EXECUTIVE SUMMARY

1.0 PROJECT FACT SHEET

1.1 Background of the Project

Project Name:	**Davao Cement Terminal and Packaging Facility**
Nature of Project:	**Manufacturing**
Total Area and	**18,800 m^2 leased area and 6,000 m^2 leased port area**
Production Capacity:	**1.5 MMT/year**
Site Location:	**Barangay Ilang, Bunawan District, Davao City**

1.2 Profile of the Proponent

Name of Proponent:	**Philcement Corporation**
Office Address:	**39 Plaza Drive, Rockwell Center, Makati City 1200**
Contact Person:	**Engr. Raymundo Cruz** **Vice President/Project Manager**
Tel No./Fax No.:	**(02) 8870-0100**

1.3 Profile of the EIS Preparer

EIS Preparer:	**Gaia South, Inc., *Environmental Consultants***
OfficeAddress:	**7th Floor Montepino Bldg., Adelantado cor. Gamboa St., Legaspi Village, Makati City**
Contact Person:	**Ebert T. Bautista** **Project Director**
Tel. No./ Fax No.:	**+63 2 88935661 (tel.) / +63 2 88935657 (fax)**

1.4 Project Size

The whole project will have a total area of 24,800 m^2 and will have an annual production capacity of 1.5 MMT/year.

1.5 Project Components

The development of the proposed Philcement Davao Cement Terminal and Packaging Facility Project will consist of port development and bulk cement unloading facility, including the construction of cement conveyor system, cement silos, fly ash silo, bulk truck loading facility, tonnering facility, cement packaging plant and administration office as well as the establishment of a truck holding area and parking. **Table ES1** summarizes the inclusive components of the proposed project.

Table ES1. Summary of components of the proposed Philcement Davao Cement Terminal and Packaging Facility Project

Facilities	Area footprint, m^2	Gross Floor Area (GFA), m^2	Description
Cement Storage Facility	2,000.00	2,000.00	Each of the two (2) silos will have a maximum capacity of 20,000 tons. The static upright silos will have foundation depth of approximately 4 m and a total height of about 45m. The manufactured silo will be erected on site using panels.
Fly Ash Storage Silo	1,000.00	1,000.00	20,000 tons capacity silo
Cement Mixing Facility	1,000.00	1,000.00	Fully automatic mixing machine
Packaging Facility	3,000.00	3,000.00	Fully automatic packaging machine
Admin Building	300.00	300.00	The facility will be allocated for central administrative
Process Road	11,150.00	11,150.00	Concreted open area
Truck Scale	350.00	350.00	100Tons truck weigh scale
TOTAL	**18,800.00**	**18,800.00**	-
Port (Outside the plant – TEFASCO) including cement unloader, receiving conveyor and bucket elevator	**6,000.00**	**6,000.00**	1.5 MMT of cement per year
TOTAL PROJECT AREA	**24,800.00**	**24,800.00**	

2.0 PROCESS DOCUMENTATION

2.1 The Environmental Impact Assessment (EIA) Report

As defined in the Revised Procedural Manual of DAO 03-30, EIA is a "*process that involves predicting and evaluating the likely impacts of a project on the environment during construction, commissioning, operation and abandonment*". EMB Memorandum Circular 2005-14 "*The Revised Guidelines for Coverage Screening and Standardized Requirements under the Philippine EIS System*" classifies the proposed project as Category A or Environmentally Critical Projects (ECP) based on the threshold for annual production capacity for a manufacturing project. The ECC application of a new and single project under Category A shall be applied at the EMB Central Office (CO) and the EIS as its documentary requirement.

The EIS shall contain the following:

- Project Description
- Analysis of Environmental Impacts
- Environmental Management Plan
- Environmental Risk Assessment & Emergency Response Policy and Guidelines
- Social Development Plan & Information, Education, and Communication Framework
- Environmental Compliance Monitoring
- Decommissioning/Abandonment/Rehabilitation Policy
- Institutional Plan for EMP Implementation

Gaia South Inc. a third-party environmental consultancy firm was contracted by Philcement Corp. to prepare this EIS report. Pre-scoping activities such as Information, Education, and Communication (IEC) (**Annex ES1**), Key Informant Interview (KII), and Focus Group Discussion (FGD) were conducted. A Public Scoping Meeting was also held via online on December 10, 2020. To guide both the Proponent and its EIS Preparer in the conduct of the Environmental Impact Assessment (EIA), a Technical Scoping meeting was also conducted online last January 20, 2021. The EMB Casehandlers, Review Committee members, Philcement Corp., and Gaia South Inc. representatives agreed on the coverage of the Technical Scoping Checklist (**Annex ES 2**), which will serve as a guide in the preparation of the EIS report.

2.2 Limitations of the Study

The preparation of this EIS was timed during the pandemic which generally restricted the overall movement of the consultants on site and within the host community. As much as possible, request for data and follow-ups from the barangay and City Government were done online or via phone call to prevent any possible cause of health problems among the Consultants, community participants, and resource persons.

The coverage of the EIA was based on the Technical Scoping Checklist which was agreed by the EMB, Philcement Corp., and Gaia South, Inc during the Technical Scoping Meeting. The Checklist enumerates all the parameters and the recommended methodologies; however, some of the information may not be available Experts from different fields of interest prepared this EIS based on the primary data gathered through the actual fieldwork and secondary data sourced from the barangays, LGU, and government agencies such as the National Mapping and Resource Information Authority (NAMRIA), Philippine Institute of Volcanology and Seismology (PHIVOLCS), Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), and Mines and Geosciences Bureau (MGB), among others.

2.3 The Project Team

Table ES4 summarizes the experts involved in this EIA. The Accountability Statements of Philcement Corp. and Gaia South, Inc are attached as **Annexes ES 3** and **4** are the Accountability Statements, respectively.

Table ES2. List of EIA team members and their respective field of expertise

Consultant/Researchers	Expertise
Ebert T. Bautista	Project Director/Technical Reviewer
Liezyl S. Liton-Relleta	Senior Environmental Consultant/ Project Manager
Neil James E. Duran	Senior Environmental Consultant/ Terrestrial Ecology/Land Use
Pancho Caculitan	Geology/Geological Risk Assessment
Erwin Kim Mercado	Hydrology/Flood Modeling
Danica Dela Rosa	Water Quality/Senior Technical Associate
Patricia Erika Lim, EnP	Noise and Air Quality
Merlyn Carmelita Rivera, PhD	Socio-economics and Public Health
Thelma Dela Cruz	Environmental Risk Assessment
Alfredo Guab III	Mapping Specialist
Kristine Lasmarias Reuel Sebastian Garcia	Research Assistants

2.4 The EIA Study Schedule and Area

The proposed Philcement Davao Cement Terminal and Packaging Facility project will be situated within the existing complex of Union Galvasteel Corporation (UGC) located in Barangay Ilang, Bunawan District, Davao City.

Table ES3. EIA study schedule

Activity	Period
Pre-scoping study (including IEC, KII, FGD, and pre-scoping household survey)	October 2019
Public Scoping Meeting	December 10, 2020
Technical Scoping Meeting	January 20, 2021
Environmental and social fieldwork	March 14-16, 2021
Draft EIS Report writing	March to May 2021
Submission of EIS to EMB for Procedural Screening	August 2021
First EMB Review Committee Meeting	December 3, 2021

2.5 The EIA Methodology

Various studies for land, water, air as well as the social aspects were conducted in such a way that all the technical, environmental and regulatory requirements dictated in the Technical Scoping Checklist were satisfied. Furthermore, this report is a product of the professional and scientifically acceptable methodologies and procedures by the DENR. **Table ES4** provides the summary of the EIA methodology.

Table ES4. The EIA methodology

Module	Description
Land Use	• Use of Comprehensive Land Use Plan of Davao City (2013-2022).
Geology and Geomorphology	• Conduct of field survey and use of available reports, geology literature and information to describe site's existing condition; Use of geological and seismological data lifted from publicly available international and local sources.
Pedology	• Use of regional data from the Department of Agriculture (DA) and Bureau of Soil and Water Management (BSWM).
Terrestrial Flora	• Reconnaissance survey was done to identify the general characteristics, features and composition of the proposed project area. Sampling plots

Module	Description
	or transects were not established since the project area is already devoid of its former natural vegetation due to the construction of the UGC facilities on site. The species were photographed using high resolution digital camera to ascertain and validate their genus and/or species. • The conservation status of all identified species was determined/ confirmed using DENR Administrative Order 2017-11 (DAO 2017-11) and 2017 International Union for the Conservation of Nature (IUCN) Red List of Threatened Species.
Terrestrial Fauna	• Survey for terrestrial fauna was also conducted together with the study on terrestrial vegetation. A reconnaissance survey was done to identify the species in the proposed project area. Sampling plots or transects were not established. In cases where the species cannot be identified in the field, pictures were taken using high resolution digital camera to ascertain and validate their genus and/or species.
Hydrology/Flood Modelling	• Use of data from the National Mapping and Research Information Authority (NAMRIA), Philippine Atmospheric, Geophysical and Astronomical Service Administration (PAGASA), and Mines and Geosciences Bureau (MGB). • Use of meteorological data sourced from the PAGASA Science Garden. • Flood modeling was conducted using Direct Rainfall Model (DRM) an integrated hydrological and hydraulic modeling computation that directly applies rainfall on the catchment to generate runoff which is simultaneously routed downstream across the topographic 2D grid.
Water Quality	• Three marine water sampling stations located adjacent to the TEFASCO port were identified for the assessment of the water quality. There were no nearby freshwater bodies and groundwater wells in the proposed project site. • The samples were collected and sent to Davao Analytical Laboratories Inc. for analysis of the following parameters: pH, temperature, Total Suspended Solids (TSS), oil and grease, Dissolved Oxygen (DO), surfactants, phosphate, nitrate, and ammonia.
Meteorology	• Use of meteorological data sourced from PAGASA Science Garden. • Other relevant information gathered from PAGASA is the climate and typhoon frequency maps and the 2020 and 2050 climate projection (Climate Change in the Philippines, 2011).
Air Quality	• Two stations were identified and sampling at each station has an averaging time of 24 hours for Total Suspended Particulates (TSP) and 1hour for four (4) parameters: TSP, particulates with diameter ≤10 microns (PM_{10}), nitrogen dioxide (NO2), and sulfur dioxide (SO2); and • The ambient air quality at the Project site was assessed according to the DENR Administrative Order (DAO) 2000-81 or the Implementing Rules and Regulations (IRR) of the Clean Air Act of 1999.
Noise	• Noise levels were measured in each of the three (3) ambient air stations using a non-integrating type 2 sound level meter. • Instantaneous noise readings were taken at each station. The minimum, maximum, mean, and median noise values were determined from the readings. The median noise level at each station was compared to applicable noise standards.
People	• Use of Barangay-level data from barangay profiles, city-level data from CLUP, Community Development Plan (CDP), and ecological profiles of Quezon City and Valenzuela City. • Conduct of Perception Survey, Focus Group Discussions (FGD), and Key Informant Interview (KII).

2.6 Public Participation

DAO 2017-15 or the "*Guidelines on Public Participation Under the Philippine Environmental Impact Statement (EIS) System*" entail projects under the Philippine Environmental Impact Statement System (PEISS) to conduct meaningful public participation in the various stages of the EIA process. The EIA was participated by stakeholders from the only impact barangay of the proposed project – Barangay Ilang, key officials at the City Government, and leaders of some local organizations.

Pre-scoping activities started in October 2019. The activities include the initial stakeholder identification, conduct of Information, Education, and Communication (IEC), and pre-scoping survey which were conducted in each of the affected areas to determine the level of awareness of the stakeholders about the proposed project. The Pre-scoping Survey Report is included as **Annex ES 5**. The documentation includes the results of the survey conducted as well as the key issues that were raised during the FGDs and KIIs.

On December 10, 2020, the Public Scoping Meeting was held via online. Interest groups invited for the Public Scoping were identified following DAO 2017-15. The meeting documented the issues and concerns of the proposed project by sector: Land, Water, Air, and People. **Annex ES 6** includes the Public Scoping Report indicating the analysis of the issues raised during the meeting.

Tables ES5 to **ES7** present the issues and concerns raised during the IEC activities and the Public Scoping Meeting.

Table ES5. Issues, concerns and responses during the IEC activity
Barangay Ilang, Bunawan District, Davao City

Name	Issues/Concerns/Notes	Response
Hon. Amado Babao *Chairman*		**Mr. Raymundo Cruz,** *Philcement*
	Where is the source of the raw materials?	The raw materials will be sourced from Vietnam.
	Where is the exact location of the proposed project?	The proposed Davao Terminal Project will be located in the existing UGC Plant. The UGC plant will be demobilized and transferred to a lot located at the back end of the property. All necessary permits will be secured by the company before any demobilization and construction activities.
	Where will be the port of delivery?	Philcement will be renting at Terminal Facilities and Services Corporation (TEFASCO) for the delivery of raw materials and packed cement products. There is already a draft agreement for renting awaiting for the final pricing between Philcement and TEFASCO.
		Mr. Ebert Bautista, *Gaia South*
	Please prioritize local hiring. We have qualified workers.	Local qualified applicants will be prioritized by Philcement. This is also the commitment of the Company and a condition that will be written in the Environmental Compliance Certificate

Name	Issues/Concerns/Notes	Response
		(ECC). **Mr. Raymundo Cruz,** *Philcement* **Ms. Zita Balogo**
	Will you conduct laboratory testing to check the quality of the product?	There will be a series of material testing to be conducted to ensure quality of the product and satisfy the demand of the consumers for good quality commodities. At the source, the supplier requires the testing of the materials to be exported, upon its arrival, and prior to final packaging of the cement products. The quality of the materials is assured. Philcement has been sourcing the same materials from Vietnam for quite a long time already.
	Can we request for a site visit in the proposed area to have a visual knowledge on where you will construct the proposed Terminal Project? We are suggesting October 14, 2019 at 9:30 a.m.	We will accommodate the Council as requested.
Hon. Godofredo Babao *Kagawad*		**Mr. Raymundo Cruz,** *Philcement* **Ms. Zita Balogo**
	Holcim is not properly paying the Real Property Tax (RPT). We hope that Philcement will properly and promptly pay the necessary taxes and permits for the benefit of the Barangay for use in the local projects.	Holcim is a bigger company that manufactures cement products while Philcement will only pack/bag the cement materials. It is also expected that the RPT of Philcement will be lower than that of the Holcim.
	Do you think that there will be significant competition on cement manufacturing that may cause Holcim to shut down once you operate?	Based on the graph presented, closure of cement manufacturing plants is not foreseen to happen anytime soon because the demand on cement is still progressing in the Philippines.
Kagawad		**Mr. Raymundo Cruz,** *Philcement*
	What are the Corporate Social responsibilities (CSR) that you are incorporating in the operations?	Definitely, there will be CSR programs that will be implemented for the workers as well as social programs for the barangay but these projects have to be studied depending on the needs of the people and in accordance with the existing laws and regulations. There will be further studies that will be conducted by experts to ensure that the most suitable programs will be implemented in the barangay.

Table ES6. Issues, concerns and responses during the IEC activity with Davao City Council Members

Name	Issues/Concerns/Notes	Response
Mr. Christian Cambaya *Acting OIC DCIPC*	Will there be manufacturing of cement?	**Mr. Raymundo Cruz,** *Philcement* There will be packaging but no manufacturing of cement.
Mr. Curtis Lazarraga *City Health Office*	How many silos will be installed for the 1.5MT terminal? Where will these be situated? How far would the silos be from the road?	**Mr. Raymundo Cruz,** *Philcement* There will be 215,000 tons silos. From the TEFASCO port, it will cross the road similar on the installation made by Holcim. It will be approximately 100 meters away from the road. We will put the packaging plant in the front and the silos will be at the back.
	The source is near the shipment and port area. How can you transfer it to the silos?	A bucket elevator will be used to transfer the cement. From the port, a mechanical ship unloader will be installed. After the unloading, the wheeled ship unloader will be disassembled so TEFASCO can still use the port. Through a closed conveying system (air slide), the materials will cross the road and will be transported to the silos.
	Are you sure that the system can duct or pass through?	**Mr. Robert Anthony Te,** *Philcement* Yes, TEFASCO has a duct of 10 meters and that's where we currently duct our vessels. At 10 meters, the vessel that we will bring is around 27,000-30,000 deadweight. Around nine (9) meters will be needed for a 27,000 deadweight vessel. So in that 30,000, there will be at least three (3) ships per month.
	Will this be situated near the TEFASCO area?	**Mr. Raymundo Cruz,** *Philcement* Yes, it will be situated relatively adjacent to the TEFASCO area.
Mr. Julivie Jamero *City Administration Office*	Are there existing silos in the area?	**Mr. Raymundo Cruz,** *Philcement* There are no existing silos in the area. There is only a steel plant (UGC plant), which will be relocated upon approval of the project.
Mr. Curtis Lazarraga *City Health Office*	What will be the height of the silo?	**Mr. Raymundo Cruz,** *Philcement* Based on our design, the total height will be 50 meters. The concrete base will be 20 meters high while the steel storage will be 30 meters. **Mr. Robert Anthony Te,** *Philcement* The silo will be made of steel. It has a concrete base but the main structure

Name	Issues/Concerns/Notes	Response
		would be steel. **Mr. Raymundo Cruz,** *Philcement* Based on the National Building Code of the Philippines, it can withstand an intensity 8 earthquake.
Mr. Ardeo Armentano *CENRO*	Do you still need the No Objection Letter (NOL) from residents and the Barangay?	**Mr. Ebert T. Bautista,** *Gaia South Inc.* Actually, it is not necessarily needed but we appreciate that the barangay volunteered to issue a resolution of no objection. The residents and the barangay are part of the consultation.
	What are the options if the extraction of raw materials from the jetty malfunctioned? Because we experienced this before, and the effect of dust is visible.	**Mr. Raymundo Cruz,** *Philcement* The system is closed so there will be no dust or debris that will fall out in case of a system malfunction. The screw which extracts the raw materials will just stop. It can also be easily assembled based on our experience in the Mariveles Plant.
	There is a similar cement plant relatively adjacent to your area. The Apo Cement is also pneumatic. That time, there is a miscommunication between the operators of the jetty and silos. There is an excessive pressure which resulted to explosion.	Yes, it can happen if your dust collector malfunctioned. In our case, it is like you are just throwing the cement. The pressure is only slightly negative so that there will be no dust. We need to have a slightly negative pressure to remove the humidity.
Mr. Ardeo Armentano *CENRO*	Will the Davao Train be constructed adjacent to your location?	**Mr. Robert Anthony Te,** *Philcement* We will check the project location of the Davao Railway. **Mr. Raymundo Cruz,** *Philcement*
Mr. Curtis Lazarraga *City Health Office*	Try to consult with DPWH to know the exact location of the train. It will be from Tagum to Digos so most likely it will pass through Davao. Our concern also is if somewhere along the line, it will pass through the Mujang side? It is located at the back of your proposed location.	If the railway will pass through the highway, our machines are flexible. We will slightly move it to give way to the train. No it will not pass thorough and no modification will be done at the back.
Mr. Ardeo Armentano *CENRO*	What is the bulk cement capacity?	**Mr. Raymundo Cruz,** *Philcement* The finished products are bagged and bulk cement. The normal capacity for bulk cement is 40 tons. Some importers do not have bulk cement so if a problem arises with the local supply, big projects such as roads and bridges will be stopped. **Mr. Robert Anthony Te,** *Philcement*

Name	Issues/Concerns/Notes	Response
		Most of the projects especially dams, road and bridges need concrete, while concrete need bulk cement to the ready mix sand. We will offer deliveries of bulk cement. Currently, Davao has two (2) suppliers of bulk cement so in the future you will have us as an alternative supplier.
Mr. Curtis Lazarraga *City Health Office*	So currently you are in the permitting stage? We are interested in looking at the conditionalities of your ECC. If the ECC compliance were really met.	**Mr. Raymundo Cruz,** *Philcement* Yes, we are currently in the IEC campaign and after this we will draft our EIS Report. Yes, we will update you with our ECC compliance.
Mr. Ardeo Armentano *CENRO*	Where do you get the bags used for the cement packaging, are these locally-made?	**Mr. Raymundo Cruz,** *Philcement* As of now, we have different suppliers. We have our local supplier and some were imported overseas. Our partner supplier will also depend on the packaging presentation and the reliability of supply. We will comply if the city will require us to use paper for packaging as we also use it in Mariveles.
Mr. Curtis Lazarraga *City Health Office*	The construction of a centralized vacuum system is good to prevent dust accumulation. The Apo Cement operations are primitive compared to this. Can we see the ECC conditionalities of the Mariveles Plant? Because more or less the conditionalities will be the same in this project.	**Mr. Raymundo Cruz,** *Philcement* In our Mariveles Plant, a centralized vacuum system will be installed and we will also apply it here in Davao. **Mr. Ebert T. Bautista,** *Gaia South Inc.* Yes. It will be provided.
Mr. Ardeo Armentano ***CENRO***	What is the manpower in Mariveles Plant? What will you do to the bags that can't be repaired?	**Mr. Raymundo Cruz,** *Philcement* I have 50 people in my organization. The operation support staff such as drivers an utilities were not yet included. So more or less total of 150-200 employees. We also have Corporate Social Responsibility (CSR) projects that we want to put up in Mariveles and we can implement it this coming March. One CSR project is the reuse and recycle of big bags from the cement packaging. We will provide trainings to local community members on how to sew and repair the bags then we will buy the finished product from them. We target to involve the single parent association in this CSR project.

Name	Issues/Concerns/Notes	Response
		Definitely, we will dispose the bags since the logo and name of the company is embossed with it.
	Some bought one (1) ton bags for furniture-making.	There is someone who will buy the unrepaired bags and recycles for other purposes. We can also explore other options to reuse to the bags.
	Does your plant in Freeport Mariveles Bataan exempted from income tax? How about here in Davao Plant?	Yes, the plant in Mariveles is income tax exempted but not here in Davao.
Curtis Lazarraga *City Health Office*		**Mr. Ebert T. Bautista,** *Gaia South Inc.*
	Who conducts monitoring and site inspection?	The site inspection and audit will be conducted by the multi-sectoral monitoring team (MMT).
	Where will the MMT come from? Can we conduct the site inspection and audit during the construction and operation?	Yes, you will become part of the MMT. We will be informed about its members later on. It is better if the MMT will be rationalized. **Ms. Zita Balogo**
	In my opinion, your ECC would not require the locals as MMT. But I think from your end, if you want, it can possible for the locals to be the MMT.	It is also better if the MMT are the locals. Because if there is an issue, we can address it easily.
Julivie Jamero *City Administration Office*		**Mr. Robert Anthony Te,** *Philcement*
	Just like other plants, the warehouses are elevated. What is the difference in elevation from the barangay road to the warehouse location?	We have an existing warehouse right now. From the highway, it has an approximately 10-15 degrees difference. The roads were properly concreted from the highway going to the warehouse. **Ms. Zita Balogo** Based on the design, there is no specific elevation required. But we always wanted it to be higher than the normal road to prevent the cement from getting wet so most of the cement warehouses are elevated.
Curtis Lazarraga *City Health Office*		**Mr. Ebert T. Bautista,** *Gaia South Inc.*
	I would suggest that you include the committee on environment of the Sanggunian led by Councilor Diosdado Mahipus Jr. to the scoping activity. We also have Kinaiyahan Foundation (KFI) who are into environmental advocacies.	Yes, we will take note of that.
Francis Mark H. Layog *Chief of Staff – Office of the Vice Mayor*		**Mr. Ebert T. Bautista,** *Gaia South Inc.*
	What the timeline of the project?	We target to conduct the scoping

Name	Issues/Concerns/Notes	Response
		exercises this March. The scoping will aim to gather the relevant views of the stakeholders on the proposed project. After the scoping, a meeting will be held at the central office with the technical experts. When we got these two (2) scoping meetings, we can proceed with the conduct of the study and it will take probably around three (3) to (4) months including writing. After the conduct of study, EMB will review the report and we will address their comments until the issuance of ECC.

Table ES7. Issues, concerns and responses during the Public Scoping Meeting

Issues	Response
PROJECT DESCRIPTION	
Ms. Dulce Padillo *PENRO Davao del Sur* *Saan po galing ang semento? Saan po ang planta?* *Ano po ang target market?* Is this your first time delivering in Mindanao? *Paano yung existing cement plant?* Will the operation not add to the heavy traffic in the area? *Kailan po ang start ng proyekto at anu po ang total cost?*	**Mr. Ed Sahagun** *President and CEO, Philcement* *Ang semento ay manggagaling sa Vietnam. The place is Somlang. Our supplier is the largest private supplier in Vietnam with production capacity of 14 million tons. It supplies cement to America, Europe, and Australia and is known for good quality and the plants are new.* *The target market is the entire Mindanao especially Southern Mindanao, Davao City and the rest of the provinces close to Davao City.* *Palaki naman po ang konsumo ng Mindanao ngayon na nandiyan si Pangulong Duterte. Kapag nakita nyo po ang konsumo, hindi na siya sasapat. Kaya kailangan po nating pagplanuhan para po yung programa sa Mindanao ay hindi makulangan ng suplay. Madami pong progreso sa Mindanao at isa sa kailangan para matuloy ito ay ang suplay ng semento.* *Sa paglilipat ng produkto mula po sa vessel, hindi po kami gagamit ng truck. Kami po ay gagamit ng conveyor.* So there will be less impact on the traffic. *Para po sa mga bibili ng semento, ang alam ko po ay may mga bagong daan sa likod ng barangay ni Kapitan na papunta sa City.* *Ang start po ay 2023, 1st Quarter, at ang cost po ay nasa 1.5 Billion pesos.* **Mr. Ebert T. Bautista** *Project Director, Gaia South Inc.* *Ilalagay po sa report ang dami at ruta ng trucks at ang proposed roads.*
Engr. Mary Anne Orilla *City Planning and Development Office (CPDO)* *Ano po ang facility na itatayo? For cement bagging lang po ba? No manufacturing?*	**Mr. Ed Sahagun** *President and CEO, Philcement* *Wala pong manufacturing. Kukunin lang po ang semento sa barko at ilalagay lang po siya sa facility. Walang pong polusyon na manggagaling sa stock. Walang pong masyadong emission ng CO_2, at walang masyadong gamit ng kuryente. Ang binibili po namin ay semento na po.* It is just bagging and bulk loading facility.

Issues	Response
Gagamit po kayo ng conveyor? *May warehouse din po?*	*Gagamit po kami ng conveyor, mag-cross po mula sa TEFASCO papunta sa proposed na planta. Imbis na trucks ay conveyor ang gagamitin.* *Ang silo na po ang magiging parang warehouse. Lalagyan lang po ng conveyor system para po hindi makaabala sa traffic.* It is important to mechanize and it is safer than trucks crossing the highway.
Ms. Nove Balbuena *EMB Region XI* Clarification. Since the project will be located within the facility of the UGC, who will inform the EMB CO on the decommissioning of UGC. UGC has an ECC.	**Mr. Ed Sahagun** *President and CEO, Philcement* *Kung kami po ay bibigyan ng pagkakataon at maayos po namin ang ECC ng Philcement, we will work on the UGC and will inform the EMB on the decommissioning. May space na po sa likod para sa UGC. We will wait for the approval of the ECC of Philcement before we inform the EMB on the decommissioning.* **Mr. Ebert T. Bautista** *Project Director, Gaia South Inc* But you already made some preliminary planning in case you get the approval? **Mr. Ed Sahagun** *President and CEO, Philcement* Yes, we already made the reservation for the new site. It is within the same zoning (industrial) and there are also warehouses in the vicinity. It will be a few meters away from its current location. We cannot finalize the transfer until we are cleared with the Philcement ECC. **Ms. Nove Balbuena** *EMB Region XI* Ok po.
LAND	
Mr. George Silvederio *EMB-EIAMD Central Office* Is there demolition activity on site since based on the satellite view there's roof? In the presentation, solid waste generated is mentioned. Is that already included in the waste generated? In the preparer's side, I suggest that we just include this.	**Engr. Raymundo Cruz** *Assistant Vice President for Plant, Philcement* It is actually dismantling. There are not much concrete structures on site, what we have there is only the warehouse and then some equipment. There will be decommissioning of the steel roof making equipment and then those will be transferred to the new site. Then, the actual warehouse will be knocked down and will be salvaged for later use and only because those are mostly steel materials. There will be dismantling of steel structures. Noted.
PEOPLE	
Mr. Ebert T. Bautista *Project Director, Gaia South Inc.* In the Mariveles Terminal Project of Philcement, we presented the number of trucks to know the addition to the traffic and we will be doing the same for this study since there are concerns on traffic.	**Mr. Ed Sahagun** *President and CEO, Philcement* We should also include the proposed major roads in the area.

Issues	Response
Mr. Ebert T. Bautista *Project Director, Gaia South Inc.* Can we present possible programs/CSR projects for the community?	**Mr. Ed Sahagun** *President and CEO, Philcement* We are re-using big bags and we enable the community to do that for us. We cannot just throw away our plastics if they can be reused. *Kapag gumagamit ng tonner bag, binubutas ito at tinatapon ng kontraktor. Binibili namin ulit iyon at pinapatahi. Para hindi itapon, binibigyan namin ng incentive ang customer para isauli ang bag.* We then engage the community livelihood groups to repair bags. There are other projects that we are looking into. We have to look at the entire sustainability of the operation. **Hon. Amado Babao** *Barangay Chairman of Ilang* *Nagpapasalamat po kami sa CSR project. Hoping that there will be more CSR projects.*
	Engr. Raymundo Cruz *Assistant Vice President for Plant, Philcement* Since we are talking about the positive impact of the project. I would like to highlight what Philcement did in Mariveles. I am proud to say that 80% of our direct employees for the Mariveles Plant are from the town of Mariveles. We did not have to import manpower to operate terminal. What we did was to train the locals, and then we hired them. They were the ones who built the plant and are operating it now. This is beneficial to the plant as well as the to the town of Mariveles. Given the opportunity to construct the terminal in Davao, we can also do the same. **Mr. Ebert T. Bautista** *Project Director, Gaia South Inc.* As long as workers are qualified, the priority is local employment. **Hon. Amado Babao** *Barangay Chairman of Ilang* This is also what we asked them, to give job opportunities to Barangay Ilang.

2.7 Delineation of Impact Areas

Since the proposed project will be located within an existing complex of UGC and with minimal expected impact to the environment and people, the impact will only be concentrated within the host community of Barangay Ilang including the port area of Terminal Facilities and Services Corporation (TEFASCO), which is also located in the same barangay.

3.0 SUMMARY OF BASELINE CHARACTERIZATION

Table ES6 below presents the baseline characterization of the proposed project area and its community.

Table ES8. Summary of the environmental and socio-economic profile

Module	Description
Soils and Land Use	• The soils in the Davao regions are dominantly inceptisols. Two other groups of soils present in the area are alfisols and utisols. Both can be found in depths beyond 100 feet. These soils are generally loam and Clay type1. • The proposed project site and the TEFASCO port area which is part of the proposed operation is classified as Infrastructure/Utilities zone. This classification covers major land transport terminals, airports, seaports, roads, and other utilities like reservoir, power substation, and telecommunications. • Majority of the land area in Davao City in 2011 was grassland/pasture, occupying almost half (47.88%) of the total area, agricultural area (29.95%), and industrial zone where the proposed area is located occupied only 0.35% of the total area.
Geology and Geomorphology	• The proposed project site is located within a seismically active belt or what is called the Philippine Mobile Belt. Hence, its vulnerability to both low and high magnitude earthquakes is high**.** • The region embracing the site of the proposed Davao Terminal Project of Philcement Corporation is located in the southern portions of the Philippine Mobile Belt (PMB), more particularly in the Island of Mindanao. • The project site will not be affected by ground rupture hazard because the trace of the nearest active fault is about 31 kilometers northeast of the subject site. • Davao City lies on the southern termination of the Agusan-Davao Basin (**Figure 2.1.8**). This Basin has a north-south trend with its northern end opening up in Butuan Bay, while its southern end opens up in Davao Gulf. • The stratigraphic succession of the various geologic formations exposed in Bunawan District, which embraces the project site and adjacent districts, range in age from Pliocene to Holocene. • The proposed project site is situated on a relatively flat coastal plain with ground surface elevations of approximately 20 meters above mean sea level. The slope rises gradually towards west at 1.25% slope grade. • The probable peak horizontal acceleration amplitudes at the project area and immediate vicinities with 10% probability of exceedance in 50 years are as follows: For rocks, 0.29g; for medium soil, 0.56g; and for soft soil, between 0.60g and 0.70g, or an average of 0.65g.
Terrestrial Flora	• A total of 35 morphospecies representing 33 genera and 22 families was recorded. Most of the species belongs to Arecaceae (palms), and Poaceae (grass) families. • Majority of the species are common species typical in urban habitat, almost all of which are planted for ornamental and landscaping purposes or as shade trees. • Based on the latest version of the International Union for Conservation of Nature and Natural Resources (IUCN), no flora species of plants observed on site that were listed or included in the Red List of Threatened Species.
Terrestrial Fauna	• There were five (5) bird species belonging to seven (5) families observed during the assessment. • Most of the avian species commonly observed were the insectivorous bird like Eurasian Tree Sparrow (*Passer montanus*) and the frugivorous Yellow-vented Bulbul (*Pycnonotus goiavier*).

1 http://davao.da.gov.ph/index.php/about-us/regional-profile

Module	Description
	• There were no endangered, threatened or vulnerable species observed in the project area. • In terms of endemicity, there are two (2) wildlife species observed in the area that is endemic to the Philippines such as Glossy swiftlet (*Collocalia esculenta*) and Philippine Pied Fantail (*Rhipidura nigritorquis*).
Hydrology/Flood Modelling	• The project area is located adjacent to the sub-basins of Panacan River (approximately 2 km) and Ilang River (approx. 650 meters) that eventually drains into the Davao Gulf. • The project site itself already drains into the Davao Gulf considering its proximity to the coast which is approximately 50 to 100 meters from the TEFASCO port. • A total of two (2) actual and potential surface water sources, and 1 production well were located during the inventory of water sources. • The two (2) previously identified water bodies plus the production well of Holcim. Most of the barangay and local communities as well as establishment's sources of water where from the Local Water Utility.
Physical Oceanography	• The total 'wet' surface area of Davao Gulf covers 6,557.88 km^2 (using the areal extent shown in the bathymetry map below), and the total water volume of some 6,998.57 billion m^3 with an average depth of about 1,067.20m. • The model runs revealed that the general trend of water movement is to the south towards the open waters off Davao Gulf as it flows past Samal Island. Near the project area, the flow patterns splits into two general direction, with jet-like currents passing thru the narrow Pakiputan Strait between Davao and the water west of Samal Island, and the other flows along the eastern coast of Samal Island. • For wind driven flow, using a gentle wind breeze blowing from the northeast (the so-called *amihan* wind), the velocity field near the proposed project is in the range of 5-10 cm per second which is lower than what is predicted inside the Pakiputan Strait. • The area near the project is at the leeward side during *habagat* wind condition, such that the flow predicted near the project area is less than 8 cm/s, with weak circular gyres formed due to the merging of high flow velocities of alongshore currents east and west areas of Samal Island producing a rather low flow velocities around this area. • During low tidal events, where the water is at its lowest levels, the flow magnitude is moderately stronger than what is predicted during high tides especially near the coast. • During tidal ebbing, the model predicts that the range of flow magnitudes is almost the same as to what was predicted during high tides. • Northwest of Samal Island where the project is located, the predicted currents are generally about 2 to 10 cm/s for both *amihan* and *habagat* wind conditions for a wind speed of 4 m/s.
Water Quality	• All primary parameters (pH, DO, fecal and total, nitrate, phosphate, and TSS) tested for all stations are within the DAO 2016-08 standard for Class SB except for the fecal coliform in MW1. • For secondary parameters such as ammonia, O&G and surfactants, all stations are within acceptable values.
Freshwater Ecology	*Benthic Organisms* • The total living components at ME1 exceeds 20% with coral cover at only 6.42%. Other living components aside from the corals comprise more than 14% primarily made up of the brown algae Padina covering 11.5%. • The soft corals are the most dominant non-coralline benthic lifeforms. Particularly, Heteroxinia make up large percentage of the non-coral components of the reef. • Plankton

Module	Description
	• For ME1, the diatoms make-up more than 50% of the phytoplankton community. • Phytoplankton concentration in ME2 is almost twice in concentration relative to ME1. Peridinium is the most dominant with 41.3% of the total phytoplankton density. The organism is associated with toxic algal blooms with some species of the genera notorious for producing neurotoxins. • The larval forms dominate ME1, particularly the copepod nauplius. *Fish Community* • There are 34 species in 14 families in ME1 while 37 species belonging to 12 families are present in ME2. • Computed density is higher in ME1 at 1.03 individuals per meter square relative to ME2 with 0.83 individuals per meter square. • The marine sampling sites both showed limited commercially targeted fish species. For ME1, only parrotfish (Scaridae) were observed considering that the site is considered a fishing ground of the community. More commercially targeted species are found in ME1 which includes scissorfish (Caesionidae), parrotfish (Scaridae), and rabbitfish (Siganidae).
Meteorology	• Davao City has a Type IV climate under the Modified Coronas Classification of the Philippine Climate. • PAGASA Davao City recorded a normal mean temperature of 27.9°C over the 30-year period. • The total annual rainfall measured at the synoptic station is 1759.1 mm. On the average, the station receives 146.6 mm of rain monthly. • Davao City receives an average of 10.5 mm of rain daily. • The annual relative humidity is 81% in the area. Monthly, it ranges from 77% in April to 83% in July. • The wind data from PAGASA Synoptic Station in Davao City shows that the prevailing wind direction is north. • Wind speeds of 1 to 4m/s dominate the area. Average windspeed at the site is 1.78mps and ranges from 0 to 7mps.
Air Quality and Noise	• Concentrations of particulate matter, both TSP and PM_{10}, are within the NAAQGV for one-hour averaging time. • TSP was also measured for 24 hours. Stations 1 and 3 are within the standards for 24-hour averaging time while Station 2 exceeded the standard for 24-hour TSP concentrations by 20.87%. High concentration of TSP might be caused by a combination of weather, environment, and activities in the area. Weather during sampling was dry and windy while the stations are dusty. Exceedances might be due to resuspension of road dust either due to the wind blowing or carried by passing vehicles. As combustion by-products, SO_2, and NO_2 are normally emitted by stationary and mobile sources. NO_2 is present in relatively low concentrations while SO_2 is undetected. • The sampling stations were classified under Class A as the land use in the area is primarily residential. Median sound levels in all stations have exceeded the noise criteria in all time periods.
People	*Barangay Ilang* • Barangay Ilang is a barangay of Davao City under the 2nd congressional district. It has a total land area of 6,300 hectares divided into 43 puroks. • It has a total population of 24,621 with 5,897 households as of year 2021. • Eighty-nine percent (89%) belonged to the non-Moro/IP category while 10% were considered as Indigenous Peoples (IPs) belonging to the Bagobo Tagabawa, Bagobo Klata, Guiangan, Ubo Manobo, Ata Matigsalog Mandaya groups. • The major sources of income, as mentioned in the barangay's profile of

Module	Description
	2021, were identified to be coming from planting of crops, livestock production and management/employment in business and commercial establishments. • For children and youth who were documented to be attending school, a greater number of 9,117 were enrolled in public schools while only 2,704 were registered in private learning centers. • Based on the 2020 barangay profile, the total income of the community for CY 2018-2019 amounted to PhP 23,497,758.67. • The source of water is through the Davao City Water District, which had the highest number served at 2948 households. • The barangay, based on their 2021 socio-economic profile, indicated to have one (1) health center, one (1) hospital, and one (1) dental clinic located in their area. • Foremost of the causes of morbidity are influenza with the highest cases followed by hypertension. The other causes include cough, diabetes, pneumonia, allergies, loose bowel movement, and tuberculosis. • The most common causes of death in the barangay were cardiac arrest, tuberculosis, and cancer. *Result of the Perception Survey* • The most reported income source was being employed or self-sustaining as skilled workers (39%). • The reported monthly income of the working respondents ranged from below PhP 1,000 to as high as PhP 20,000. • Fifteen percent (15%) of the respondents indicated that they had other sources of income while 74% had none. The other sources of income came in the form of operating sari-sari stores (5%), being instructional manager (1%), employed as car wash boy (1%), pension (5%), fishing (1%) and online selling (2%). • There was 59% of the total respondents who indicated that they belong to an ethnic group. Of those who reported in the affirmative, one-third was classified as *Tausugs* while another one-third were *Cebuano*. • The predominant language spoken in the household was *Bisaya* (61%) followed by *Tausug* (16%) and *Tagalog* plus *Bisaya* (11%). • For the monthly expenses, food expenses were the predominantly mentioned (19%) household expense per month followed by utilities (water, electricity) at 18%. • About 81% of the households sourced their drinking water from water-filling stations while 18% obtained water from faucets inside their homes to quench their thirst. • About 95% of the respondents were connected to the electric/power provider while 5% had none. • There were 89% of the respondents who indicated that they have their own toilet facility while 11% stated otherwise. • One half of the respondents have been living in the barangay since birth. They can be considered as natives to the barangay compared to the rest of the respondents who migrated to the area. • Thirty-nine percent went to private hospitals while 38% consulted in public hospitals for their illnesses or other medical concerns. • There were 28% of the respondents who thought that the drug addiction/use in their locality is a community problem. • The most mentioned positive aspect in the locality was the good governance (27%) experienced by the respondents from their local government officials. • The most mentioned activity for women to pursue and be able to contribute in community development is their involvement in livelihood programs (62%). • The most mentioned activity of the youth are involvement in sports

Module	Description
	undertakings (22%), followed by talking on their cellphones or being busy with Facebook (17%), playing computer games (12%), attending virtual classes and accomplishing requirements of respective educational modules (11%), among others. • For common illnesses, fever (27%), cough (26%) and colds (21%) were generally the most common illnesses experienced by the respondents and family members in the last five (5) years. • There were 67% of the responses stated that funds used for medical expenses came from the personal coffers of the respondents. • There were 65% of the respondents who stated that they have encountered or benefitted from medical missions while 35% did not. • Majority of the respondents (85%) were non-smokers while 15% admitted to be smokers. • There were 40% of the respondents who reported to drink alcohol while 60% were non-alcohol consumers. • The existing water facility or water district was the source of water for bathing and laundry as stated by majority (58%) of the respondents while the other 38% abstract water from deep wells. There was 4% who obtain water from community faucets. • There were 43% of the respondents who mentioned that water processing stations are their source of water for drinking and cooking. • It was mentioned in 93 responses that garbage in the barangay is collected by the local government unit. • About 67% of the respondents pointed out that they conduct waste segregation while there was still almost a third (27%) of the respondents that do not practice proper solid waste management like segregation. • About 28% of the respondents mentioned that the state of air quality in the barangay has presented some issues. Furthermore, there was 26% who pointed out the existence of water problems while 21% indicated issues on land conditions. • The problems which that have been addressed by the aforementioned entities include air pollution (20%), waste pollution (16%), floods (18%), road construction (10%), lack of materials (12%), drug addiction (12%), water shortage (8%), food shortage (2%), and medicine/medical assistance (2%). • When asked whether the respondents were satisfied with the state of the environment, there was 45% who responded in the affirmative while the remaining 47% was not. • About 62% who indicated that they were aware of the Philcement Corporation while 37 or 37% responded in the negative. • For those who were aware of the proposed project by Philcement, their sources of information were from relatives, friends and neighbors (36%), government agencies/barangay officials (39%), radio/TV/newspaper (7%), barangay consultations (8%) and from surveys, and research studies (8%). • About 76% of the respondents who felt that the proposed project will bring about positive impacts while 19% expressed the contrary. • The perceived positive impacts foreseen by the respondents were the generation of jobs and livelihood opportunities to the residents (87%) and community development (5%). • There were 78% who uttered willingness in being part of the monitoring and evaluation activities about the project. • There was an overwhelming 85% of the respondents who indicated that there will be additional employment to be generated by the proposed project

4.0 SUMMARY OF ALTERNATIVES

Table ES7 shows the summary of the of project alternatives.

Table ES7. Summary of the project alternatives for the proposed Philcement Davao Cement Terminal and Packaging Facility Project

Aspect	Standard Criteria	Options Considered	Assessment
Siting	• Location • Availability • Land use • Susceptibility to natural occurrences	The proposed project shall be situated in Barangay Ilang, Bunawan District, Davao City. No other alternative sites in Mindanao was chosen.	As mentioned in the rationale, one of the consideration in selecting the proposed location is that Davao and Southern Mindanao are becoming one of the Philippine's fastest growing regions in terms of private and public infrastructure projects. In addition, Philcement has already developed its customers and partners in Davao City. In terms of accessibility, the proposed location in Barangay Ilang, Bunawan District, Davao City is close to the port and has access roads. In terms of availability of the proposed area, the Philcement and Union Galvasteel Corporation, its sister company are on the process of finalizing the Memorandum of Agreement (MOA) for the use of the existing facility of UGC. Currently, the proposed project area is being utilized by UGC for its polyurethane (P.U) Line that is Montreal Protocol Compliant and sales office. Based on the zoning clearance, the property is already classified as industrial zone which is compatible to the proposed project. The proposed site experienced no risk in tsunami and flooding incidences.
Project type, components and size	• Applicability • Process • Safety	The proposed project is a bulk terminal for handling and packing of cement imported from Vietnam. The components will include cement storage facility, packaging facility, admin building, process road and truck scale to	The proposed project has the same type, same components and same technology as the terminal project of Philcement in Mariveles Bataan. The project components include pollution control measures that will minimize the impact of the

Aspect	Standard Criteria	Options Considered	Assessment
		reach the production capacity of 1.5 million metric tons per year.	project to the environment and the community.
Technology		The project shall use a screw type unloading system when unloading cement from the vessel. The unloaded cement will then be automatically directed to the conveyor system connected to two (2) large silos. From the silos, the cement will be discharged to a bulk truck loading facility and tonnering facility which can automatically transfer bulk cement to waiting bulk cement trucks/trailers or apportion to 1-tonner bags. The plant is equipped with a mixer facility which will provide the capability blend other cementitious material with type 1 cement to produce different types of cement based on customer needs. The proposed project is also capable of packing the cement into a 40-kilogram bag by using an automated rotopacker that is also connected to the silo. The selected technology shall make use of dust collectors, covered conveyor system and close-loop automated system to control dust during cement handling. No other alternative technology was considered in this project since the chosen technology is the best option of the company for the operation.	The screw type unloading system and the conveyor system were the selected technology due to their ability to minimize losses during cement handling. In terms of environmental management, it will minimize dust generation which may affect the quality of air in the area.
Supply of raw materials	• Source	The cement will be imported from Vietnam.	Philcement has been sourcing the same materials from Vietnam for two (2) years. By importing the cement instead of producing one, the degree of

Aspect	Standard Criteria	Options Considered	Assessment
			the impact of the project in terms of pollution is reduced.
Transport of raw materials	• Process • Equipment	The cement will be imported mainly from Vietnam using cargo ship/vessel/barge. Two vessels will dock at the port at any given time to unload the cement.	Bulk transport of cement from Vietnam using cargo ship/vessel/barge is also being employed in the Mariveles operation of Philcement. The proposed location has a port that will be convenient for the type of unloading system that Philcement will use. By using the port, the proposed project will have minimal impact on the road traffic situation in the area. In addition, it minimizes risks of vehicular accidents and delay in schedule due to road traffic.
Source of power	• Availability • Total power requirement • Source	For the available source of power for the construction phase and operation phase is the Davao Light and Power Company, the local power distributor. To power its heavy equipment, Philcement will use fuel that will be sourced from the local gas station. A standby genset will only be used for emergency purposes.	Philcement will have readily available power from Davao Light and Power Company.
Water management system	• Availability • Total water requirement • Source	The domestic water requirement during construction and operation phases of the project will be sourced from the Davao City Water District (DCWD).	The domestic water supply from the DCWD is readily available for the construction and operation phases of the project. Since water will be sourced from the DCWD, there is no need to tap on the groundwater source.
Manpower	• Method of hiring • Available positions	Hiring of the 300 required manpower during construction shall be the responsibility of the contractor. For the 100 manpower position for the operation of the terminal, the hiring will be done by the Human Resources Department of Philcement.	Philcement promotes hiring of skilled and non-skilled personnel from the host communities. The company shall ensure that priorities are given to qualified applicants from the host communities.

No Project Option

It is envisioned that the proposed project will be operated upon completion of all necessary permits to ensure that the local demands for cement will be provided by Philcement. However, if the proposed development will not proceed, Philcement will be forced to produce packed cements at a limited capacity within its existing plant in Mariveles, Bataan, which mainly caters to industries in Luzon and parts of the Visayas Region. Without the project, the purpose of Philcement to improve the logistics and processing costs of cement for Mindanao markets cannot be achieved. The existing UGC plant will continue its P.U. Lines business should the proposed cement terminal project operation will not progress.

5.0 SUMMARY OF IMPACTS AND MITIGATION

The potential impacts of the projects and the corresponding mitigating measures basedon the result of analysis is presented in *Chapter 2* of this EIS report. The proposed mitigating measures were integrated into an Impacts Management Plan presented as **Table ES8**. An Environmental Monitoring Plan was formulated and presented as **Table ES9** to ensure that the measures are effective, and the project complies with the environmental standards. The findings on residual impacts, defined as impacts that remain after the proposed mitigation measures are implemented is presented in **Table ES10**. The Project Environmental Monitoring and Audit Prioritization Scheme (PEMAPS) Questionnaire is depicted as **Annex ES8.**

Table ES9. Impacts Management Plan

Project Phase/ Environmental Aspect	Environmental Component Likely to be Affected	Potential Impacts	Options for Prevention or Mitigation or Enhancement	Responsible Entity	Cost	Commitment/Guarantee
PRE-CONSTRUCTION PHASE						
Site clearing and leveling/surveying and generation of topographic map	Air	• Minimal dust generation	• Limit clearing, leveling activities, and surveying only along areas necessary for the survey	• Survey Team • Envi Team	•	• Survey plan to include mitigation measures
Completion of requisite MOAs, endorsements, permits and clearances	People	• Social Acceptance and Support for the project	• Continues IEC on Project to inform and update respective institutions, agencies, offices, bodies and organizations for providing their respective permits and/or clearances • MOAs with respective bodies • Application of ECC and other local permits (Building Permit, Permit to Construct, etc.), Permit to Operate, etc.	• Admin • ComRel	•	• Non commencement of construction until full compliance and completion of required permits, and clearances
CONSTRUCTION PHASE						
Establishment of access road from the complex to the main road	Air	• Dust generation	• Strategic planning of access road location • Regular sprinkling of water along exposed areas especially during dry days	• Engineering Group and contractor • Envi Team	•	• Access road design plan to show potential affected portions within the leased property • Contingency plan for mitigation measures • Topsoil conservation plan • Deployment plan of heavy equipment to include sprinkling truck schedule

	Land	• Soil erosion, loss of topsoil and soil compaction	• Strategic planning of access road location to ensure that it will not be located along areas prone to soil erosion • If it will be located along erosion prone areas, slope stabilization techniques must implemented	• Engineering Group and contractor • Envi Team	•	• Access road design plan to show potential affected portions within the leased property • Contingency plan for mitigation measures • Topsoil conservation plan
	Water	• Degradation of ground and surface water quality from surface run-off that will be generated along exposed access roads	• Construction of berms and run-off canals along the edge of access road to divert surface run-off • Establishment of silt fences on erosion prone areas	• Engineering Group and contractor • Envi Team	•	• Surface run-off management plan
• Construction of silo and cement bagging facility • Construction of parking area for hauling trucks • Construction of enclosed conveyor belt system from the port, crossing the main road to the cement terminal facility.	Land	• Generation of solid and hazardous waste	• Establishment of Materials Recovery Facility (MRF) with a dimension of 10m x 16m x 9m • Classification of waste separating hazardous waste from non-toxic wastes • Collection of scrap and recyclable materials that can be sold • Proper storage of hazardous waste with a dimension of 12m x 10m • Tapping DENR-accredited waste transporter to dispose hazardous waste	• Admin • Contractor • Envi Team	•	• Contract between DENR-accredited waste transporter and Philcement • Disposal plan of DENR-accredited waste transporter • Design plan of MRF

	Air	• Generation of dust	• Sprinkling of water along exposed areas especially during dry days; • Establishment of 5m wall as wind barriers and perimeter fence within the periphery of the construction and dismantling area; • Regulation of vehicle speed should be regulated • Establishment of wash bay near the exit of the construction site • Tarpaulin covering for haul trucks	• Contractor • Envi Team	•	• Equipment deployment schedule • Perimeter fence and wind barrier plan • Contract between Philcement and contractor to show contingency measure for dust abatement
		• Increase in noise level	• Maintain equipment deployment schedule • Regular maintenance of vehicles and construction equipment • Minimize revving-up of vehicles	• Contractor • Envi Team	•	• Contract between Philcement and contractor to show contingency measure for noise abatement
	People	• Occupational safety and health	• Provision of PPE's including safety vests and harness for laborers involved in the construction • Conduct of safety seminars, training and proper orientation to construction workers • Drafting OSH program as well emergency response plan	• Admin • Contractor • Safety Officer	•	• OSH Program • Emergency Response Program • Safety reports
		• Employment opportunities	• Prioritization of locals for hiring • Conduct of continues IEC regarding policy on local prioritization in hiring manpower, contractors and suppliers • Provision of Capacity Building and Skills Training Program	• Admin • Contractor • ComRel • TESDA	•	• Hiring plan and documentation report • DOLE report • IEC Program
		• Occurrence of illness due to Covid-19	• Regular Covid-19 testing of workers • Immediate isolation/quarantine of workers with symptoms	• OSH • Contractor	•	• OSH Program
OPERATION PHASE						
• Unloading of raw materials from ship to silos • Hauling of cement bags for	Air	• Dust generation	• Proper scheduling of hauling activities • Regular road watering to suppress dust	• Admin and Envi Team in partnership with the LGU of Davao City and Brgy. Ilang	Part of the operation cost	• Contingency plan for mitigation measures • Traffic Management Plan
			• Use of enclosed and screw type unloading system with specification of 600 tph		Part of the operation cost	

delivery to clients			• Use of covered and sealed conveyor system with specification of 1,800mm belt width x 200m • Use and continuous maintenance of an enclosed and automated cement packaging that can process 3,000 bags per hour • Use of 5m high-wall perimeter fences (acting as windbreakers)			
	Water	• Contamination of marine water	• Septic tanks and 4-6 inches separate run-off sewer at the proposed cement terminal and packaging facility should be properly maintained • Proper maintenance of heavy equipment • Washing of heavy equipment should be done in an area installed with oil and water separator with a dimension of 1m x 3m x 1.5m • Emergency guidelines for oil spill from marine vessels should be included in the Emergency Response and Preparedness Program (ERPP) of Philcement		Part of the operation cost	
	People	• Occupational and local pedestrian accidents	• Proper signages along roads within and outside the complex to guide workers and pedestrian • Limit speed limit at 20 kph within the plant		Part of the operation cost	
Daily operations including logistics	Land	• Generation of solid wastes	• Waste segregation • Regular collection of wastes • Composting of biodegradable wastes • Establishment of an MRF with a dimension of 10m x 16m x 9m • Hazardous waste shall be properly stored and labeled prior to hauling and disposal of DENR-accredited hazwaste storage facility will have a dimension of 12m x 10m	• Admin • Envi Team	•	• Solid Waste Management Plan
	People/ Socio-Economics	• Occupational Health and Safety	• Posting of safety warning and danger signs • Provision and wearing of personal	• Envi Team • Safety	•	• OSH and Emergency response program

			protective equipment at all times			
		• Employment opportunities and economic benefits	• Prioritize hiring of local workers • Prompt payment of taxes • Implementation of social development programs for host community • Continuous skills training and development and capacity building program for the impact areas	• Admin and Human Resource • ComRel	•	• Local hiring report • DOLE Report • Social Dev't and Mgmt Plan • Corporate Social Responsibility Program
		• Occurrence of illness due to Covid-19	• Quarantine of personnel from vacation or business travels • Regular swab testing of personnel • Vaccination (when available)	• Health and Safety Office • LGU of Davao City	•	• OSH Program • LGU Health Program
ABANDONMENT PHASE						
• Abandonment of all buildings including offices and terminal, pollution control facilities • Dismantling of facilities including silo, and conveyor system	Land	• Devaluation of land value as result of improper solid waste management and other related impacts	• Philcement should include in the TOR of the contractor the collection, hauling and proper disposal of debris, solid waste and hazardous wastes generated • Rehabilitation of the area until its safe and acceptable for the construction of a new building	• Contractor	•	• TOR of Contractor
	Water	• Sedimentation / siltation of drainage or waterways during dismantling activities or demolition activities	• Philcement should include in the TOR of the contractor the protection of the drainage or waterways within or nearby the site	• Contractor	•	• TOR of Contractor
	Air	• Generation of dust • Degradation of air quality due to use of heavy equipment	• Set-up fences around the site to act as wind barrier • Hauling trucks should be covered with canvass • Proper maintenance of equipment and vehicles	• Contractor	•	• TOR of Contractor

	People	• Occupational health and safety of workers hired by the contractors • Risk to the safety of students and community	• Set-up fences around the site to prevent unauthorized person near the site • Placing visible warning signs	• Contractor		• TOR of Contractor

Table ES10. Proposed Environmental Monitoring Plan (EMoP)

Key Environmental Aspects per Project Phase	Potential Impacts per Environmental Sector	Parameter to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost	EQPL Management Scheme					
								EQPL Range			Management Measure		
			Method	Frequency	Location			Alert	Action	Limit	Alert	Action	Limit
I. Construction Phase													
Construction of cement silos, packaging and cement loading facilities including ancillary facilities and admin office	Air Quality	Total Suspended Particulates 1-hour Ambient air sampling for particulates	Air quality sampling	Quarterly	Construction areas	PCO/3rd Party consultant	Include in the EMF	280-290	291-299	300	Identification of dust prone areas Assigning a water truck to regularly conduct road sprinkling	Permanent assignment of water truck along the busy haul road where concentration of dust already reached the action level. Regular interval of water sprinkling should be adopted	Site grading and re-grubbing of haul roads
II. Operation Phase													
Daily Operation	Noise	Noise level (dB)	Noise meter	Quarterly	• Community near Philcement	PCO/3rd Party consultant	Include in the EMF	65-70dB	70-74dB	75dB	Identification of possible source of noise Issuance of ear plugs	Maintenance, adjustment and installation of noise reduction apparatus	Reduction on the use of noisy equipment
	Air Quality	1-hour Ambient air sampling for TSP and PM_{10}	Air quality sampling	Quarterly	Community near Philcement	PCO/3rd Party consultant	Include in Philcement annual environmental department monitoring cost	TSP - 280-290 µg/Ncm PM10 – 180-190 µg/Ncm	TSP- 291-299 µg/Ncm PM10 – 191-199 µg/Ncm	TSP- 300 µg/Ncm PM10 - 200 µg/Ncm	Identification of possible source of pollution and check efficiency of control measures	Temporarily halt operation and do corrective measures	Stop operations and resume only when corrective measures were in place
	Generation of solid waste	Volume of solid waste generated including volume recycled and disposed to the landfill	Estimation of volume	Weekly	Philcement facilities	PCO	Include in the EMF	Foul odor from waste disposal site	Sighting of pest such as rats and roaches	-	Review of housekeeping practices when pests are present at holding areas Spread of disease to surrounding areas	Pest eradication Immediate clean-up of the temporary storage site and disposal of accumulated wastes	All waste from the kitchen should be contained Compost pit should be covered
	Safety record and accident occurrence	Safety record, Accident/fatality incidence /occurrence	Record keeping	Daily during operation	Whole complex	Safety officer	Minimal cost	Lost time due to minor injury	Occurrence of major injury due to accident	Occurrence of fatality due to accident	Conduct quarterly safety briefing and orientation Installation of safety billboards	Conduct daily briefing on safety program	Work stoppage along area where accident occurs and conduct investigation and institute safety measures and formulate specific safety procedures and protocols
	Record on illness related to Covid-19	Frequency of occurrence	Record keeping	Daily during operation	UGC complex	Safety officer/ Company Doctor	Include in the operational cost	Lost time due to occurrence	Occurrence of illness (asymptomatic, moderate, severe cases)	Occurrence of fatality due to Covid-19	Conduct regular Covid-19 testing Regular IEC on Covid-19 precautions Regular vaccination Provision of safety gears and anti-Covid-19 kits Regular workplace sanitation	Isolation/Quarantine of infected personnel, suspected cases and probable cases outside the complex in a designated facility by the LGU	Work stoppage on areas/ section of the operation where exposure from Covid-19 is highly possible

Key Environmental Aspects per Project Phase	Potential Impacts per Environmental Sector	Parameter to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost	EQPL Management Scheme					
								EQPL Range			Management Measure		
			Method	Frequency	Location			Alert	Action	Limit	Alert	Action	Limit
	Complaints management	No. of valid complaints	Record keeping	Daily	Host communities and secondary impact areas	PCO and ComRel	Minimal cost	Formal complaint submitted can be resolved at the ComRel level	Intervention from the Upper Management is needed to resolve a formal complaint	Complaint is broadcasted over mass media	Institution of grievance system Conduct regular IEC to inform and justify the activities being undertaken by Philcement	Notify Philcement Admin for complaint and take remedial measures to address complaints Investigate all complaints, conduct dialogue with communities and implement mitigating measures Compensate affected communities	Conduct in depth investigation and identify root cause for all valid complaints Institute measures to avoid occurrence of similar problems

Table ES11. Residual impacts of the proposed project

Project Phase/Environmental Aspect & Component Affected	Residual Impact	Nature of Impact (Adverse, Beneficial, or Negligible)	Significance (Minor, Moderate, Major)
PRE-CONSTRUCTION PHASE			
Terrestrial Ecology (Flora) Clearing of existing vegetation	Vegetation removal	Negligible	-
People	Improvement of living conditions due to social programs that will be implemented and/or partnered with the LGU	Beneficial	Major
CONSTRUCTION PHASE			
Land Value Generation of minimal excavated soil, construction, and domestic wastes	Waste generation	Adverse	Minor
Geology/Geomorphology Earthworks, (excavation, backfilling, stockpiling) and natural hazards	Occurrence of natural hazards	Adverse	Major
Pedology Clearing and minimal removal of vegetation, stripping of soil cover, grading	Soil erosion/Loss of topsoil/overburden	Adverse	Minor
Pedology Accidental spills of fuels /lubricants from construction vehicles & machineries/ hazardous chemicals.	Degradation of soil quality	Adverse	Minor
Terrestrial Ecology (Flora) Minimal clearing of existing vegetation	Planting of trees for every tree cut	Beneficial	Minor
Terrestrial Ecology (Fauna) Generation of dust and noise, vibration, and illumination pollution	Threat to abundance, frequency and distribution of important species	Adverse	Minor
Hydrology Construction activities	Flooding	Adverse	Minor
Water Quality Construction activities	Degradation of surface water Siltation	Adverse	Minor
Climate change Construction works	Emissions from construction activities	Adverse	Minor
Meteorology/climatology Climate Risk	Disruption and delay in construction activities due to increased rainfall and flooding	Adverse	Moderate to Major

Project Phase/Environmental Aspect & Component Affected	Residual Impact	Nature of Impact (Adverse, Beneficial, or Negligible)	Significance (Minor, Moderate, Major)
Air quality Construction works	Generation of dust Increased noise and vibration	Adverse	Minor to Moderate
Gender and children Employment of qualified local workforce	Livelihood opportunities, economic activity	Beneficial	Moderate to Major
Traffic Construction activities including delivery of construction materials, re-routing, and road blocking	Delays in travels due to additional traffic volume Safety issues associated with movement of heavy equipment	Adverse	Minor to Major
Occupational Health Construction works	Occurrence of accidents and infectious diseases	Adverse	Minor to Major
OPERATION PHASE			
Land Value Generation of domestic wastes	Waste generation	Negligible	-
Hydrology Operation of the cement terminal and packaging facility	Flooding	Negligible	-
Water Quality Discharge of wastewater Accidental spills of fuels and lubricants	Degradation of surface water	Negligible	-
Air Quality Operation of the cement terminal and packaging facility	Generation of dust Exhaust emissions from vehicle plying the expressway Increased noise and vibration	Adverse	Minor to Moderate
Local economy Employment of qualified locals, implementation of social programs	Livelihood opportunities, economic activity	Beneficial	Major

6.0 RISK AND UNCERTAINTIES RELATING TO THE FINDINGS AND IMPLICATIONS FOR DECISION MAKING

As mentioned in the discussion of the alternatives of the project, Philcement only considered one location for the proposed project. Based on the baseline conditions of the land, water and air as well as the perception of the residents of the impact area, the most significant risks are posed by the susceptibility of the area to ground shaking and extreme climate events. The identified risks shall be considered by Philcement in the design of their proposed structures and in the drafting of their Emergency Preparedness and Response Plan.