Implement wearing of PPE's at all times when inside the project site 	100% Compliant to PPEs and Zero accident
Employment	<ul style="list-style-type: none"> Priority to qualified local hires 	100% Compliance to SDP in terms of local employment	
Transport of dredged material to disposal site	Water Pollution		
	Water pollution due to accidental spillage of dredged materials	The vessels used for transporting shall be good condition to prevent dredged materials from leaking or spilling	Allowable Ambient Criteria or 100% Compliant to RA 9275 and DAO 2016-08 standards outside the silt curtain area.
	Generation of untreated/improper disposal of domestic wastewater	<ul style="list-style-type: none"> Properly maintained on-board sanitary facilities Collection and disposal will be done by a DENR accredited hazardous waste hauler and treater 	Zero discharge of domestic waste to Manila Bay.
	Due to indiscriminate improper dumping of solid wastes and toxic substances	Ensure that its on-board contractors shall practice onsite segregation and establish storage facility of the following: 1. Solid wastes such as paper, plastic, cans and bottles 2. Hazardous wastes such as used oil, busted lamps, oily rags, etc. The above waste materials shall be hauled and disposed of by a DENR accredited hauler and treater.	100% compliance with the following: • RA 9003 • DAO 1992-29 and DAO 2013-22 and its Revised Procedural Manual
	Air and Noise Pollution		
	Air pollution due to emission of CO and NOx	The vessels used for transporting shall have regular Preventive Maintenance System (PMS)	100% Compliant to RA 8749 in terms of air quality standards
Noise generation	<ul style="list-style-type: none"> Use of efficient silencers on equipment and other noise dissipating device on all equipment to be used. 	100% Compliant with Noise Standards	

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Activity / Resource Likely	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Target Performance/ Efficiency
		<ul style="list-style-type: none"> Avoid use of heavy machinery during night hours. Observe allowable work hours to limit noise. 	
	People		
	Hazard and Safety in case of Tsunami/Storm surges Health and Safety due to exposure to Operation Hazard	<ul style="list-style-type: none"> Strictly implement the PCG Rule Implement wearing of PPE's at all times when inside the project site 	100% Compliant to PPEs and Zero accident
Employment	<ul style="list-style-type: none"> Priority to qualified local hirees 	100% Compliance to SDP in terms of local employment	
Dumping of dredged material to the Reclamation Site by Rain Blowing Method	Water Pollution		
	Water Pollution due to disposal of dredged materials	<ul style="list-style-type: none"> Strictly implement IMP prepared for the Reclamation Site. 	Allowable Ambient Criteria due to disposal of dredged materials
	Generation of untreated/improper disposal of domestic wastewater	<ul style="list-style-type: none"> Properly maintained on-board sanitary facilities Collection and disposal will be done by a DENR accredited hazardous waste hauler and treater 	Zero discharge of domestic waste to Manila Bay.
	Due to indiscriminate improper dumping of solid wastes and toxic substances	Ensure that its on-board contractors shall practice onsite segregation and establish storage facility of the following: 1. Solid wastes such as paper, plastic, cans and bottles 2. Hazardous wastes such as used oil, busted lamps, oily rags, etc. The above waste materials shall be hauled and disposed of by a DENR accredited hauler and treater.	100% compliance with the following: <ul style="list-style-type: none"> RA 9003 DAO 1992-29 and DAO 2013-22 and its Revised Procedural Manual
	Air and Noise Pollution		
	Air pollution due to emission of CO and NOx	The vessels used for transporting shall have regular Preventive Maintenance System (PMS)	100% Compliant to RA 8749 in terms of air quality standards
	Noise generation	<ul style="list-style-type: none"> Use of efficient silencers on equipment and other noise dissipating device on all equipment to be used. Avoid use of heavy machinery during night hours. Observe allowable work hours to limit noise.	100% Compliant with Noise Standards
	People		
	Hazard and Safety in case of Tsunami/Storm surges Health and Safety due to exposure to Operation Hazard	<ul style="list-style-type: none"> Strictly implement the PCG Rule Implement wearing of PPE's at all times when inside the project site 	100% Compliant to PPEs and Zero accident
	Employment	<ul style="list-style-type: none"> Priority to qualified local hirees 	100% Compliance to SDP in terms of local employment
ABANDONMENT PHASE			
Cessation of dredging activities	Seabed profile	Conduct seabed profiling	Submission of post bathymetry study
	Water Quality	Marine Water quality sampling	Compliant to RA 9275 and DAO 2016-08 standards
	Marine Ecosystem	Conduct post marine assessment study	Submission of post marine assessment study
	Livelihood	<ul style="list-style-type: none"> Resumption of fishing in the area. Pay employees termination pay and other payment mandated by laws. 	100% Compliance to SDP in terms of livelihood

ES 3.3 Risks and uncertainties relating to the findings and implications for decision making

Based on the assessment and findings relating to the findings and implications for decision making is presented in **Table ES-7**:

Table ES-7 Risks and Uncertainties and Implications for Decision Making

MODULE	RISK AND UNCERTAINTIES	IMPLICATION FOR DECISION MAKING
Land	Seabed Profile reveals that first five (5) meters of the seabed is composed of silt and mud	Possibly of unqualified dredge fill materials resulting to wastes and disposal. Operating cost implication due to desired quality of dredge fill materials beneath 5-meters. Reclamation project must push thru for the commencement of the seabed quarry provided with appropriate National and Government Permits.
Water	May contribute to turbidity due to dredging by suction Navigational Traffic, may experience waiting time to transport due to several related sea transport system and activities	Must provide silt curtain around the vessel at least 200 meters away from the vessel Must notify the Philippine Coast Guard (PCG) in advance the schedule of transporting of seabed materials
Air	Dust Pollution due to emission of CO and NOx due to dredging equipment	Shall see to it that Preventive Maintenance System (PMS) shall be conducted regularly
People	Acceptance of the community on the perception of the seabed quarry project	Implement Social Development Management Plan (SDMP) and regular consultation and strengthening of Information Education Campaign (IEC).