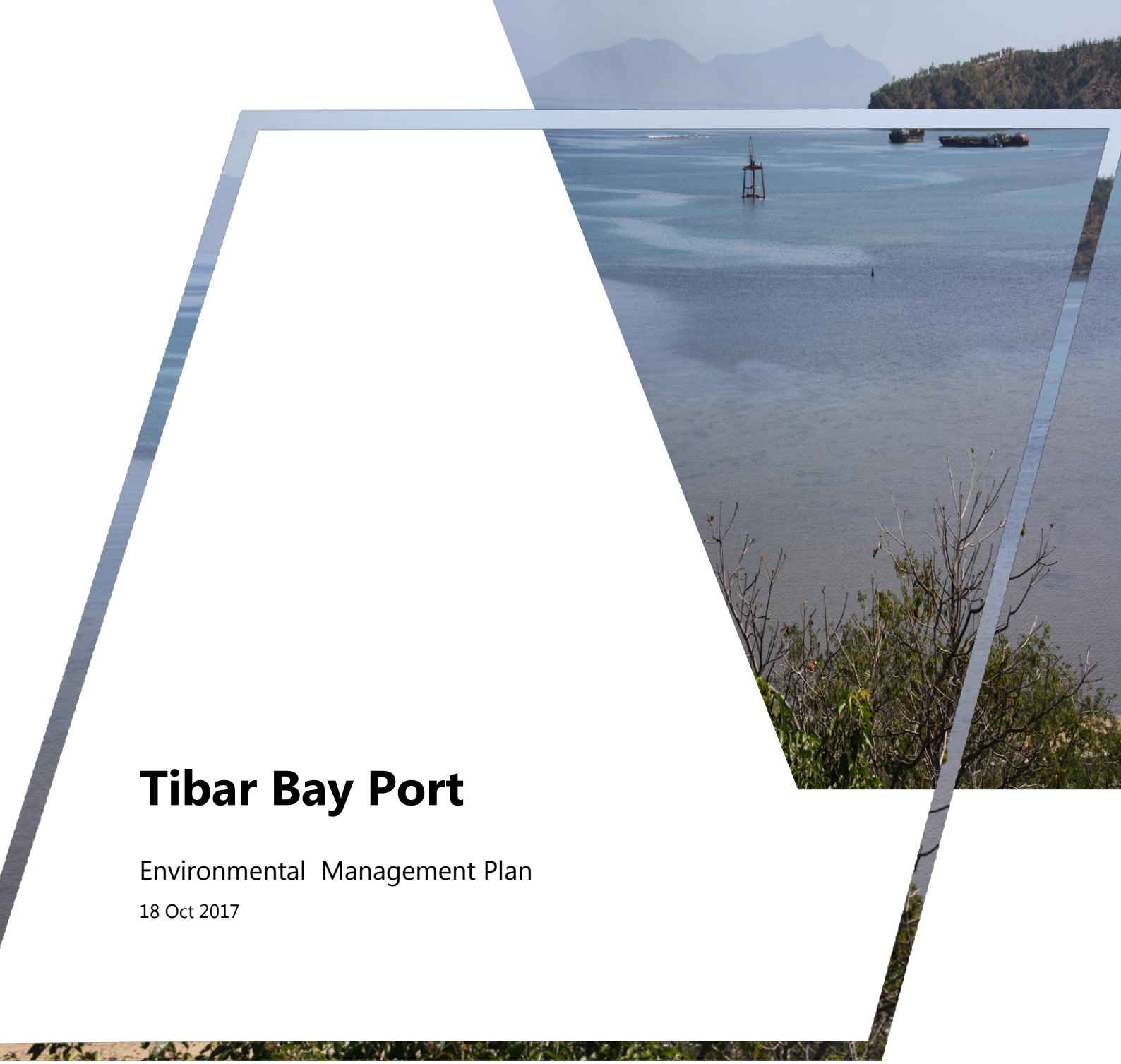

Tibar Bay Port

Environmental Management Plan

18 Oct 2017

Level 4, 600 Murray St
West Perth WA 6005
Australia

301320-13728-MA-REP-1300

www.**advisian**.com

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WorleyParsons Group

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Project No: 301320-13728-MA-REP-1300 – Tibar Bay Port: Environmental Management Plan

Rev	Description	Author	Review	TPSA Approval	Date
B	Issued for Client Review	A Jacobs	D Hunter	HC Khor	31-01-17
0	Issued for Use	A Jacobs	D Hunter	P Sapin	07-03-17
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2C	Re Issued for Use	A Jacobs	A Mratovich	P Sapin	18-08-17
2D	NDPCEI comments	P Sapin	E Mancini		18-10-17

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Abbreviations

Abbreviation	Definition
AAQS	Ambient Air Quality Standard
ADB	Asian Development Bank
ANPM	Autoridade Nacional do Petróleo e Minerais
ANU	Australia National University
ANZECC	Australian and New Zealand Environment and Conservation Council
APORTIL	Administração dos Portos de Timor-Leste or Port Authority of Timor-Leste
AQG	Air Quality Guidelines
AS	Australian Standard
AWS	Automated Weather Station
BAT	Best Available Technology
CD	Chart Datum
CGM	Complaints and Grievances Mechanism (also known as Grievance Redress Mechanism, GRM)
dB(A)	A-weighted decibels
DEP	Department of Environmental Protection
DFBOT	Design, Finance, Build, Operate and Transfer
DNCQA	Direcção Nasional Contolo e Qualidade de Agua or National Directorate for Control and Quality of Water
DNSAS	Direcção Nacional Serviço de Agua e Saneamento or National Directorate for Water and Sanitation
EA	Environmental Assessment
EBL	Environment Basic Law
EDTL	Electricidade de Timor-Leste
EFL	Environmental Framework Law
ELL	Environmental Licensing Law
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement, also called ESIA
EMF	Environmental Management Framework
EMP	Environmental Management Plan
ENVID	Environment in Design
EP	Emergency Plan
EPBC	Environment Protection and Biodiversity Conservation
EPC	Engineering, Procurement & Construction
ESIA	Environmental and Social Impact Assessment
FEED	Front-End Engineering Design
GIS	Geographic Information System
GoTL	Government of Timor-Leste
HPS	High Pressure Sodium
IAAQS	International Ambient Air Quality Standards
IFC	International Finance Corporation

Abbreviation	Definition
MPWTC	Ministry of Public Works, Transport and Communications
NDPCEI	National Directorate for Pollution Control and Environmental Impact
NOHSC	National Occupational Health and Safety Commission
NPC	National Procurement Commission
PAH	Project Affected Household
PAINC	Permanent International Association of Navigation Congresses
PAP	Project Affected People
PMU	Project Management Unit
PPE	Personal Protective Equipment
PPP	Public Private Partnership
PPPLU	Public Private Partnership Launch Unit
RAP	Resettlement Action Plan
RDTL	República Democrática de Timor-Leste
ROMS	Recomendaciones para Obras Marítimas
SIA	Social Impact Assessment
ToR	Terms of Reference
UNTAET	United Nations Transitional Administration in East Timor
USD	United States Dollars
WHO	World Health Organization
WPTL	WorleyParsons Timor-Leste

1 Executive summary

The Ministry of Public Works, Transport and Communications (MPWTC) and the Government of Timor-Leste (GoTL) proposes to develop Tibar Port facility in Tibar Bay 10 km west of Dili.

The GoTL has executed a Concession Agreement with Timor Port SA to Design, Finance, Build, Operate and Transfer (DFBOT) the Tibar Port Project, in Timor-Leste.

Timor Port SA and their Environmental Impact Assessment consultant, Advisian (WorleyParsons Timor-Leste) have developed and delivered this Environmental Impact Statement (EIS) and the Environmental Management Plan (EMP) under the guidance and instruction of the National Directorate for Pollution Control and Environmental Impact (NDPCEI) and the Public Private Partnership (PPP) Unit.

WorleyParsons has compiled this document in good faith that the content will assist the NDPCEI in assessing the environmental and social impacts of the project in line with the requirements of *Decree Law 5/2011*.

1.1 Purpose and extent of the EMP

The project includes the design and construction of the following infrastructure:

- A two-berth quay wall approximately 630 m long;
- Dredging of the quay berth and 600 m diameter turning circle to -16 m CD (Chart Datum);
- Demarcation of a 250 m wide shipping channel; and
- Reclamation and soil improvement of the 27.1 ha container terminal.

The Tibar Port project comprises three phases of work:

Pre-construction: Early to mid-2016 including detailed design and procurement.

Construction: Phase 1 is split into two sub-phases, which consist of the following:

- **Phase 1A**: Q4 2017 to Q4 2019 (2 years). This consists of 325 m of quay wall length being constructed, including a portion of the container terminal area (including pavements, services networks, lightings, buildings and supporting infrastructure).
- **Phase 1B**: Q4 2019 to Q4 2020 (1 year). This consists of the construction of a further 305 m of quay wall, including the remainder of the container terminal. This will be constructed while the infrastructure built in Phase 1A is operational.

Phase 2 includes some upgrades and completion of the container terminal yard and buildings:

- **Phase 2**: Additional laydown area and workshops on the southern extent of the operating cargo and container terminal. This construction will occur in 2030 for 2 years.

Operations: Q4 2019 for 28 years.

There is no decommissioning phase for this project.

The project site is limited to the extent included in the Concession Agreement. This EMP has been developed to address the requirements contained in the Concession Agreement Annexure 11: Terms of Reference (ToR).

1.2 Brief project description

The GoTL proposes to construct a new port facility in Tibar Bay, 10 km west of Dili. This is being undertaken in order to facilitate expansion and improved operations of shipping facilities in Timor-Leste. In 2015, GoTL completed a tender for a private partnership to undertake the design, construction, financing and operations of the port for a 30 year timeframe.

The principal function of the port is to take over the increasing volume of container traffic, together with general cargoes, from the existing port, which will then cease cargo operations.

The port development is planned in stages, with the initial construction works to be completed in Phase 1 to achieve an operating port with ability to expand. Minor development is planned in Phase 2 including upgrades of the port facility capacity while it is in operation.

Upon commencement of dredging, a dredge will initially be used to break the coral crust across the area to be dredged. A dredge will then be used to suck the fine sediments onto barges to be dumped offshore. For the program, three barges will be used for the placement of material in an offshore spoil ground. The purpose of the dredging work is:

- To provide an approach channel to allow access from deep water to the quays;
- To provide a safe turning area; and
- To provide a source of fill for the reclamation area.

Dredging works shall comprise the dredging of an approach channel, a turning circle, and berth pockets. All dredging works shall comply with applicable PIANC/ROMS Guidelines and have the following minimum dimensions:

- Width of approach channel: 250 m
- Diameter of turning circle: 600 m

The dredging program is estimated to run for nine months and involve the removal of 3.2 million m^3 of material from within the bay. The dredge spoil material is predicted to be predominantly unsuitable for reclamation use in the top few metres of the seabed, with the underlying bedrock

suitable for reclamation. This will result in the initial top layers of dredged material being dumped at a dredge spoil location offshore.

1.3 Environmental and social impacts

The environmental and social impacts for each phase are summarised in the table on the next page

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
1	P	Desk study Design & construction of Port	Workplace environment condition	1 - Air Quality	Project Site	1-1 (19)	Consider greenhouse gas performance in the selection of all vehicles and vessels.	-Carbon monoxide ; 1 hour = 40,000 µg/m3 Annual = Max 1 -Nitrogen dioxide ; 1 hour = 200 µg/m3 Annual = 40 µg/m3 -Photochemical oxidants (as ozone) ; 1 hour = 235 µg/m3 -Sulphur dioxide ; 1 hour = 350 µg/m3 24 hour = 125 µg/m3 -Particles as PM2.5 ; 24 hour = 75 µg/m3 Annual = 70 µg/m3 Air Quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4	Planning Stage	-	TPSA
2	P	Desk study Design & construction of Port	Measurement of environmental aspect	1 - Air Quality	Project Site	1-2 (19)	Install Automated Weather Station (AWS) recording daily measurements of: - Station identification number - State and time of record/observation - Air, wet bulb and wet dew point temperatures - Precipitation and evaporation - Relative humidity - Wind speed and direction - Solar radiation - Barometric pressure - Visibility - Cloud cover - Cloud ceiling height, if practicable	-Carbon monoxide ; 1 hour = 40,000 µg/m3 Annual = Max 1 -Nitrogen dioxide ; 1 hour = 200 µg/m3 Annual = 40 µg/m3 -Photochemical oxidants (as ozone) ; 1 hour = 235 µg/m3 -Sulphur dioxide ; 1 hour = 350 µg/m3 24 hour = 125 µg/m3 -Particles as PM2.5 ; 24 hour = 75 µg/m3 Annual = 70 µg/m3 EMP §12.1 EMP §12.28.1	Daily	-	TPSA (D&C)
3	P	Desk study Design & construction of Port	Workplace environment condition	2 - Noise and vibration	Project Site	2-1 (13)	Where practicable, all equipment, plant, machinery and vessel noise emissions shall be rated at maximum 85 dB(A) at 1 metre distance.	Noise §7.1 Hydro §10.2 EMP §10.5 EIS §1.8 EIS §9.9.4	Planning Stage		TPSA
4	P	Desk study Design & construction of Port	Workplace environment condition	2 - Noise and vibration	Project Site	2-2 (13)	Scheduling of noisy tasks for daytime hours	- Tibar Port Project Max Permissible Noise Level (daytime) – - Calculated (DEP Noise Regulations,1997) 68 dB(A) - Residential, Institutional and Educational Receptors 50 – 55 dB(A) - Commercial Receptors 70 dB(A) - Industrial Receptors 7 dB(A) Noise §7.2	Planning Stage		TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
5	P	Desk study Design & construction of Port	Workplace environment condition	3 - Sedimentation	Project Site	3-1 (4)	Detailed design to consider sedimentation impacts	EMP §10.8 EMP §12.2	Planning Stage	-	TPSA
6	P	Desk study Design & construction of Port	Workplace environment condition	4 - Water Quality	Project Site	4-1 (17)	Updating trigger thresholds of DMP for turbidity and sedimentation at reference points	DMP §5.1 DMP §6.1	Planning Stage	-	TPSA (D&C)
7	P	Desk study Design & construction of Port	Workplace environment condition	5 - Benthic Habitat	Project Site	5-1 (26)	Identification of coral, seagrass and mangrove locations on engineering drawings and construction plans	EMP §10.12	Planning Stage	-	TPSA
8	P	Desk study Design & construction of Port	Workplace environment condition	5 - Benthic Habitat	Project Site	5-2 (26)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.12	Planning Stage	-	TPSA and PMU
9	P	Desk study Design & construction of Port	Workplace environment condition	5 - Benthic Habitat	Project Site	-	NA as there is no marine operation during Pre-Construction Phase	-	-	-	
10	P	Desk study Design & construction of Port	Workplace environment condition	7 - Invasive Marine Species	Project Site	-	NA as there is no marine operation during Pre-Construction Phase		-	-	
11	P	Desk study Design & construction of Port	Workplace environment condition	8 - Marine Megafauna	Offset Area	8-1 (15)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.11	Planning Stage	-	TPSA and PMU
12	P	Desk study Design & construction of Port	Workplace environment condition	9 - Underwater noise	Project Site	-	NA as there is no marine operation during Pre-Construction Phase		-	-	
13	P	Desk study Design & construction of Port	Workplace environment condition	10- Lighting	Project Site	-	NA as there is no Construction operation during Pre-Construction Phase		-	-	
14	P	Desk study Design & construction of Port	Workplace environment condition	11- Offshore disposal	Project Site	-	NA as there is no marine operation during Pre-Construction Phase		-	-	
15	P	Desk study Design & construction of Port	Workplace environment condition	12- Terrestrial fauna (incl. birds)	Offset Area	12-1 (9)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.10	Planning Stage	-	TPSA and PMU
16	P	Desk study Design & construction of Port	Workplace environment condition	12- Terrestrial fauna (incl. birds)	Project Site	12-2 (9)	Reclamation of land through alternative use of dredge spoil material if possible, thereby reducing the need to clear terrestrial vegetation for infrastructure and limiting the potential habitat destruction for terrestrial fauna	Terrestrial §10.2 EIS §9.13.4	Planning Stage	-	TPSA
17	P	Desk study Design & construction of Port	Workplace environment condition	12- Terrestrial fauna (incl. birds)	Project Site	12-3 (9)	Selection of the site to limit impact on habitat with the site selected having the lowest possible impact footprint of all the configuration options	Terrestrial §10.2 EIS §9.13.4	Planning Stage	-	TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
18	P	Desk study Design & construction of Port	Workplace environment condition	13- Terrestrial vegetation	Project Site	13-1 (5)	Reclamation of land through alternative use of dredge spoil material if possible, thereby reducing the need to clear terrestrial vegetation for infrastructure	Terrestrial §10.1	Planning Stage	-	TPSA
19	P	Desk study Design & construction of Port	Workplace environment condition	13- Terrestrial vegetation	Project Site	13-2 (5)	Selection of the site to limit impact on habitat with the site selected having the lowest possible clearing footprint of all the configuration options	Terrestrial §10.1	Planning Stage	-	TPSA
20	P	Desk study Design & construction of Port	Workplace environment condition	14- Traffic	Project Site	14-1 (11)	Traffic Management Plan	EMP §12.13	Planning Stage	-	TPSA (D&C)
21	P	Desk study Design & construction of Port	Workplace environment condition	15- Employment	Project Site	15-1 (15)	The Concessionaire and the Grantor will coordinate with Secretary of State for Professional Training and Employment Policy SEPFOPE to gear its training program at the local vocational training centre to jobs available at the port	SIA §9	Planning Stage	-	TPSA and PMU
22	P	Desk study Design & construction of Port	Settlement and Livelihood	16- Fishing	Project Site	16-1 (6)	Resettlement Action Plan. Livelihood Restoration Plan.	EMP §10.17 EIS §9.27.4	Planning Stage	-	PMU
23	P	Desk study Design & construction of Port	Settlement and Livelihood	17- Population and community	Project Site	17-1 (5)	The impact on community during the project will be addressed by resettlement and compensation to be undertaken by the GoTL.	EMP §10.19	Planning Stage	-	PMU
24	P	Desk study Design & construction of Port	Settlement and Livelihood	17- Population and community	Project Site	17-2 (5)	Continuous and ongoing consultation with stakeholders throughout the project life	EMP §10.22 EIS §9.26.4	Planning Stage	-	PMU and TPSA
25	P	Desk study Design & construction of Port	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-1 (7)	Wherever possible, construction and dredging should avoid the identified Sacred and Cultural Heritage Sites	Cultural §8 EIS §1.8	Planning Stage	-	TPSA
26	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-1 (13)	H1.1. Reduce or eliminate impact on mangroves as part of the final project configuration and design	BAP §11.1.1	Planning Stage		TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
27	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-2 (13)	H1.2. When mangrove trees are cleared, ensure that the material is able to be re-used by the community or elsewhere on the project	BAP §11.1.1	Planning Stage		TPSA (D&C)
28	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-3 (13)	- H1.3. The existing mangrove habitat within the Study Area require supporting conservation actions and a Conservation Plan. This includes the 16.4ha of mangroves located on the western boundary of Tibar Bay. Despite their current generally poor condition, they are Critical Habitat. - Active rehabilitation of the mangrove area by planting and/or transplanting mangrove plants - Grantor to strongly assist to obtain all required authorizations	- BAP §11.1.1 - BAP §14.1	Planning Stage		TPSA and PMU (EXT)
29	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Offset Area	19-4 (13)	H1.4. Establish an offset area which comprises mangroves with the same; or similar composition and ecological function as the mangroves which have been cleared. This is to ensure conservation into perpetuity. In the Biodiversity Action Plan document, this has been proposed to take the form of a Community-managed conservation area. - Grantor to strongly assist to obtain all required authorizations	BAP §11.1.1	Planning Stage		TPSA and PMU (EXT)
30	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-5 (13)	Community engagement to reinforce Tara Bandu in the conservation of remnant mangrove stands and the development of alternative sources for building material and wood	BAP §14.1	Planning Stage		TPSA and PMU
31	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-6 (13)	- Community engagement to spearhead the development of alternative fodder sources for livestock with the aim to eliminate the need for livestock to access in the Mangrove stands within Tibar Bay.	BAP §14.1	Planning Stage		TPSA and PMU
32	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-7 (13)	Establish and encourage the implementation of an alternative to wood-burning to manufacture salt within the community e.g Solar Salt farming	BAP §14.1	Planning Stage		PMU and TPSA

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No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
33	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-8 (13)	Monitor and manage any grievances from the community regarding access to fishing resources	BAP §11.4	As per Grievance mechanism		PMU and TPSA
34	P	Desk study Design & construction of Port	Mangroves	20- BAP (Mangroves)	Project Site	20-1 (6)	H2.1 Following clearing and during construction, impact should be limited to remaining existing seagrass habitat immediately to the east of the project area and to the north of Tibar Bay	BAP §11.1.2	Planning Stage	-	TPSA
35	P	Desk study Design & construction of Port	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Project Site	20-2 (6)	- H2.2. The existing seagrass habitat within the Study Area require supporting conservation actions and a Conservation Plan. This includes the 7.7ha of remaining seagrass located in Tibar Bay. - Grantor to strongly assist to obtain all required authorizations	BAP §11.1.2	Planning Stage	-	TPSA and PMU (EXT)
36	P	Desk study Design & construction of Port	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Offset Area	20-3 (6)	- H2.3. Establish an offset area which comprises mudflat and seagrass with the same; or similar composition and ecological function as the mudflat and seagrass which have been cleared. This is to ensure conservation into perpetuity. - Grantor to strongly assist to obtain all required authorizations	BAP §11.1.2	Planning Stage	-	TPSA and PMU (EXT)
37	P	Desk study Design & construction of Port	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Project Site	20-4 (6)	Monitor and manage any grievances from the community regarding access to fishing resources	BAP §11.4	As per Grievance mechanism	-	PMU and TPSA
38	P	Desk study Design & construction of Port	Birds and Turtle	21- BAP (Birds and Turtles)	Project Site	21-1 (7)	S1.1. Reduce or eliminate impact on bird habitat (incl. mudflats and mangroves) as part of the final project configuration and design	BAP §11.2.1	Planning Stage	-	TPSA
39	P	Desk study Design & construction of Port	Birds and Turtle	21- BAP (Birds and Turtles)	Offset Area	21-2 (7)	S1.2. Establish artificial rock outcrops in similar tide-range environment on the northern-most edge of Tibar Bay for bird perches	Terrestrial §10.3 BAP §11.2.1	Planning Stage	-	TPSA (D&C)
40	P	Desk study Design & construction of Port	Birds and Turtle	21- BAP (Birds and Turtles)	Offset Area	21-3 (7)	- S1.3 Establish a Conservation Area within Tibar Bay to protect the habitat visited by birds during migration; providing a permanent link with Lake Tasitolu. - Grantor to strongly assist to obtain all required authorizations	Terrestrial §10.3 BAP §11.2.1	Planning Stage	-	TPSA and PMU (EXT)
41	P	Desk study Design & construction of Port	Birds and Turtle	21- BAP (Birds and Turtles)	Project Site	21-4 (7)	S2.1. Reduce or eliminate impact on turtle habitat as part of the final project configuration and design	BAP §11.3	Planning Stage	-	TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
42	P	Desk study Design & construction of Port	Birds and Turtle	21- BAP (Birds and Turtles)	Project Site	21-5 (7)	S2.2. Establish turtle rookery and/or protection area at the beach at Fahi Obuk	BAP §11.3	Planning Stage	-	TPSA and PMU (EXT)
43	P	Desk study Design & construction of Port	Ecosystem at Affected Areas	22- BAP (Ecosystem Services)	Offset Area	22-1 (5)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.10	Planning stage	-	TPSA and PMU
44	P	Desk study Design & construction of Port	Ecosystem at Affected Areas	22- BAP (Ecosystem Services)	Offset Area	22-2 (5)	E1.1. Undertake consultation to quantify the uses of any proposed offset area to ensure that their access is maintained or compensated	BAP §11.4.1	Planning stage	-	TPSA and PMU
45	P	Desk study Design & construction of Port	Ecosystem at Affected Areas	22- BAP (Ecosystem Services)	Project Site	22-3 (5)	Monitor and manage any grievances from the community regarding access to fishing resources	BAP §11.4 EIS §9.20.4	As per Grievance mechanism	-	PMU and TPSA
46	P	Desk study Design & construction of Port	Mudflat/Seagrass	23- BAP (Regulating ES)	Offset Area	23-1 (3)	- E2.1. Establish a Community-managed Conservation Area to incorporate seagrass and mudflat habitat. - Grantor to strongly assist to obtain all required authorizations	BAP §11.3.2	Planning Stage	-	TPSA and PMU (EXT)
47	P	Desk study Design & construction of Port	Carbon emission from running vehicle engine	23- BAP (Regulating ES)	Project Site	23-2 (3)	E2.2. Purchase carbon sequestration credits from the certified community-based Withoneseed program being run on the western edge of Timor-Leste, thereby offsetting the impact on CO2 sequestration and investing directly into the country, which has a socio-economic benefit	BAP §11.3.2	Planning Stage	-	TPSA
48	P	Desk study Design & construction of Port	Carbon emission from running vehicle engine	23- BAP (Regulating ES)	Project Site	23-3 (3)	Verify the alternative sequestration has been implemented.	BAP §11.4	Planning Stage	-	TPSA
49	P	Desk study Design & construction of Port	Settlement and Livelihood	24- Impact on structures in Directly Impacted Areas and Crops/productive trees	Project Site	24-1 (3)	A RAP/Compensation Plan including a livelihood restoration component that adheres to the national law and IFC PS 5 should be prepared and implemented.	SIA §8.2.1 SIA §8.2.2	Planning Stage	-	PMU
50	P	Desk study Design & construction of Port	Settlement and Livelihood	24- Impact on structures in Directly Impacted Areas and Crops/productive trees	Project Site	24-2 (3)	1.2. Establish and implement Grievance mechanism in line with IFC PS 1	SIA §8.2.1 SIA §8.2.2	Planning Stage	-	PMU and TPSA
51	P	Desk study Design & construction of Port	Settlement and Livelihood	24- Impact on structures in Directly Impacted Areas and Crops/productive trees	Project Site	24-3 (3)	1.3. Set-up an Organization Structure and establish the Institutional Plan to ensure effective and efficient implementation of all plans (e.g. RAP/LRP, etc.) from pre-construction to operation phase of the project	SIA §8.2.1 SIA §8.2.2	Planning Stage	-	PMU

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
52	P	Desk study Design & construction of Port	Settlement and Livelihood	25- Livelihoods	Project Site	25-1 (2)	Livelihood Restoration Component will be incorporated together with the RAP and will include the provision of allowance for temporary loss of income from fishing, allowance for temporary loss of income from employment, accessibility to training provided for potential employment in the construction and operational phases of the project. This training and the associated employment opportunity as a result of increased skills will be discussed, re-updated and implemented with the concessionaire's support within the framework of the proposed Local Development Plan.	SIA §8.2.3 EIS §9.27.4	Planning Stage	Paid by GoTL	PMU
53	P	Desk study Design & construction of Port	Settlement and Livelihood	25- Livelihoods	Project Site	25-2 (2)	Establish and implement Grievance mechanism in line with IFC PS 1	SIA §8.2.3 EIS §9.27.4	Planning Stage	-	PMU and TPSA
54	P	Desk study Design & construction of Port	Settlement and Livelihood	26- Income for businesses	Project Site	26-1 (4)	The government will give due consideration to affected businesses on the approval of new relocation site proposed by them as well as granting them the license to operate with proper application documents filed to concerned entities.	SIA §8.2.4	Planning Stage	Paid by GoTL	PMU
55	P	Desk study Design & construction of Port	Settlement and Livelihood	26- Income for businesses	Project Site	26-2 (4)	Establish and implement Grievance mechanism in line with IFC PS 1	SIA §8.2.4 EIS §9.28.4	Planning Stage	-	PMU and TPSA
56	P	Desk study Design & construction of Port	Settlement and Livelihood	26- Income for businesses	Project Site	26-3 (4)	Businesses will be provided with sufficient time to transfer to other locations.	SIA §8.2.4	Planning Stage	Paid by GoTL	PMU
57	P	Desk study Design & construction of Port	Settlement and Livelihood	26- Income for businesses	Project Site	26-4 (4)	The Livelihood Restoration Component will be incorporated together with the RAP and will include the provision of allowance for temporary loss of income from fishing, allowance for temporary loss of income from employment, accessibility to training provided for potential employment in the construction and operational phases of the project.	SIA §8.2.4 EIS §9.27.4 EIS §9.28.4	Planning Stage	Paid by GoTL	PMU

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
58	P	Desk study Design & construction of Port	NA as there is no marine activities during Pre-Construction Phase	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	-	NA as there is no marine activities during Pre-Construction Phase		Planning Stage	-	
59	P	Desk study Design & construction of Port	NA as there is no activities on site	28- Population Influx	Project Site	-	NA as there is no activities on site		-	-	
60	P	Desk study Design & construction of Port	Health of Population	29- Community Health and Safety	Project Site	29-1 (9)	Consulting with NGOs in the area that may support operations at the nearby health centres, with special focus on refurbishment of key areas, equipment and building maintenance, as well as, improved health care management information systems as part of its CSR program	EMP §10.21 EIS §9.25.4	Planning Stage	-	TPSA
61	P	Desk study Design & construction of Port	Employment	30- APORTIL staff numbers will be reduced with the building of the new port	Project Site	-	NA as Employment will be settle before Operation Phase		-	-	
62	P	Desk study Design & construction of Port	Visual of the Projects	31- Visual impact of the port on local tourist operator and community	Project Site	-	NA as construction will only completed by Operation Phase		-	-	
63	C	Earthworks & Trenching	Dusty environment	1 - Air Quality	Project Site	1-3 (19)	All areas with vehicle traffic shall be watered or have dust palliative applied and all material transported off-site shall be sufficiently watered	Air quality §8 Terrestrial §10.1 & 10.2 EMP §10.4 EMP §10.21 EIS §9.5.4 EIS §9.8.4 EIS §9.13.4 EIS §9.25.4	Regular Basis	Part of Air Quality ≈ $96,322	TPSA (D&C)
64	C	Mobilization of project materials	Dust resulted from the high speed transportation vehicle	1 - Air Quality	Project Site	1-4 (19)	All on-site vehicle traffic shall be limited to a speed of 15 mph on unpaved roads.	Air quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4 EIS §9.16.4	Regular Basis	Part of Air Quality ≈ $96,322	TPSA
65	C	Mobilization of project materials	Waste of fuel from running engine	1 - Air Quality	Project Site	1-5 (19)	No vehicles or plant will be left idling unnecessarily.	Air quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $96,322	TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
66	C	Mobilization of project materials	Carbon emission from running vehicle engine	1 - Air Quality	Project Site	1-6 (19)	Use a good quality fuel (e.g. with low sulphur content)	Air quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $96,322	TPSA
67	C	Mobilization of project materials	Gas emission from engine (exhaust)	1 - Air Quality	Project Site	1-7 (19)	Vehicles, plant, engines and exhaust systems shall be well maintained	Air quality §8 EIS §9.5.4 EIS §9.8.4	Semi-Annual	Part of Air Quality ≈ $96,322	TPSA
68	C	Mobilization of project materials	Gas emission from engine (exhaust)	1 - Air Quality	Project Site	1-8 (19)	All heavy duty vehicles should meet emission regulations from local Environmental Protection Agency	EMP §10.4	Semi-Annual	Part of Air Quality ≈ $96,322	TPSA
69	C	Running Heavy equipment to build the port	Pollution to environment	1 - Air Quality	Project Site	1-9 (19)	Install Automated Weather Station (AWS) recording daily measurements of: - Station identification number - State and time of record/observation - Air, wet bulb and wet dew point temperatures - Precipitation and evaporation - Relative humidity - Wind speed and direction - Solar radiation - Barometric pressure - Visibility - Cloud cover - Cloud ceiling height, if practicable	-Carbon monoxide ; 1 hour = 40,000 µg/m3 Annual = Max 1 -Nitrogen dioxide ; 1 hour = 200 µg/m3 Annual = 40 µg/m3 -Photochemical oxidants (as ozone) ; 1 hour = 235 µg/m3 -Sulphur dioxide ; 1 hour = 350 µg/m3 24 hour = 125 µg/m3 -Particles as PM2.5 ; 24 hour = 75 µg/m3 Annual = 70 µg/m3 EMP §12.1 EMP §12.28.2	Daily	Part of Air Quality ≈ $96,322	TPSA (D&C)
70	C	Running Heavy equipment to build the port	Pollution to people	1 - Air Quality	Tibar Retreat, Tibar Primary School	1-10 (19)	A monitoring and reporting program as required per the Grievance Mechanism, monitor the air quality in the following sensitive receptors: - AQ1 – Tibar Retreat. - AQ2 – Tibar Primary School. The monitoring stations are derived from the Baseline Air Quality monitoring survey (Advisian, 2016a). The monitoring program should assess and report on PM10 and PM2.5.	Air Quality §10 EMP §12.4 EMP §12.28.2 EMP §13.1	As per Grievance Mechanism	Part of Air Quality ≈ $96,322	TPSA (D&C)
71	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Dredging, Land Reclamation, Structure Building, Establishment of Bund, Haulage of building materials by trucks, Piling and Construction of Jetty, Construction of Internal road	Noise and Vibration resulted from the high speed transportation vehicle and Piling	2 - Noise and vibration	Project Site	2-3 (13)	Use selected equipment with the lowest possible noise specifications. If a noise complaint is recorded through the grievance framework and monitoring confirms it is above the guideline level a retrofit mitigation measure will be implemented. e.g. temporary barriers	Noise §7.2 EMP §10.5 EMP §10.21 EIS §1.8 EIS §9.9.4	Regular Basis	Part of Noise & Vibration ≈ $23,351	TPSA (D&C)

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
72	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Dredging, Land Reclamation, Structure Building, Establishment of Bund, Piling and Construction of Jetty, Construction of Internal road	Storage and transportation of material	2 - Noise and vibration	Project Site	2-4 (13)	Storage areas should be located away from sensitive receptors	Noise §7.2 EIS §9.9.4	Regular Basis	Part of Noise & Vibration ≈ $23,351	TPSA
73	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Dredging, Land Reclamation, Structure Building, Establishment of Bund, Haulage of building materials by trucks, Piling and Construction of Jetty, Construction of Internal road	Noise and Vibration resulted from the high speed transportation vehicle and Piling	2 - Noise and vibration	Project Site	2-5 (13)	Haulage of goods and movement of vehicles/people and equipment can be scheduled and sequenced to reduce the number of noisy operations.	Noise §7.2 EMP §10.21 EIS §9.25.4	Regular Basis	Part of Noise & Vibration ≈ $23,351	TPSA
74	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Structure Building, Establishment of Bund, Haulage of building materials by trucks, Piling and Construction of Jetty, Construction of Internal road	Noise and Vibration resulted from the high speed transportation vehicle and Piling	2 - Noise and vibration	Project Site	2-6 (13)	Alternative construction methods and selection of less noisy equipment to do the tasks	Noise §7.2 EMP §10.21 EIS §9.25.4	Regular Basis	Part of Noise & Vibration ≈ $23,351	TPSA
75	C	Clearing of Site/Area - excavation, piling, Piling and Construction of Jetty	Noise and Vibration resulted from Piling	2 - Noise and vibration	Project Site	2-7 (13)	Where practicable, limiting of piling activities to day light hours.	EMP §10.5 EIS §1.8 EIS §9.14.4	Regular Basis	Part of Noise & Vibration ≈ $23,351	TPSA
76	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Dredging, Land Reclamation, Structure Building, Establishment of Bund, Haulage of building materials by trucks, Piling and Construction of Jetty, Construction of Internal road	Noise and Vibration resulted from the high speed transportation vehicle and Piling	2 - Noise and vibration	Project Site	2-8 (13)	Measurements as required per the Grievance Mechanism at sensitive receptors i.e. Tibar Retreat. Tibar Primary School. Results interpretation and review of the EMP as required.	EMP §12.5 EMP §12.28.2 EMP §13.1	As per Grievance Mechanism	Part of Noise & Vibration ≈ $23,351	TPSA (D&C)

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
77	C	Haulage of building materials by trucks, Piling and Construction of Jetty	Noise and Vibration resulted from the high speed transportation vehicle and Piling	2 - Noise and vibration	Project Site	2-9 (13)	Collation of results into semi-annual or annual Environmental Report to NDCPEI.	EMP §12.5 EMP §13.1	Semi-Annual or Annual	Part of Noise & Vibration ≈ $23,351	TPSA
78	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Dredging, Land Reclamation, Structure Building, Establishment of Bund, Haulage of building materials by trucks, Piling and Construction of Jetty, Construction of Internal road	Pollution to environment	3 - Sedimentation	Project Site	3-2 (4)	Culverts on the project site and along the road adjacent to the site to be maintained and kept free of sediment and debris.	Hydro §5 & 6 EMP §12.2 EIS §9.6.4 EIS §9.11.4	Regular Basis	Included in D&C contract	TPSA (D&C)
79	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Unnecessary removal of natural material	4 - Water Quality	Project Site	4-2 (17)	Installation of a satellite-based vessel monitoring system on the dredge, allowing a track plot analysis to ensure maximum efficiency of the dredging effort and to ensure no dredging occurs outside the approved area.	DMP §5.1 EMP §10.12	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
80	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Turbidity of the water	4 - Water Quality	Project Site	4-3 (17)	Use of suitable dredging plant and equipment to minimise turbidity, including well maintained pipelines to be utilised to minimise leakage of turbid water during pumping of material to the reclamation zone and/or to the offshore disposal site.	DMP §5.1 EMP §10.12	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
81	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Unnecessary removal of natural material	4 - Water Quality	Project Site	4-4 (17)	Maintaining calibration of the hydrographic survey systems on board the dredge to minimise the likelihood of over dredging.	DMP §5.1 EMP §10.12	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
82	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Pollution to environment	4 - Water Quality	Project Site	4-5 (17)	Cleaning of all oil, fuel and waste spills immediately. Hydrocarbon spill report	Hydro §5 DMP §7 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
83	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Pollution to environment	4 - Water Quality	Project Site	4-6 (17)	Waste management procedure to control litter	- E.Coli : 0 mg/L in 100 mL sample - Nitrate : 50 mg/L - Nitrite : 3 mg/L - Chlorine : 5 mg/L - Copper : 2 mg/L - Lead : 0.01 mg/L - Nickel : 0.07 mg/L Hydro §5 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
84	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Flooding	4 - Water Quality	Project Site	4-7 (17)	Mitigation of flooding during extreme runoff events through the use of berms and diversion drains to limit flooding of the construction site	Hydro §5 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
85	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Pollution to environment	4 - Water Quality	Project Site	4-8 (17)	Correct operation and maintenance of waste water treatment unit	Hydro §5 & 6 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
86	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Pollution to environment	4 - Water Quality	Project Site	4-9 (17)	Dredge Contractor to monitor the operation on a continual basis and report any incidents that are likely to cause substantial changes to water quality to the engineer/employer.	DMP §5.1 EMP §12.12	Continual Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
87	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Turbidity of the water	4 - Water Quality	Project Site	4-10 (17)	Results of the monitoring of turbidity at impact and reference locations. Commentary on any trigger exceedances and resulting management measures	DMP §6.2 DMP §7 EMP §12.8 EMP §12.28.2 EMP §13.1	Continual Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
88	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Turbidity of the water, Pollution to environment	4 - Water Quality	Project Site	4-11 (17)	Monthly monitoring of sediment deposition. Commentary on any trigger exceedances and resulting management measures	DMP §6.2 DMP §7 EMP §12.8 EMP §12.28.2 EMP §13.1	Monthly	Part of Water Quality ≈ $14,594	TPSA (D&C)
89	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty		4 - Water Quality	Project Site	4-12 (17)	Dredge tracking reports.	DMP §7	Daily	Part of Water Quality ≈ $14,594	TPSA
90	C	Dredging	Damage to coral reef	5 - Benthic Habitat	Project Site	5-3 (26)	To minimise damage to coral reef habitat in the immediate construction area, all construction vessels must limit anchoring over areas of sensitive habitat including mapped seagrass beds and areas of subtidal coral reef	Marine §9.1 EMP §10.12	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA
91	C	Dredging	Damage to marine habitats	5 - Benthic Habitat	Project Site	5-4 (26)	To minimise unnecessary damage to marine habitats Contractor(s) must limit any unnecessary / temporary construction (i.e. through selection of the most appropriate construction methods) and limit any anchoring which is required by vessels.	Marine §9.1 EMP §10.12	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA
92	C	Dredging	Turbidity of the water	5 - Benthic Habitat	Project Site	5-5 (26)	Dredging operations ceased if levels of suspended sediment become higher than trigger values developed for the Project.	Marine §9.1 EMP §10.12	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
93	C	Dredging	Biodiversity of the Affected Areas	5 - Benthic Habitat	Project Site	5-6 (26)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass		Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA and PMU

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
94	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-7 (26)	The Vessel Master will be responsible for the management of any spill response during construction activities	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
95	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-8 (26)	As required under MARPOL 73/78 Annex I/ Marine Order 91 all construction greater than 400 gross tonnes must carry, a SOPEP	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
96	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-9 (26)	The Vessel Master will form and incident management team to response to any spills	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
97	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-10 (26)	In the event of a hydrocarbon spill, the Vessel Master will implement available controls and resources of the SOPEP	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
98	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-11 (26)	An oil spill response drill will be undertaken in accordance with SOPEP requirements on all vessels prior to conducting the activity (within 3 months prior)	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
99	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-12 (26)	The Vessel Master will have sufficient boom onsite to fully encircle the largest vessel	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
100	C	Dredging	Pollutions to the waters and mangroves	5 - Benthic Habitat	Project Site	5-13 (26)	If the spill from the vessel cannot be contained and the mangroves to the west of Tibar Bay are at risk the protection/containment boom will be installed to protect the mangroves. The boom will be deployed to protect the area of mangroves with the highest canopy cover and where it will be most effective	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
101	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-14 (26)	Implementation of water quality monitoring as described in the Tiered Monitoring and Management Framework	Marine §9.1 DMP §5.1 DMP §6.7.1 EMP §12.12 EMP §12.28.2 EMP §13.1	Continual Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
102	C	Dredging	Pollution to Coral + Mangroves + Mudflat/Seagrass	5 - Benthic Habitat	Project Site	5-15 (26)	Reactive benthic habitat (Coral + Mangrove + Mudflat/Seagrass) monitoring in accordance with the tiered management framework Comparison to baseline and reference data.	DMP §5.1 DMP §6.5 DMP §6.6 DMP §6.7.2 DMP §7 EMP §10.12 EMP §12.8 EMP §12.12 EMP §12.28.2 EMP §13.1	In accordance with the tiered management framework	Part of Benthic Habitat ≈ $189,726	TPSA (EXT)

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
103	C	Dredging		5 - Benthic Habitat	Project Site	5-16 (26)	In the event of a spill the Vessel Master will make notifications outlined in Section 4	PMSCP §8	Event Trigger	Part of Benthic Habitat ≈ $189,726	TPSA
104	C	Land Reclamation	Turbidity of the water	6 - Reclamation	Project Site	6-1 (8)	Maximise the residence time in the reclamation area to reduce the turbidity plume of the tailwater discharge. Suitable controls (e.g. weir boxes) will be used at the discharge point to control the water level and the rate of discharge;	DMP §5.1 EMP §10.12	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
105	C	Land Reclamation	Turbidity of the water	6 - Reclamation	Project Site	6-2 (8)	Cease dewatering or move tailwater within reclamation cells when turbidity is excessive;	DMP §5.1 EMP §10.12	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
106	C	Land Reclamation	Turbidity of the water	6 - Reclamation	Project Site	6-3 (8)	Regular inspection and maintenance of erosion and sediment control structures particularly following heavy or prolonged rainfall;	DMP §5.1 EMP §10.12	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
107	C	Land Reclamation	Soil erosion leading to pollution to the environment	6 - Reclamation	Project Site	6-4 (8)	Stabilise uncovered areas of soil promptly	DMP §5.1 EMP §10.12	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
108	C	Land Reclamation	Soil erosion leading to pollution to the environment	6 - Reclamation	Project Site	6-5 (8)	Install scour protection measures such as gabions where scouring is likely to occur.	DMP §5.1 EMP §10.12	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
109	C	Land Reclamation	Soil Pollution	6 - Reclamation	Project Site	6-6 (8)	Lime dosing due to PASS at a rate of 14 kg CaCO3/t	EMP §10.3	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
110	C	Land Reclamation	Pollution to the waters	6 - Reclamation	Project Site	6-7 (8)	Monitoring per the Water Quality requirements regarding turbidity, dissolved oxygen, conductivity, pH and temperature.	DMP §6.3	Daily	Part of Reclamation ≈ $58,377	TPSA (D&C)
111	C	Land Reclamation	Soil Pollution	6 - Reclamation	Project Site	6-8 (8)	PASS Verification testing of treated dredge material shall be conducted at a frequency of 1 sample per 250 m3 of dried material All samples will be subjected to on-site field testing for (pHF and pHFOX). The dredge material ASS performance criteria are : Medium Acceptable Threshold Untreated Dredge Material pHF > 4 pHFOX > 4 Treated Dredge Material pHF > 6.5 pHFOX > 6.5 If samples of treated dredge material are not within acceptable thresholds, the relevant materials shall be re-treated and re-tested, until successful treatment has been achieved	- Aluminium : 55 µg/L - Chromium (VI) : 1 µg/L - Nickel : 11 µg/L - Benzene : 950 µg/L - Phenol : 320 µg/L - Lead : 3.4 µg/L - Manganese : 1,900 µg/L - Mercury (total) : 0.06 µg/L - Zinc : 8 µg/L - Ammonia (NH3-N) : 900 µg/L - Ethanol : 1,400 µg/L DMP §6.4 EIS §9.7.4	If PASS confirmed, 1 sample per 250 m3	Part of Reclamation ≈ $58,377	TPSA (D&C)

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
112	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Potential Impact to Invasive Marine health	7 - Invasive Marine Species	Project Site	7-1 (5)	All contractors to adopt the Ballast Water Convention (2004)	DMP §5.2 EMP §10.12	Regular Basis	Included in D&C contract	TPSA (D&C)
113	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Potential Impact to Invasive Marine health	7 - Invasive Marine Species	Project Site	7-2 (5)	All contractors to comply with the Guidelines in the Ballast Water Convention (2004) Contractors to comply with INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS, 2004 (BWM CONVENTION)	DMP §5.2 EMP §10.12	Regular Basis		TPSA (D&C)
114	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Potential Impact to Invasive Marine health	7 - Invasive Marine Species	Project Site	7-3 (5)	All ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V	EMP §10.8	Regular Basis		TPSA
115	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-2 (15)	Procedures for marine fauna interaction shall be developed for vessels to reduce the potential impacts to marine fauna.	DMP §5.3 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
116	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-3 (15)	All work-site personnel shall be inducted regarding the proper response to fauna interaction (including unexpected encounters).	DMP §5.3 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
117	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-4 (15)	The Dredge Contractor shall appoint an individual on each vessel who is trained in faunal observation and distance estimation to be responsible for undertaking marine fauna observations.	Megafauna §3.1.5 DMP §5.3 EMP §10.11 EIS §1.8 EIS §9.14.4	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
118	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-5 (15)	The construction workforce and all vessels will be limited to designated areas. Recreational boating, fishing, diving, spear-fishing, fossicking, (i.e. collecting shells and any other biological or natural material e.g. animal bones) will be prohibited during the Project.	DMP §5.3 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA
119	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-6 (15)	All vessels will not travel at speeds no higher than 6 knots, 300 m of a whale (caution zone), and not approach closer than 100 m from a whale. A vessel will not approach closer than 50 m or a dolphin and/or 100 m for a whale (with the exception of animals bow riding)	Megafauna §3.2.4 EIS §1.8 EIS §9.14.4	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
120	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-7 (15)	Within the operating constraints of the TSHD, dredge pumps will be turned on when the draghead is as close to the seabed as possible. On completion of dredging, the pumps will be turned off as soon as practicable possible (i.e. after the pipes are clear of dredged material).	Megafauna §3.3.3 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA
121	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-8 (15)	Turtle exclusion or turtle deflecting devices (tickler chains) will be used if turtles are continuously observed.	Megafauna §3.3.3 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
122	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-9 (15)	To reduce the potential impacts of marine debris on marine fauna, waste associated with construction and operation must be managed appropriately. In addition, all ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V which came into force on 1 January 2013. The amendments prohibit the discharge of all garbage from ships into the sea (except under very specific circumstances). This reverses the presumption that garbage may be discharged into the sea based on defined distances from shore and the nature of the garbage. The amendments also list requirements for garbage management plans on ships and port reception facilities for receiving waste.	Marine §9.2 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
123	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-10 (15)	Observers on the vessels will maintain a watch for the marine turtles/significant marine mammals (during daylight hours) during the dredging and construction. If a significant marine mammal or reptile is sighted within the 'monitoring zone' of 400 m radius around the dredge or piling barge, it will be watched until the marine turtle/significant mammal moves outside of the monitoring zone or is not sighted for 10, 15 or 20 minutes - If the mammal or reptile does not leave the 400m monitoring area or starts to enter the 100m exclusion zone, it will be encouraged to leave the area.	Megafauna §3.3.3	Continual Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
124	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-11 (15)	Marine fauna incident report: the Dredge Contractor must report any turtle, dugong or cetacean injury or mortality immediately to Engineer/Employer	DMP §7	Event Trigger	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
125	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-12 (15)	Marine fauna sighting report: species identified, behaviour, occurrence, numbers of individuals and location.	DMP §7 EMP §10.11	Event Trigger	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
126	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-1 (8)	Prior to commencement of construction, designated crew (one per vessel) will be trained to observe for marine turtles and marine mammals, record sightings and any injury or mortality.	Megafauna §3.1.5 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA (D&C)
127	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-2 (8)	A “soft start” procedure will be implemented for pile driving. This involves beginning a pile driving session with the lowest power possible and hammering at a low rate, then increasing hammer energy and rate to that desired. This should allow marine fauna close to the source to move away and not be suddenly exposed to sound intensities sufficient to cause them serious injury.	Megafauna §3.1.5 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA (D&C)
128	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-3 (8)	Equipment and vessels shall operate in accordance with appropriate industry and equipment standards including specifications for noise levels. Regular maintenance will be conducted to the manufacturer’s specifications. Equipment covers, mufflers and other noise suppression equipment shall also be maintained and in good working order at all times.	Megafauna §3.1.5 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
129	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-4 (8)	Observations of marine turtles and cetaceans are to be recorded on the Observation Record Form.	Megafauna §3.1.5 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA (D&C)
130	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-5 (8)	Observers on the vessels will maintain a watch for the marine turtles/significant marine mammals (during daylight hours) during the dredging and construction. If a significant marine mammal or reptile is sighted within the 'monitoring zone' of 400 m radius around the dredge or piling barge, it will be watched until the marine turtle/significant mammal moves outside of the monitoring zone or is not sighted for 10, 15 or 20 minutes - If the mammal or reptile does not leave the 400m monitoring area or starts to enter the 100m exclusion zone, it will be encouraged to leave the area.	Megafauna §3.1.5 DMP §5.3 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA (D&C)
131	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-6 (8)	The use of thrusters and excessively noisy equipment will be avoided wherever practicable and engines, thrusters and auxiliary plant will not be left in 'stand by' or 'running' mode unnecessarily	Megafauna §3.1.5 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA
132	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-7 (8)	Marine Mammal Observations daily	Megafauna §3.1.5	Daily	Part of Underwater Noise ≈ $14,594	TPSA (D&C)
133	C	All Vessel Activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-1 (8)	Where practicable, vessel loading and unloading in nearshore areas shall be conducted during daylight hours. Where this is not practicable, artificial lighting shall be reduced to the minimum required for safe operations.	DMP §5.3 EMP §10.11	Regular Basis	Part of Lighting ≈ $8,757	TPSA
134	C	All Vessel Activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-2 (8)	Outside artificial lighting on vessels will be kept to a minimum (i.e. navigational lights and where safety dictates necessary deck lighting). Lighting should be switched off when not in use and automatic timers/sensors installed where possible.	Megafauna §3.4.5 DMP §5.3 EMP §10.11	Regular Basis	Part of Lighting ≈ $8,757	TPSA
135	C	All Construction Activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-3 (8)	Only necessary artificial lights shall be used. 'Unnecessary lighting' includes lighting in unused areas, decorative lighting or lighting that is brighter than needed.	Megafauna §3.4.5 DMP §5.3 EMP §10.11	Regular Basis	Part of Lighting ≈ $8,757	TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
136	C	All Construction Activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-4 (8)	Monitoring of light use after hours to ensure it is essential lighting only		Daily	Part of Lighting ≈ $8,757	TPSA (EXT)
137	C	Dredging	Turbidity of the water	11- Offshore disposal	Project Site	11-1 (3)	Use of suitable dredging plant and equipment to minimise turbidity during transfer of material to the offshore disposal site.	DMP §5.1 EMP §10.12	Regular Basis	Included in D&C contract	TPSA (D&C)
138	C	Dredging	Turbidity of the water	11- Offshore disposal	Project Site	11-2 (3)	Weekly Report by the D&C contractor on the volumes disposed at the offshore disposal ground	DMP §7	Weekly		TPSA (D&C)
139	C	Dredging	Turbidity of the water	11- Offshore disposal	Project Site	11-3 (3)	A report on the bathymetric survey will be provided to Engineer/Employer within two months of the final bathymetric survey being undertaken. This report will include a chart showing the change in sea floor bathymetry as a result of disposal and include written commentary on the volume of dumped material that appears to have been retained within the spoil ground.	DMP §7	2 months after final bathymetric survey		TPSA (D&C)
140	C	All Construction Activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Project Site	12-4 (9)	Monthly recording of fauna impacts and mortality as a result of project construction.	EMP §10.10	Monthly	Part of Biodiversity ≈ $23,351	TPSA (D&C)
141	C	All Construction Activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Offset Area	12-5 (9)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.10	Regular Basis	Part of Biodiversity ≈ $23,351	TPSA and PMU
142	C	All Construction Activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Project Site	12-6 (9)	Reporting and interpretation of fauna injury and death records every 6 months.	EMP §10.10 EMP §12.10 EMP §12.28.2 EMP §13.1	Semi-Annual	Part of Biodiversity ≈ $23,351	TPSA (D&C)
143	C	All Construction Activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Project Site	12-7 (9)	Collation of results into Annual Environmental Report to NDCPEI.	EMP §12.10 EMP §13.1	Annual	Part of Biodiversity ≈ $23,351	TPSA
144	C	All Construction Activities	Soil Contamination	13- Terrestrial vegetation	Project Site	13-3 (5)	Soil contamination should be monitored through maintaining records of spill events	EMP §10.2	Event Trigger	-	TPSA (D&C)
145	C	Haulage of building materials by trucks	Safety	14- Traffic	Project Site	14-2 (11)	Transport infrastructure upgrades to support container trucks travelling the local road transport network	EMP §10.13 EIS §9.16.4	Regular Basis	-	PMU
146	C	Haulage of building materials by trucks	Safety	14- Traffic	Project Site	14-3 (11)	Planning to minimize vehicle movements (e.g. use of buses to transport workers).	EMP §10.13 EIS §9.16.4	Regular Basis	-	TPSA (D&C)
147	C	Haulage of building materials by trucks	Safety	14- Traffic	Project Site	14-4 (11)	Implementation of one-way systems, ensuring reversing sensor/alarms are installed on all vehicles and mobile equipment and signage in reversing areas can reduce the risk of reversing accidents	EIS §9.16.4	Regular Basis	-	TPSA (D&C)

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
148	C	Haulage of building materials by trucks	Safety	14- Traffic	Project Site	14-5 (11)	Traffic signage – all traffic signage will be clearly and prominently displayed in well-lit areas. Signage will be posted to indicate speed limits, restricted access, visitor parking, headroom, and other route hazards	EIS §9.16.4	Regular Basis	-	TPSA (D&C)
149	C	Haulage of building materials by trucks	Safety	14- Traffic	Project Site	14-6 (11)	Traffic Management Plan	EMP §12.13 EMP §12.28.2	Annual	-	TPSA (D&C)
150	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-2 (15)	The Concessionaire and the Grantor will communicate with SEPFOPE to ensure existing programs of SEPFOPE be especially accessible to the residents of host Suco/District/Country prior to and during the construction period.	SIA §8.3.2 SIA §9 EMP §10.14 EIS §9.17.4 EIS §9.23.4	Regular Basis	Part of Employment ≈ $116,754	PMU and TPSA
151	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-3 (15)	The concession plan should state that it targets to employ 75% of Timor-Leste citizens and permanent residents during the construction period for positions where skills are available in Timor-Leste.	SIA §8.3.2 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $116,754	TPSA
152	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-4 (15)	The Concessionaire should provide continuous training to newly hired port staff.	SIA §8.3.2 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $116,754	TPSA
153	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-5 (15)	The Concessionaire should adhere to their targets of approximately 50% of Management and Finance-Administration, 80% of O&M and HSE officers and 95% of equipment driver be filled by Timor-Leste as noted in their Local Development Plan.	EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $116,754	TPSA
154	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-6 (15)	The Concessionaire will give priority were possible to residents of host Suco/District/Country during the hiring of port personnel.	EMP §10.14 EIS §9.17.4 EIS §9.20.4	Regular Basis	Part of Employment ≈ $116,754	TPSA
155	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-7 (15)	Maintenance of the Grievance Mechanism.	EMP §10.14 EIS §9.17.4 EIS §9.23.4	Regular Basis	Part of Employment ≈ $116,754	PMU and TPSA
156	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-8 (15)	Monitoring of the GoTL's implementation of the Resettlement Action Plan and Livelihood Restoration Plan through the Grievance Mechanism.		see PMU	Part of Employment ≈ $116,754	PMU
157	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Settlement and Livelihood	16- Fishing	Project Site	16-2 (6)	Providing alternative access locations if necessary.	EMP §10.17	Regular Basis	Part of Fishing ≈ $53,123	PMU
158	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Settlement and Livelihood	16- Fishing	Project Site	16-3 (6)	Providing safe passage zones.	EMP §10.17	Regular Basis	Part of Fishing ≈ $53,123	TPSA
159	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Settlement and Livelihood	16- Fishing	Offset Area	16-4 (6)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.17	Regular Basis	Part of Fishing ≈ $53,123	TPSA and PMU

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
160	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Settlement and Livelihood	16- Fishing	Project Site	16-5 (6)	Monitoring according to BAP	EMP §10.17	see BAP	Part of Fishing ≈ $53,123	TPSA
161	C	All Construction Activities	Settlement and Livelihood	17- Population and community	Project Site	17-3 (5)	The impact on community during the project will be addressed by resettlement and compensation to be undertaken by the GoTL.	EMP §10.19	Regular Basis	Part of Population ≈ $72,971	PMU
162	C	All Construction Activities	Settlement and Livelihood	17- Population and community	Project Site	17-4 (5)	Continuous and ongoing consultation with stakeholders throughout the project life	EMP §10.22 EIS §9.26.4	Regular Basis	Part of Population ≈ $72,971	PMU and TPSA
163	C	All Construction Activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-2 (7)	Where a site is to be permanently destroyed, appropriate community consultation is to be undertaken and documentation of this site.	EMP §10.25 EMP §12.28.2 EIS §9.29.4	Regular Basis	Part of Cultural Heritage ≈ $11,675	TPSA
164	C	All Construction Activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-3 (7)	Protection of sites which are adjacent to the project site through fencing, access controls and signpost in accordance with the requirements of the local community.	Cultural §8 EMP §10.25 EIS §9.29.4	Regular Basis	Part of Cultural Heritage ≈ $11,675	TPSA (EXT)
165	C	All Construction Activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-4 (7)	Training and education of all employees on cultural heritage (included in Works induction session).	Cultural §8 EMP §10.25 EIS §1.8	Regular Basis	Part of Cultural Heritage ≈ $11,675	TPSA (D&C)
166	C	All Construction Activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-5 (7)	Prior to excavation and construction works, consultation to be undertaken with the community and the caretaker of the identified Sacred Site, 05-Usu Madesan and the identified Cultural heritage site, 04-Bilimau ain. This consultation is likely to include conducting a traditional ceremony to approve the project construction and permit the site to be impacted by the project.	Cultural §8	Regular Basis	Part of Cultural Heritage ≈ $11,675	TPSA
167	C	All Construction Activities	Mangroves	19- BAP (Mangroves)	Project Site	19-9 (13)	Mangrove health assessments during construction according to tiered monitoring and management framework	BAP §11.4 EMP §13.1	As per tiered monitoring and management framework	BAP Mangroves ≈ $396,090	TPSA (EXT)
168	C	All Construction Activities	Mangroves	19- BAP (Mangroves)	Project Site	19-10 (13)	Sedimentation monitoring during construction	BAP §11.4 EMP §13.1	Monthly	BAP Mangroves ≈ $396,090	TPSA (D&C)
169	C	All Construction Activities	Mangroves	19- BAP (Mangroves)	Offset Area	19-11 (13)	Regular review and monitoring of progress of implementation of Community-managed offset area (CMA)	BAP §11.4	Monthly	BAP Mangroves ≈ $396,090	TPSA and PMU (EXT)
170	C	All Construction Activities	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Project Site	20-5 (6)	Seagrass health assessments during construction according to tiered monitoring and management framework	BAP §11.4	As per tiered monitoring and management framework	BAP Mangroves ≈ $396,090	TPSA (EXT)

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
171	C	All Construction Activities	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Project Site	20-6 (6)	Sedimentation monitoring during construction	BAP §11.4 EMP §13.1	Monthly	BAP Mangroves ≈ $396,090	TPSA (D&C)
172	C	All Construction Activities	Birds and Turtle	21- BAP (Birds and Turtles)	Project Site	21-6 (7)	Reporting of fauna deaths as per the Project Environmental Management Plan (EMP)	BAP §11.4	Event Trigger	≈ $23,351	TPSA (D&C)
173	C	All Construction Activities	Ecosystem at Affected Areas	22- BAP (Ecosystem Services)	Project Site	22-4 (5)	Monitor and manage any grievances from the community regarding access to fishing resources	BAP §11.4 EIS §9.20.4	As per Grievance mechanism	-	PMU and TPSA
174	C	All Construction Activities	NA as it should be settled before the Construction Phase	23- BAP (Regulating ES)	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
175	C	All Construction Activities	NA as it should be settled before the Construction Phase	24- Impact on structures in Directly Impacted Areas and Crops/productive trees	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
176	C	All Construction Activities	NA as it should be settled before the Construction Phase	25- Livelihoods	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
177	C	All Construction Activities	NA as it should be settled before the Construction Phase	26- Income for businesses	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
178	C	All Construction Activities	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-1 (10)	The Concessionaire will clearly delineate work areas, ensuring access to fishermen going to the deeper offshore and implement measures to minimize impacts on adjacent fishing ground as well as impacts from increased in turbidity. This will be monitored on a regular basis as part of the scope of work under the Environmental Management Plan for the port	SIA §8.3.1 EIS §1.8 EIS §9.20.4	Regular Basis	-	TPSA (D&C)
179	C	All Construction Activities	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-2 (10)	A RAP will be prepared which include the provision of allowance for temporary loss of income from fishing and allowance for temporary loss of income from employment at the site	SIA §8.3.1 EIS §1.8 EIS §9.20.4	Regular Basis	Paid by GoTL	PMU
180	C	All Construction Activities	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-3 (10)	The Livelihood Restoration Plans will be incorporated into the RAP to be prepared and implemented by the Government. Training for jobs available during the construction period should be made accessible to the Suco/District residents. This will be discussed, re-updated and implemented with the concessionaire's support as the impact is likely to occur and extend during port construction and operation.	SIA §8.3.1 EIS §1.8 EIS §9.20.4	Regular Basis	Paid by GoTL	PMU
181	C	All Construction Activities	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-4 (10)	Mitigation measures applicable to increased turbidity will be determined in detail during the preparation of the Dredging Management Plan that will be part of the Environmental Impact Statement (EIS) development	SIA §8.3.1 EIS §1.8	Regular Basis	-	TPSA

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No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
182	C	All Construction Activities	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-5 (10)	Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders	SIA §8.3.1 EIS §1.8 EIS §9.20.4	Regular Basis	-	PMU and TPSA
183	C	All Construction Activities	Employment Rate	28- Population Influx	Project Site	28-1 (3)	The Concessionaire and the Grantor will communicate with SEPFOPE to ensure existing programs of SEPFOPE be especially accessible to the residents of host Suco / District/Country prior to and during the construction period.	SIA §8.3.3	Regular Basis	-	TPSA and PMU
184	C	All Construction Activities	Employment Rate	28- Population Influx	Project Site	28-2 (3)	Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders	SIA §8.3.3	Regular Basis	-	PMU and TPSA
185	C	All Construction Activities	Employment Rate	28- Population Influx	Project Site	28-3 (3)	Avoid hiring on the spot in front of the port	SIA §8.3.3	Regular Basis	-	TPSA (D&C)
186	C	All Construction Activities	Health of Population	29- Community Heathly and Safety	Project Site	29-2 (9)	Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	PMU and TPSA
187	C	All Construction Activities	Health of Population	29- Community Heathly and Safety	Project Site	29-3 (9)	Facilitate education and awareness programs throughout the lifespan of the port	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA and PMU
188	C	All Construction Activities	Health of Population	29- Community Heathly and Safety	Project Site	29-4 (9)	Establish access controls to the site activities posing health and safety risks to the community	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA
189	C	All Construction Activities	Health of Population	29- Community Heathly and Safety	Project Site	29-5 (9)	Develop strict protocols for increased traffic safety	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA (D&C)
190	C	All Construction Activities	Employment	30- APORTIL staff numbers will be reduced with the building of the new port	Project Site	-	NA as Employment will be settle before Operation Phase		-	-	
191	C	All Construction Activities	Visual of the Projects	31- Visual impact of the port on local tourist operator and community	Project Site	-	NA as construction will only completed by Operation Phase		-	-	
192	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-11 (19)	No vehicles or plant will be left idling unnecessarily.	-Carbon monoxide ; 1 hour = 40,000 µg/m3, Annual= Max 1 -Nitrogen dioxide ; 1 hour = 200 µg/m3 Annual = 40 µg/m3 -Photochemical oxidants (as ozone) ; 1 hour = 235 µg/m3 -Sulphur dioxide ; 1 hour = 350 µg/m3, 24 hour = 125 µg/m3 -Particles as PM2.5 ; 24 hour = 75 µg/m3 Annual = 70 µg/m3 Air Quality §8 EMP §10.4, EIS §9.5.4,EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
193	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-12 (19)	Reduce the number of vehicle movements through better planning (including optimising tug boats working time)	Air Quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA
194	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-13 (19)	Use a good quality fuel (e.g. with low sulphur content)	Air Quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA
195	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-14 (19)	All heavy duty vehicles should meet emission regulations from local Environmental Protection Agency or nominated standard.	EMP §10.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA
196	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-15 (19)	Provide the need-based safety measures by providing PPE to the workers based on the nature of the work	Air Quality §8 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA
197	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-16 (19)	Controlled access to the site with warnings around the perimeter	Air Quality §8 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA
198	O	Using crane & other heavy equipment for port activities	Pollution to environment	1 - Air Quality	Project Site	1-17 (19)	Install Automated Weather Station (AWS) recording daily measurements of: - Station identification number - State and time of record/observation - Air, wet bulb and wet dew point temperatures - Precipitation and evaporation - Relative humidity - Wind speed and direction - Solar radiation - Barometric pressure - Visibility - Cloud cover - Cloud ceiling height, if practicable	EMP §12.1 EMP §12.28.3	Daily	Part of Air Quality ≈ $64,215	TPSA (EXT)
199	O	Using crane & other heavy equipment for port activities	Pollution to people	1 - Air Quality	Tibar Retreat, Tibar Primary School	1-18 (19)	A monitoring and reporting program as required per the Grievance Mechanism, monitor the air quality in the following sensitive receptors: - AQ1 – Tibar Retreat. - AQ2 – Tibar Primary School. The monitoring stations are derived from the Baseline Air Quality monitoring survey (Advisian, 2016a). The monitoring program should assess and report on PM10 and PM2.5.	Air Quality §10 EMP §12.4 EMP §12.28.3 EMP §13.1.1	As per Grievance Mechanism	Part of Air Quality ≈ $64,215	TPSA (EXT)
200	O	Using crane & other heavy equipment for port activities	Pollution to environment	1 - Air Quality	Project Site	1-19 (19)	Safety with staff training and the organisation of annual awareness campaigns	Air Quality §8 EIS §9.8.4	Annual	Part of Air Quality ≈ $64,215	TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
201	O	Using crane & other heavy equipment for port activities	Noise and Vibration resulted from the high speed transportation	2 - Noise and vibration	Project Site	2-10 (13)	Haulage of goods and movement of vehicles/people and equipment can be scheduled.	EMP §10.5 EIS §1.8 EIS §9.25.4	Regular Basis	Part of Noise & Vibration ≈ $35,026	TPSA
202	O	Using crane & other heavy equipment for port activities	Noise and Vibration resulted from the high speed transportation	2 - Noise and vibration	Project Site	2-11 (13)	Use selected equipment with the lowest possible noise specifications. If a noise complaint is recorded through the grievance framework and monitoring confirms it is above the guideline level a retrofit mitigation measure will be implemented. e.g. temporary barriers	Noise §7.2 EIS §1.8 EIS §9.9.4	Regular Basis	Part of Noise & Vibration ≈ $35,026	TPSA (EXT)
203	O	Using crane & other heavy equipment for port activities	Noise and Vibration resulted from the high speed transportation	2 - Noise and vibration	Tibar Retreat, Tibar Primary School	2-12 (13)	As required per the Grievance Mechanism measurements at sensitive receptors i.e. Tibar Retreat. Tibar Primary School. Results interpretation and review of the EMP as required.	EMP §12.5 EMP §12.28.3 EMP §13.1.1	As per Grievance Mechanism	Part of Noise & Vibration ≈ $35,026	TPSA
204	O	Using crane & other heavy equipment for port activities	Noise and Vibration resulted from the high speed transportation	2 - Noise and vibration	Project Site	2-13 (13)	Collation of results into semi-annual or annual Environmental Report to NDCPEI.	EMP §12.5 EMP §12.28.3 EMP §13.1.1	Semi-Annual or Annual	Part of Noise & Vibration ≈ $35,026	TPSA
205	O	Using crane & other heavy equipment for port activities	Pollution to environment	3 - Sedimentation	Project Site	3-3 (4)	Culverts on the project site and along the road adjacent to the site to be maintained and kept free of sediment and debris.	Hydro §5 & 6 EMP §12.2 EIS §9.6.4 EIS §9.11.4	Regular Basis	Part of Sedimentation ≈ $52,539	TPSA
206	O	Using crane & other heavy equipment for port activities	Pollution to environment	3 - Sedimentation	Project Site	3-4 (4)	Regular bathymetry to monitor sedimentation during Operations	Hydro §5 & 6 EMP §12.2 EMP §12.28.3 EMP §13.1.1 EIS §9.6.4 EIS §9.11.4	1 year and 3 years after completion; then, when required	Part of Sedimentation ≈ $52,539	TPSA
207	O	Using crane & other heavy equipment for port activities	Pollution to environment	4 - Water Quality	Project Site	4-13 (17)	Cleaning of all oil, fuel and waste spills immediately	Hydro §5 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $17,513	TPSA
208	O	Using crane & other heavy equipment for port activities	Pollution to environment	4 - Water Quality	Project Site	4-14 (17)	Waste management procedure to control litter	Hydro §5 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $17,513	TPSA
209	O	Using crane & other heavy equipment for port activities	Pollution to environment	4 - Water Quality	Project Site	4-15 (17)	Mitigation of flooding during extreme runoff events through the use of berms and diversion drains to limit flooding of the construction site	Hydro §5 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $17,513	TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
210	O	Using crane & other heavy equipment for port activities	Pollution to environment	4 - Water Quality	Project Site	4-16 (17)	Correct operation and maintenance of waste water treatment unit	Hydro §5 & 6 EMP §10.8 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $17,513	TPSA
211	O	Using crane & other heavy equipment for port activities	Pollution to environment	4 - Water Quality	Project Site	4-17 (17)	One post construction survey event of sedimentation and water quality impact and reference is recommended to take a snapshot of the post construction impact. (a few months after construction completed).	EMP §12.8 EMP §12.28.3 EMP §13.1.1	1 time after constructi on	Part of Water Quality ≈ $17,513	TPSA
212	O	Using crane & other heavy equipment for port activities	Biodiversity of the Affected Areas	5 - Benthic Habitat	Offset Area	5-17 (26)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass.		Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA and PMU
213	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-18 (26)	The Vessel Master will be responsible for the management of any spill response during construction activities	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
214	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-19 (26)	As required under MARPOL 73/78 Annex I/ Marine Order 91 all construction greater than 400 gross tonnes must carry a SOPEP	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
215	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-20 (26)	The Vessel Master will form and incident management team to response to any spills	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
216	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-21 (26)	In the event of a hydrocarbon spill, the Vessel Master will implement available controls and resources of the SOPEP	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
217	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-22 (26)	An oil spill response drill will be undertaken in accordance with SOPEP requirements on all vessels prior to conducting the activity (within 3 months prior)	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
218	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-23 (26)	The Vessel Master will have sufficient boom onsite to fully encircle the largest vessel	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
219	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-24 (26)	If the spill from the vessel cannot be contained and the mangroves to the west of Tibar Bay are at risk the protection/containment boom will be installed to protect the mangroves. The boom will be deployed to protect the area of mangroves with the highest canopy cover and where it will be most effective	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
220	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-25 (26)	In the event of a spill the Vessel Master will make notifications outlined in Section 4	PMSCP §8	Event Trigger	Part of Benthic Habitat ≈ $43,783	TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
221	O	Using crane & other heavy equipment for port activities	Pollution to Coral + Mangroves + Mudflat/Seagrass	5 - Benthic Habitat	Project Site	5-26 (26)	One post construction survey event of Coral, Mangrove and Seagrass impact and reference is recommended to take a snapshot of the post construction impact. (a few months after construction completed).	EMP §12.28.3 EMP 13.1.1	1 time after constructi on	Part of Benthic Habitat ≈ $43,783	TPSA
222	O	Using crane & other heavy equipment for port activities	No impact as Reclamation is completed in Construction Phase	6 - Reclamation	Project Site	-	NA as Reclamation is completed in Construction Phase		-	-	
223	O	Marine Tugboat and Container Vessel Sea Movement	Potential Impact to Invasive Marine Species' health	7 - Invasive Marine Species	Project Site	7-4 (5)	The operations manual for the port should include reference to: All vessels entering the port to comply with the Guidelines in the Ballast Water Convention (2004) All vessels entering comply with INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS, 2004 (BWM CONVENTION)	EIS §9.13.4 EMP §10.12	Regular Basis	-	TPSA
224	O	Marine Tugboat and Container Vessel Sea Movement	Potential Impact to Invasive Marine Species' health	7 - Invasive Marine Species	Project Site	7-5 (5)	All ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V	EMP §10.8	Regular Basis	-	TPSA
225	O	Marine Tugboat and Container Vessel Sea Movement	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-13 (15)	To reduce the potential impacts of marine debris on marine fauna, waste associated with construction and operation must be managed appropriately. In addition, all ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V which came into force on 1 January 2013. The amendments prohibit the discharge of all garbage from ships into the sea (except under very specific circumstances). This reverses the presumption that garbage may be discharged into the sea based on defined distances from shore and the nature of the garbage. The amendments also list requirements for garbage management plans on ships and port reception facilities for receiving waste.	Marine §9.2 EMP §10.11	Regular Basis	-	TPSA

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No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
226	O	Marine Tugboat and Container Vessel Sea Movement	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-14 (15)	A vessel will not travel greater than 6 knots within 300 m of a whale (caution zone) and not approach closer than 100 m from a whale; and a vessel will not approach closer than 50 m or a dolphin and/or 100 m for a whale (with the exception of animals bow riding).	Megafauna §3.2.4 EIS §1.8 EIS §9.14.4	Regular Basis	-	TPSA
227	O	Marine Tugboat and Container Vessel Sea Movement	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna		8-15 (15)	Procedures for marine fauna interaction shall be developed for vessels to reduce the potential impacts to marine fauna.	EMP §10.11	Regular Basis	-	TPSA
228	O	Using crane & other heavy equipment for port activities	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-8 (8)	A vessel will not travel greater than 6 knots within 300 m of a whale (caution zone) and not approach closer than 100 m from a whale; and a vessel will not approach closer than 50 m or a dolphin and/or 100 m for a whale (with the exception of animals bow riding).	Megafauna §3.1.6	Regular Basis	-	TPSA
229	O	Using crane & other heavy equipment for port activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-5 (8)	Where practicable, vessel loading and unloading in nearshore areas shall be conducted during daylight hours. Where this is not practicable, artificial lighting shall be reduced to the minimum required for safe operations.	DMP §5.3	Regular Basis	Part of Lighting ≈ $8,757	TPSA
230	O	Using crane & other heavy equipment for port activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-6 (8)	Outside artificial lighting on vessels will be kept to a minimum (i.e. navigational lights and where safety dictates necessary deck lighting). Lighting should be switched off when not in use and automatic timers/sensors installed where possible.	Megafauna §3.4.5 DMP §5.3	Regular Basis	Part of Lighting ≈ $8,757	TPSA
231	O	Using crane & other heavy equipment for port activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-7 (8)	Only necessary artificial lights shall be used. 'Unnecessary lighting' includes lighting in unused areas, decorative lighting or lighting that is brighter than needed.	Megafauna §3.4.5 EMP §10.11	Regular Basis	Part of Lighting ≈ $8,757	TPSA
232	O	Using crane & other heavy equipment for port activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-8 (8)	Monitoring of light use after hours to ensure it is essential lighting only		Regular Basis	Part of Lighting ≈ $8,757	TPSA (EXT)
233	O	Using crane & other heavy equipment for port activities	No impact as Reclamation is completed in Construction Phase	11- Offshore disposal	Project Site	-	No impact as Reclamation is completed in Construction Phase		-	-	
234	O	Using crane & other heavy equipment for port activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Offset Area	12-8 (9)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.10	Regular Basis	-	TPSA and PMU

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
235	O	Using crane & other heavy equipment for port activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Offset Area	12-9 (9)	Collation of results into Annual Environmental Report to NDCPEI.	EMP §12.10 EMP §13.1.1	Annual	-	TPSA
236	O	Using crane & other heavy equipment for port activities	Soil Contamination	13- Terrestrial vegetation	Project Site	13-4 (5)	Maintenance of Spill response kits	EMP §10.3	Regular Basis	-	TPSA
237	O	Using crane & other heavy equipment for port activities	Soil Contamination	13- Terrestrial vegetation	Project Site	13-5 (5)	Soil contamination should be monitored through maintaining records of spill events	EMP §10.2	Event Trigger	-	TPSA
238	O	Using crane & other heavy equipment for port activities	Safety	14- Traffic	Project Site	14-7 (11)	Transport infrastructure upgrades to support container trucks travelling the local road transport network	EMP §10.13 EIS §9.16.4	Regular Basis	-	PMU
239	O	Using crane & other heavy equipment for port activities	Safety	14- Traffic	Project Site	14-8 (11)	Planning to minimize vehicle movements (e.g. use of buses to transport workers).	EMP §10.13 EIS §9.16.4	Regular Basis	-	TPSA
240	O	Using crane & other heavy equipment for port activities	Safety	14- Traffic	Project Site	14-9 (11)	Implementation of one-way systems, ensuring reversing sensor/alarms are installed on all vehicles and mobile equipment and signage in reversing areas can reduce the risk of reversing accidents	EIS §9.16.4	Regular Basis	-	TPSA
241	O	Using crane & other heavy equipment for port activities	Safety	14- Traffic	Project Site	14-10 (11)	Traffic signage – all traffic signage will be clearly and prominently displayed in well-lit areas. Signage will be posted to indicate speed limits, restricted access, visitor parking, headroom, and other route hazards	EIS §9.16.4	Regular Basis	-	TPSA
242	O	Using crane & other heavy equipment for port activities	Safety	14- Traffic	Project Site	14-11 (11)	Traffic Management Plan	EMP §12.13 EMP §12.28.3 EMP §13.1	Annual	-	TPSA (D&C)
243	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-9 (15)	The Concessionaire should provide continuous training to newly hire port staff.	SIA §8.4.5 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $58,377	TPSA
244	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-10 (15)	The Concessionaire should adhere to their targets of approximately 50% of Management and Finance-Administration, 80% of O&M and HSE officers and 95% of equipment driver be filled by Timor-Leste as noted in their Local Development Plan.	SIA §8.4.5 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $58,377	TPSA
245	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-11 (15)	The Concessionaire will give priority were possible to residents of host Suco/District/Country during the hiring of port personnel.	SIA §8.4.5 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $58,377	TPSA
246	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-12 (15)	Maintenance of the Grievance Mechanism.	SIA §8.4.5 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $58,377	PMU and TPSA
247	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-13 (15)	Training for jobs available during Operations and Maintenance phase should be made accessible to Suco/District residents.	SIA §9	Regular Basis	Part of Employment ≈ $58,377	TPSA and PMU

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
248	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-14 (15)	The Concessionaire and the Grantor will coordinate with Secretary of State for Professional Training and Employment Policy SEPFOPE to gear its training program at the local vocational training centre to jobs available at the port	SIA §9	Regular Basis	Part of Employment ≈ $58,377	TPSA and PMU
249	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-15 (15)	Monitoring of the GoTL's implementation of the Resettlement Action Plan and Livelihood Restoration Plan through the Grievance Mechanism.		see PMU	Part of Employment ≈ $58,377	PMU
250	O	Using crane & other heavy equipment for port activities	Settlement and Livelihood	16- Fishing	Offset Area	16-6 (6)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.17	Regular Basis	-	TPSA and PMU
251	O	Using crane & other heavy equipment for port activities	Settlement and Livelihood	17- Population and community	Project Site	17-5 (5)	Continuous and ongoing consultation with stakeholders throughout the project life	EMP §10.22 EIS §9.26.4	Regular Basis	'≈ $ 29,189	PMU and TPSA
252	O	Using crane & other heavy equipment for port activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-6 (7)	Training and education of all employees on cultural heritage.	EIS §1.8	Regular Basis	-	TPSA
253	O	Using crane & other heavy equipment for port activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-7 (7)	Any and all occurrences of damage sites are to be recorded;	EMP §12.28.3 EMP §13.1.1	Event Trigger	-	TPSA
254	O	Using crane & other heavy equipment for port activities	Mangroves	19- BAP (Mangroves)	Project Site	19-12 (13)	Monitoring implementation of the BAP	BAP §11.4	see BAP	BAP Mangrove ≈ $72,971	TPSA and PMU (EXT)
255	O	Using crane & other heavy equipment for port activities	Mangroves	19- BAP (Mangroves)	Project Site	19-13 (13)	Regular review and monitoring of progress of implementation of Community-managed conservation area (CMA)	BAP §11.4	Semi-Annual	BAP Mangrove ≈ $72,971	TPSA and PMU (EXT)
256	O	Using crane & other heavy equipment for port activities	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Project Site	-	NA as all construction will be completed		-	-	
257	O	Using crane & other heavy equipment for port activities	Birds and Turtle	21- BAP (Birds and Turtles)	Project Site	21-7 (7)	Reporting of fauna deaths as per the Project Environmental Management Plan (EMP)	BAP §11.4	Event Trigger	-	TPSA (EXT)
258	O	Using crane & other heavy equipment for port activities	Ecosystem at Affected Areas	22- BAP (Ecosystem Services)	Project Site	22-5 (5)	Monitor and manage any grievances from the community regarding access to fishing resources	BAP §11.4 EIS §9.20.4	As per Grievance mechanism	-	PMU and TPSA
259	O	Using crane & other heavy equipment for port activities	NA as it should be settled before the Construction Phase	23- BAP (Regulating ES)	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
260	O	Using crane & other heavy equipment for port activities	NA as it should be settled before the Construction Phase	24- Impact on structures in Directly Impacted Areas and Crops/productive trees	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
261	O	Using crane & other heavy equipment for port activities	NA as it should be settled before the Construction Phase	25- Livelihoods	Project Site	-	NA as it should be settled before the Construction Phase		-	-	

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
262	O	Using crane & other heavy equipment for port activities	NA as it should be settled before the Construction Phase	26- Income for businesses	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
263	O	Marine Tugboat and Container Vessel Sea Movement	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-6 (10)	Consultation with local community members should be on-going to include regular communications regarding fishing access and availability.	SIA §8.4.4	Regular Basis	-	TPSA and PMU
264	O	Marine Tugboat and Container Vessel Sea Movement	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-7 (10)	The Concessionaire should regularly maintain access to offshore fishing ground including maintaining proper navigational aid to avoid collision between fishermen and vessels	SIA §8.4.1 SIA §8.4.4 EIS §1.8	Regular Basis	-	TPSA
265	O	Marine Tugboat and Container Vessel Sea Movement	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-8 (10)	Mitigation measures to minimize impacts on fishing ground within the Bay and impacts from higher turbidity of water that will impact sources of livelihood will be determined during the preparation of the Environmental Impact Statement (EIS). The EMP should be strictly implemented by the Concessionaire.	SIA §8.4.1	Regular Basis	-	TPSA
266	O	Marine Tugboat and Container Vessel Sea Movement	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-9 (10)	Training for positions available at the Port during Operation should be made available to local community	SIA §8.4.1 EIS §1.8 EIS §9.17.4 EMP §10.14	Regular Basis	-	TPSA
267	O	Marine Tugboat and Container Vessel Sea Movement	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-10 (10)	Maintenance of Grievance Redress Mechanisms to address changes to local access	SIA §8.4.4 EIS §1.8 EIS §9.20.4	Regular Basis	-	PMU and TPSA
268	O	Using crane & other heavy equipment for port activities	NA as Employment will be settle before Operation Phase	28- Population Influx	Project Site	-	NA as Employment will be settle before Operation Phase		-		
269	O	Using crane & other heavy equipment for port activities	Health of Population	29- Community Heathly and Safety	Project Site	29-6 (9)	Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	PMU and TPSA
270	O	Using crane & other heavy equipment for port activities	Health of Population	29- Community Heathly and Safety	Project Site	29-7 (9)	Facilitate education and awareness programs throughout the lifespan of the port	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA and PMU
271	O	Using crane & other heavy equipment for port activities	Health of Population	29- Community Heathly and Safety	Project Site	29-8 (9)	Establish access controls to the site activities posing health and safety risks to the community	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA

Stages = P:PreConstruction, C: Construction,

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Responsibility
272	O	Using crane & other heavy equipment for port activities	Health of Population	29- Community Heathly and Safety	Project Site	29-9 (9)	Develop strict protocols for increased traffic safety	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA (D&C)
273	O	Using crane & other heavy equipment for port activities	Employment	30- APORTIL staff numbers will be reduced with the building of the new port	Project Site	30-1 (3)	A Strategic Port Area Development Plan (APORTIL Development Plan) is being developed to encompass port operations in other districts.	SIA §8.4.2	Regular Basis	-	PMU
274	O	Using crane & other heavy equipment for port activities	Employment	30- APORTIL staff numbers will be reduced with the building of the new port	Project Site	30-2 (3)	A National Port Organisational structure should be developed to include position descriptions and demobilisation and or re skilling of staff.	SIA §8.4.2	Continual basis	-	PMU and TPSA
275	O	Using crane & other heavy equipment for port activities	Employment	30- APORTIL staff numbers will be reduced with the building of the new port	Project Site	30-3 (3)	Some staff will be transferred to the Tibar Bay Port.	SIA §8.4.2	Continual basis	-	TPSA and PMU
276	O	Using crane & other heavy equipment for port activities	Visual of the Projects	31- Visual impact of the port on local tourist operator and community	Project Site	31-1 (3)	Existing vegetation around the perimeter of the port should be retained, if possible to act as a visual screen	SIA §8.4.3	Continual basis	-	TPSA
277	O	Using crane & other heavy equipment for port activities	Visual of the Projects	31- Visual impact of the port on local tourist operator and community	Project Site	31-2 (3)	Where feasible the elements within the construction site should be located to minimise visual impact	SIA §8.4.3	Continual basis	-	TPSA
278	O	Using crane & other heavy equipment for port activities	Visual of the Projects	31- Visual impact of the port on local tourist operator and community	Project Site	31-3 (3)	Preparation of Light Management Plan should be considered to mitigation night time lighting	SIA §8.4.3	Continual basis	-	TPSA

1.4 Mitigation and monitoring

Mitigation measures were developed for any risk classified as medium or higher in the EIS in accordance with the Environmental Risk Assessment Framework.

Mitigation and monitoring measures are outlined in the EIS and supporting Environmental management plans. These mitigation and monitoring measures are outlined in Sections 0 and 11.

Additional mitigation measures are contained within the management plans which support the overarching Project Environmental Management Plan i.e.

- Dredge Management Plan (Appendix A);
- Port Marine Spill Contingency Plan (Appendix B); and
- Biodiversity Action Plan (Appendix C).

An Emergency Plan relating to environmental discharges, as required by the NDCEPI is contained in Section 14.

Related Environmental Management Plans will be prepared by TPSA during the pre-Construction Phase as they are generic in nature and require equipment selection to be greater advanced than is currently available. These generic plans include:

- Solid Waste management plan
- Hazardous/toxic waste management plan
- Occupational Health and Safety Plan
- Traffic management plan

1.5 Consultation

Considerable resources were invested into stakeholder engagement from the inception of this project by the GoTL. Stakeholder engagement has been institutionally anchored in the inter-ministerial PPP Working Group, which in October 2013 appointed a Special Panel for Stakeholder Engagement (Special Panel) chaired by the Vice Minister for Transport and Communication.

The Government of Timor-Leste (GoTL) socio-economic census that was conducted from December 14 – 16, 2015 to further collect in-depth socio-economic information more suited for the preparation of Social Impact Assessment (SIA) and RAP. This detailed census identified a total of 217 affected people consisting of 68 PAPs in Group A and 149 Project Affected People (PAP's) in Group B.

On 10-14th October 2016, Advisian conducted socio- economic surveys in the greater project area with potentially indirectly affected community members. This refers to community members who will not be physical or economically displaced by the project, however will still be impacted. The households mainly consisted of Tibar community members living on the other side of the road

from the proposed port location, as well households in neighbouring Ulmera. The survey was undertaken for 25 households currently living near the proposed development.

Consultation undertaken to date includes:

- Public Private Partnership Launch Unit (PPPLU): Community meeting (June 11, 2014) Presentation, discussion & leaflet to the locally affected community;
- PPPLU: Community meeting (August 1, 2014) Locally affected population Informing the community about the area of the Tibar Bay port;
- PPPLU: Business Owners (November 18, 2015) Project timeline, status and clearance of the area.
- Advisian: Principal Of Tibar Primary school (October 12, 2016) Introduction to Advisian, EIS scope and timeframe;
- Advisian: Doctor at Tibar Clinic (October 12, 2016) Introduction to Advisian, EIS scope and timeframe;
- Advisian: Manager at Tibar Training Centre (October 12, 2016) Introduction to Advisian, EIS scope and timeframe;
- Advisian : Manager at Tibar Bay resort (October 12, 2016) Introduction to Advisian, EIS scope and timeframe; and
- Advisian: Jesuit Religions Group (January 16, 2017) Introduction to Advisian, EIS scope and timeframe.

Public Consultation with the community, stakeholders and NGO's was held in Tibar on 23 February 2017. The consultation was undertaken in accordance with Decree Law 5/2011 requirements that the results of the EIS and EMP are shared with the community and their concerns and questions captured.

A total of 138 people attended the meeting held at the Tibar Retreat from 09h00 to 16h00. The meeting was undertaken utilising a presentation of the key information in English with simultaneous translation into Tetum. A copy of the Non-Technical Summary, in English and Tetum was provided to the attendees. The minutes from this consultation meeting can be found in Appendix K of the EIS report

1.6 Summary of EMP recommendations

The key high impacts relate to the removal of benthic habitat within the reclamation area. This is an unavoidable impact and the development and implementation of the Biodiversity Action Plan will attempt to create alternative, sustainable mangrove and benthic habitat which also contributes to community resilience.

The key high social impact relates to the impact on fishing for the community in Tibar Bay. This is being addressed through the GoTL's Livelihood Restoration Plan and Resettlement Action Plan.

2 Introduction

The Tibar Port Project will be managed through the implementation of an Environmental Management System. This Environmental Management Plan (EMP) details the mitigation and management measures to be taken to limit the project impact on the environment and social aspects identified.

2.1 Environmental management framework

An Environmental Management Framework (EMF) sets the structure for managing environmental risks and impacts during the Project life cycle. The EMF for the Tibar Port Project includes the following key approaches:

- Select the Project option which has the lowest possible environmental footprint;
- Reduce the environmental impact, as far as possible, through engineering and design approaches;
- Manage potential impacts through management measures and monitoring; and
- Continuously improve the environmental management and monitoring measures through the Project life cycle.

2.2 Environmental management plan

As required by the Environmental Licensing Law the Environmental Management Plan (EMP) is a separate stand-alone document from the Environmental Impact Statement (EIS).

The EMP is an essential tool for ensuring that mitigation of the negative impacts and enhancement of the positive impacts is carried out effectively throughout the life of the Project. An EMP should be systematically improved on a regular basis to ensure that best available technologies (BAT) and best environmental management practices are implemented in a manner that is pragmatic, efficient and cost-effective.

The EMP for the Tibar Port Project addresses:

- Mitigation measures were developed for any risks classified as 'Medium' or greater in EIS document;
- Mitigation measures for all aspects which are required in accordance with industry best practice;
- Monitoring measures and standards to be followed;
- Trigger values or target values of measurement criteria;
- Reporting requirements; and
- Continuous improvement process.

3 Project identification

Tibar Port is proposed to be developed by the MTC, GoTL. The GoTL has executed a Concession Agreement with Timor Port SA to DFBOT the Tibar Bay Port Project, in Timor-Leste.

The Tibar Port Project comprises the port infrastructure. This is located at the Project Site, located in Tibar Bay.

3.1 Project category

The Environmental Authority for this Project is the NDPCEI.

Pursuant to Decree Law 5/2011, the NDPCEI categorized the Project as Category A.

4 Details of project proponent

Timor Port SA is a new company that has been created to design, construct and operate Tibar Port on behalf of the GoTL. Timor Port SA is a consortium of parties comprising of:

1. Bolloré Africa Logistics
2. SDV Logistics East Timor Unipessoal Limitada
3. Societe de Participations Africaines

The lead shareholder is Bolloré Africa Logistics. Under the concession agreement Timor Port SA will construct and operate the report and are responsible for the delivery of the EIS, and therefore are the Project Proponent.

The contact details of the Project Proponent are given below:

Name:	**Timor Port SA**
Dili	
Address:	Av. 30 De Agosto, No. 68 Bairo Dos Grilios Gricenfor, Nain Feto. Dili, East Timor
Phone:	+670-3322-818
Website:	www.bollore-logistics.com
Contact Person:	Rafael Ribiero Managing Director
Singapore	
Address:	Timor Port – c/o Bolloré Ports Asia Pacific Regional Office 1 Magazine Road Central Mall #06-03 Singapore 059567
Contact Person	Eric Mancini Project Manager
Email:	eric.mancini@bollore.com
Phone:	+65 6416 1441
Website:	www.bollore-transport-logistics.com

5 Details of EIA consultant

Advisian is responsible for leading the environmental assessment process, conducting the environmental and social baseline studies, and preparing the EIS and EMP.

Globally, Advisian is a leading provider of professional services to the infrastructure and resource industries. Advisian has been involved in environmental engineering for decades and has a proven track record of delivering for our customers. Advisian offers a full suite of environmental and engineering services, which cover all aspects from planning to detailed design and implementation. Services include engineering and environmental services to assist in site selection, site analysis, site layout, and design.

One of the key differentiators to Advisian's environmental assessment approach is our ability assemble multi-disciplinary, in-house teams, including but not limited to engineers, urban planners, GIS and mapping specialists, geotechnical engineers, environmental scientists, social impact specialists, and hydrological engineers. These teams are led by experienced environmental assessment professionals who are capable of integrating the technical aspects of all disciplines into a tailored solution. Our ability to draw upon all of these resources internally streamlines the project delivery process and ensures reliable quality for the customer.

5.1 Local presence

Advisian (WorleyParsons) established an office in Timor-Leste in 2010 to provide our customers with the advantages of local content and an 'on-the-ground' understanding of local conditions. 'WorleyParsons Timor-Leste' (WPTL) has delivered several major projects nationwide for the GoTL, TIMOR GAP, and international development agencies, including engineering feasibility, engineering design, and environmental assessment projects.

As a local company employing local staff, Advisian is intimately familiar with the Timorese environment and culture. Our local staff are fluent in Portuguese, Tetum, and other local languages, and are experienced in community engagement. Our multi-disciplinary team has extensive experience in the delivery of environmental studies in Timor-Leste.

The development of the EIS and EMP has been led by Mr Daniel Hunter, supported by a core team of specialists with world-class expertise and extensive experience in Timor-Leste. The lead EIS and EMP author has been Annette Jacobs, with key marine input and review from Harry Houridis. Social impacts and community engagement has been led by Alison Mratovich. Their profiles, experience and qualifications for these roles are presented in the table below. The team has been supported in-country by the local office, including Antonio Bernardo and Joanna Belo.

Key Personnel	Qualifications and Experience
Daniel Hunter **EIA Specialist**	***B App Sci (Natural Resources Management), University of Melbourne*** Dan is a Project Manager and Environmental Scientist with over 20 years' experience predominantly in the area of environmental assessment and management. He has extensive experience in managing multidisciplinary projects, including the assessment and management of cumulative environmental issues associated with large infrastructure projects such as mine and port developments, roads, rail corridors, land developments, pipelines and has worked pro-actively with environmental planning teams, project design teams, government regulators, construction personnel, consultants and the community to achieve environmental / sustainability objectives and the development of mitigation strategies and consents in accordance with regulatory requirements. One of Dan's major roles on projects is to integrate environmental considerations into all aspects of decision making, planning, design, construction and operational processes and drive for sustainable outcomes. Dan has previously managed and led a study of the Timor-Leste local industry capability for ConocoPhillips.
Annette Jacobs **EIS and EMP Lead Author**	***BSc (Hon) Geology, Rhodes University, Dip Project Management*** Annette is trained as a Geologist and Environmental Scientist with 15 years' experience in environment and social impact assessment (ESHIA), management plans development, geology and hydrogeology. She has experience in delivering Environmental and Social assessments in Australia, Africa and Asia. Her technical expertise includes EIA, regulatory approvals and advanced spatial analysis using geographic information systems (GIS).
Harry Houridis **Marine Sciences** **Principal Consultant**	***BSc, Zoology; MSc, Marine Science, Deakin University, University of Melbourne*** Harry is a marine scientist has over 20 years consulting experience. Harry's fields of expertise include environmental investigation and management of marine and estuarine ecosystems both in temperate and tropical ecosystems. Studies of intertidal and subtidal habitats including mangroves, seagrasses, soft and hard bottom reef habitat (including corals) and soft bottom communities. Harry has extensive experience in the monitoring and management of turbidity and sedimentation associated with dredging and spoil disposal activities (both land and marine based) and their impacts on BPPH, in particular corals, seagrass and other epibenthic species.

Key Personnel	Qualifications and Experience
Alison Mratovich **Community Consultation**	***BA Geography and Environment Management, University of Johannesburg*** Alison has over 10 years' experience in stakeholder management providing consultancy and advisory services to government agencies and private companies on environmental and social impact assessments, community engagement and socio-economic baseline assessments. Her focus is on social and environmental impact assessments, stakeholder engagement programs and social investment strategies. Delivering assessments in accordance with WA, International Finance Corporation (IFC) and World Bank Standards.

Advisian (WorleyParsons) is supported by the following specialist consultants, who have extensive experience in Timor-Leste, including:

- Bita Bina Semesta (BBS): BBS is based in Bandung, Indonesia and maintains a locally-registered project office in Dili, Timor-Leste. BBS specializes in 'front end' type works, including planning and environmental studies for transport, resources, urban development, infrastructure and industrial development. BBS has become a regional leader in the preparation of environmental impact assessments that meets international standards. BBS recently worked with WorleyParsons to deliver environmental studies in support of the Dili Drainage EIA for the Ministry of Public Works.
- InSight Consulting: Insight is a Timorese-owned organization based in Dili conducting research into public attitudes in the country. Their work is intended to advance the mutual interest of stakeholders, civil society and the people of Timor-Leste. They have a proven record as a credible research agency, based on sound principles of investigation and an intimate knowledge of the country. Their greatest emphasis is on compiling accurate information in a fully accountable way. Insight recently worked with WorleyParsons and BBS on the Dili Drainage EIA environmental studies.
- Dr Nuno Vasco Oliviera: Dr Oliveira is currently the Cultural Heritage Adviser for the Timor-Leste Secretary of State for Arts and Culture where he has led development of cultural heritage management programs and policies including the National Cultural Policy, Cultural Strategic Plan, Resolution on Protection of Cultural Heritage and ratification of UNESCO's main conventions on cultural heritage. Prior to this role, Dr Oliveira conducted extensive research in Timor-Leste for the Australia National University (ANU), completing his dissertation on early subsistence practices and agriculture in Timor-Leste. His research included extensive fieldwork and excavations near the proposed project location.
- Dr Colin Trainor: During 1997-2002, Colin worked internationally as an ecologist with BirdLife International, leading biodiversity assessments, particularly of forest birds, in Indonesia and Timor-Leste. In Timor-Leste (2002-2014), work included a PhD thesis involving systematic survey of birds, mammals, reptiles, ants and trees across a 2,000 km^2 district, and consulting projects on transmission and proposed hydropower works at Baucau and Iralalaro in Timor-Leste; shorebird and waterbird assessments; bird species rediscoveries. In Timor-Leste he has worked on establishment of a protected area, wrote and published a field guide to the birds of Timor-Leste and a site priority guide.

These specialists are supported by a team of local Timorese staff including environmental specialists, social specialists, and field surveyors. Field assistants have also been hired from the local area to ensure access to local knowledge and to promote public consultation.

In addition, wherever possible, the environmental assessment process has involved participation from local communities and mentoring of Timor-Leste university students, especially during field survey activities.

6 Project description

6.1 Project identification

The Tibar Port Project comprises the design, construction and operation of a new port in Tibar Bay, 10 km west of Dili. The port will have new facilities consisting of a container terminal, wharf, turning basin, shipping channel and associated infrastructure located in Tibar Bay.

6.2 Project category

The Environmental Authority for this Project is the NDPCEI.

Pursuant to Decree Law 5/2011, the NDPCEI categorized the Project as Category A.

6.3 Project background

The Government of Timor-Leste (GoTL) proposes to construct a new port facility in Tibar Bay, 10 km west of Dili, to replace the transportation of cargo traffic through Dili Port which is becoming increasingly congested. The Tibar Port Project comprises the design and construction of the port including a two-berth shipping quay, a container terminal through land reclamation, the demarcation of a shipping channel and, dredging a vessel turning circle within the Bay, and construction of associated landside infrastructure. Port facilities at this site are likely to consist of a container terminal, general cargo area and offices and workshops.

Dredging of the seabed to accommodate vessels at the quay berths, the turning circle for vessels and the incoming/outgoing vessel channel, is estimated to require removal of 3.2 million m^3 of material. This will include removal of marine habitat, most notably a large seagrass bed, live coral and mangroves. Most of the dredged material will be used to reclaim land for the container terminal, with some (approximately 15%) estimated to be unsuitable fill material which will be disposed of offshore at a designated dredge spoil disposal site.

The GoTL is being assisted with the development of the port by the IFC. The GoTL, with the IFC's assistance, identified the preferred site for the port within Tibar Bay. They also prepared a conceptual port design, and an environmental and social scoping study that identified the likely primary and secondary impacts of the port, and a range of other supporting studies for the port development. The concept design for the port was developed by Hamburg Port Consulting, building on earlier work undertaken by Soros Associates (2012). A Rapid Environmental Assessment was conducted for the port in September 2012 to provide a preliminary identification of environmental and social issues associated with the development. An environmental and social Scoping Study (2013) was prepared by EcoStrategic Consultants to provide a more detailed identification of issues and assist the GoTL in selecting the preferred site within Tibar Bay. These studies have fed into the Concession Agreement and Appendix II – Terms of Reference (ToR) for the EIS, as required under Decree Law 5/2011.

This EIS has been completed to address the requirements in the ToR. It deviates from the Annex I: Example of EIS structure (as contained in the ToR) as it has been created using the EIS structure and headings required under Decree Law 5/2011. The Decree Law structure does not suit Port Projects completely, and its structure is better suited to mining and terrestrial assessments, however since the NDCEPI utilises the Checklist contained in Annexure 4 (ADB, 2010), it was essential to compile this document to align with the regulator review requirements.

The EIS has incorporated the ToR scope of work requirements under different headings to the ToR, but still covers the items.

6.4 Project location

The Tibar Port Project is located in Tibar Bay, approximately 10 km from Dili in Timor-Leste (

Figure 6-1). The bay dimensions are approximately 1.6 km from east to west and 1 km north to south. It was selected by the GoTL as the most appropriate site for the new port, based on a range of considerations.

Seven alternative port site layouts were then considered within the Bay based on operational, engineering, environmental, social and cost factors. A site on the western side of the Bay was selected as the preferred site based on its operational suitability, minimal environmental and social impacts and cost effectiveness (Figure 6-2 & Figure 6-3).

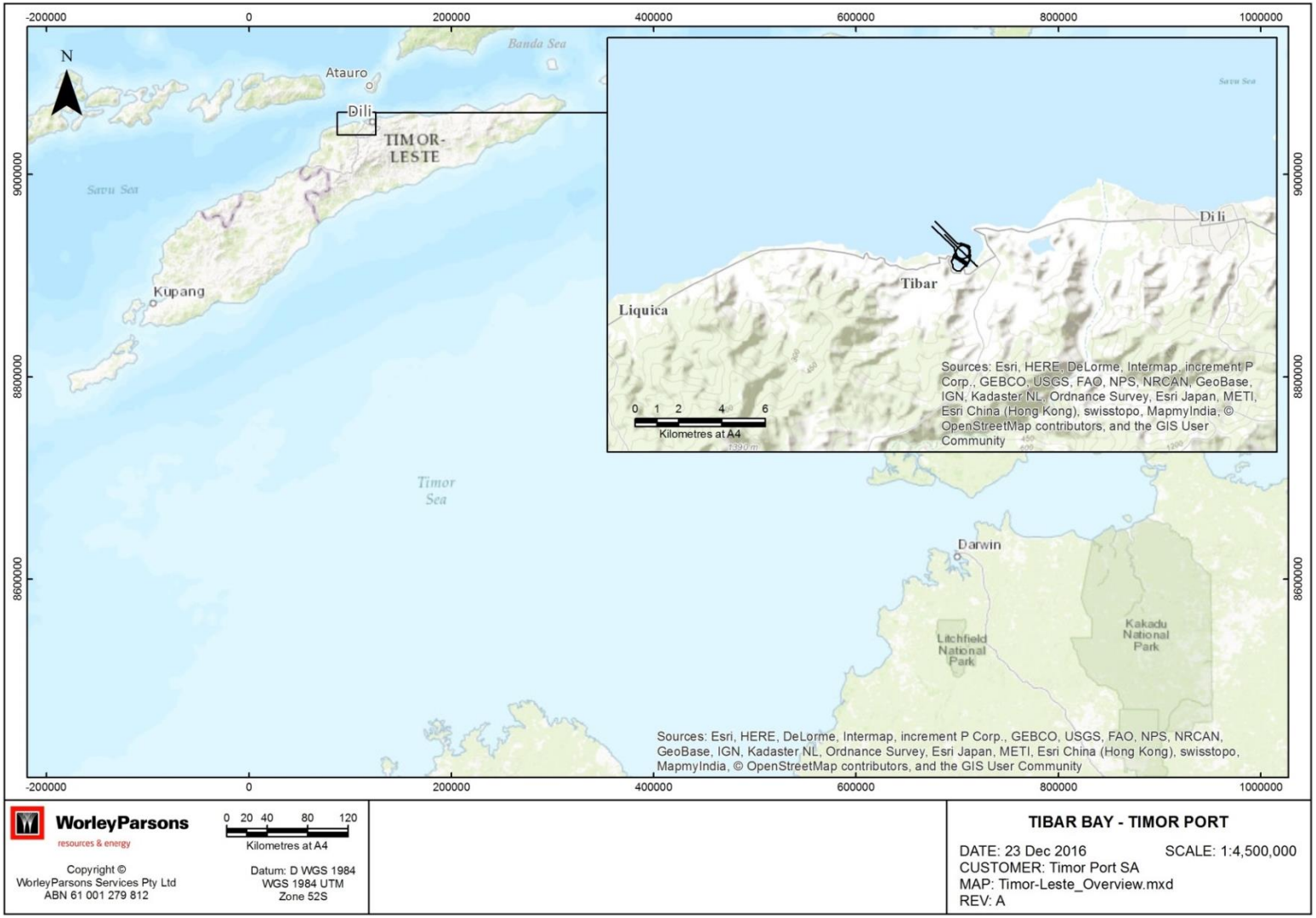

Figure 6-1 Project location in regional context, Timor-Leste

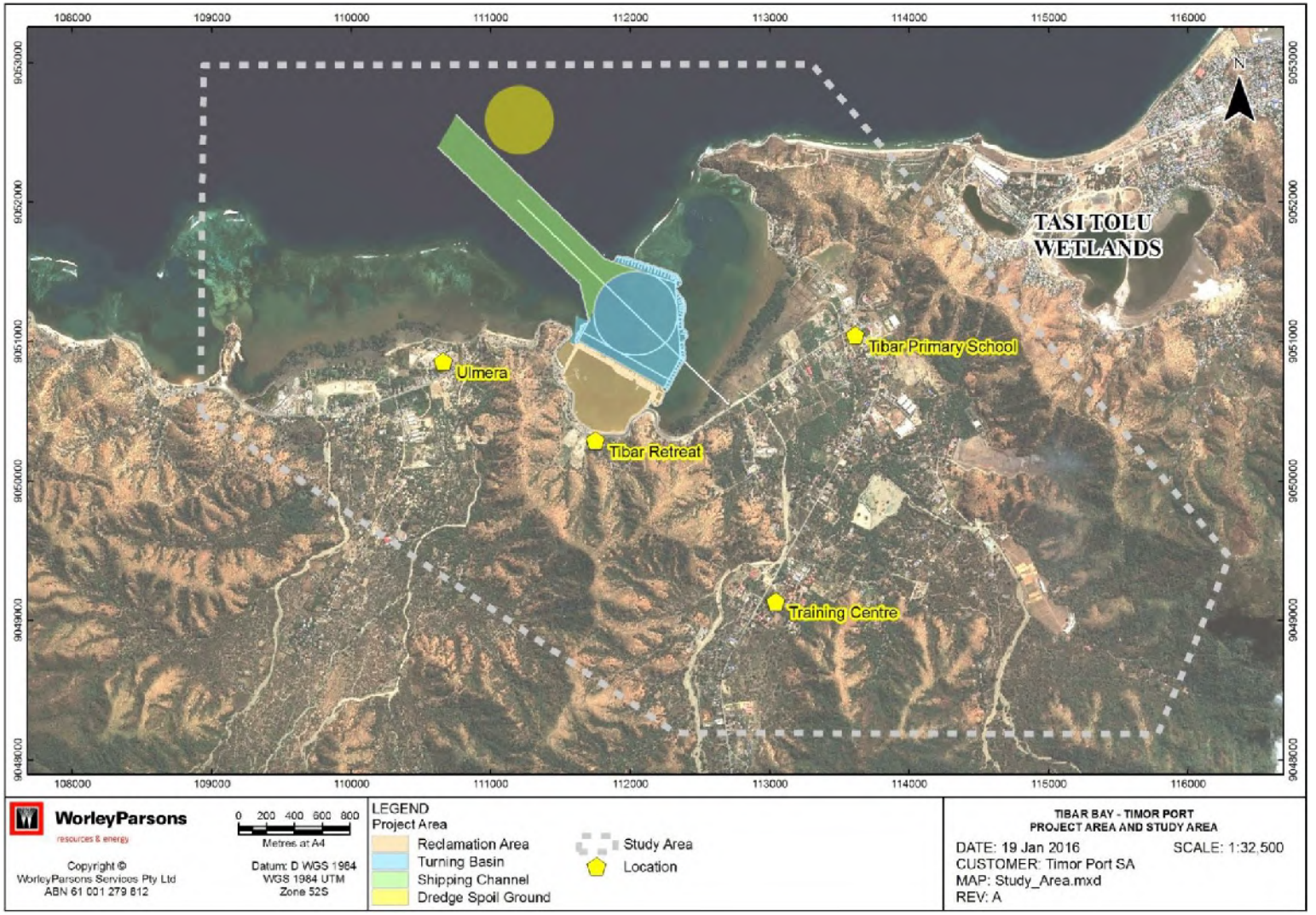

Figure 6-2 Project area, study area and key components of the Tibar Port Project

Figure 6-3: Photograph of Tibar Bay taken from south west corner of bay (adjacent to proposed port jetty location)

6.5 Project description

The port project includes the design and construction of the following infrastructure:

- A two-berth quay wall approximately 630 m long;
- Dredging of the quay berth and 600 m diameter turning circle to -16 m CD (Chart Datum);
- Demarcation of a 250 m wide shipping channel;
- Reclamation and soil improvement of the 27.1 ha container terminal; and
- Supporting infrastructure for operation of the port including:
    a. vehicle and machinery fuelling station;
    b. power supply system;
    c. potable water supply system;
    d. fire-fighting system;
    e. rainwater / stormwater drainage system;
    f. waste water treatment plant which includes a sewerage system;
    g. solid waste management system;
    h. marine navigation aids to mark the port entrance and access channel;
    i. offices;
    j. parking lot; and
    k. a quarantine facility.

Phase 1 of the project design is depicted in Figure 6-4.

The port layout and the quay have been designed to service container vessels up to panamax size, which is 7,000 TEU (Twenty-Foot Equivalent Unit) capacity. The port capacity is planned for up to 471,000 TEUs per annum, with 614,360 tonnes of general cargo throughput per annum.

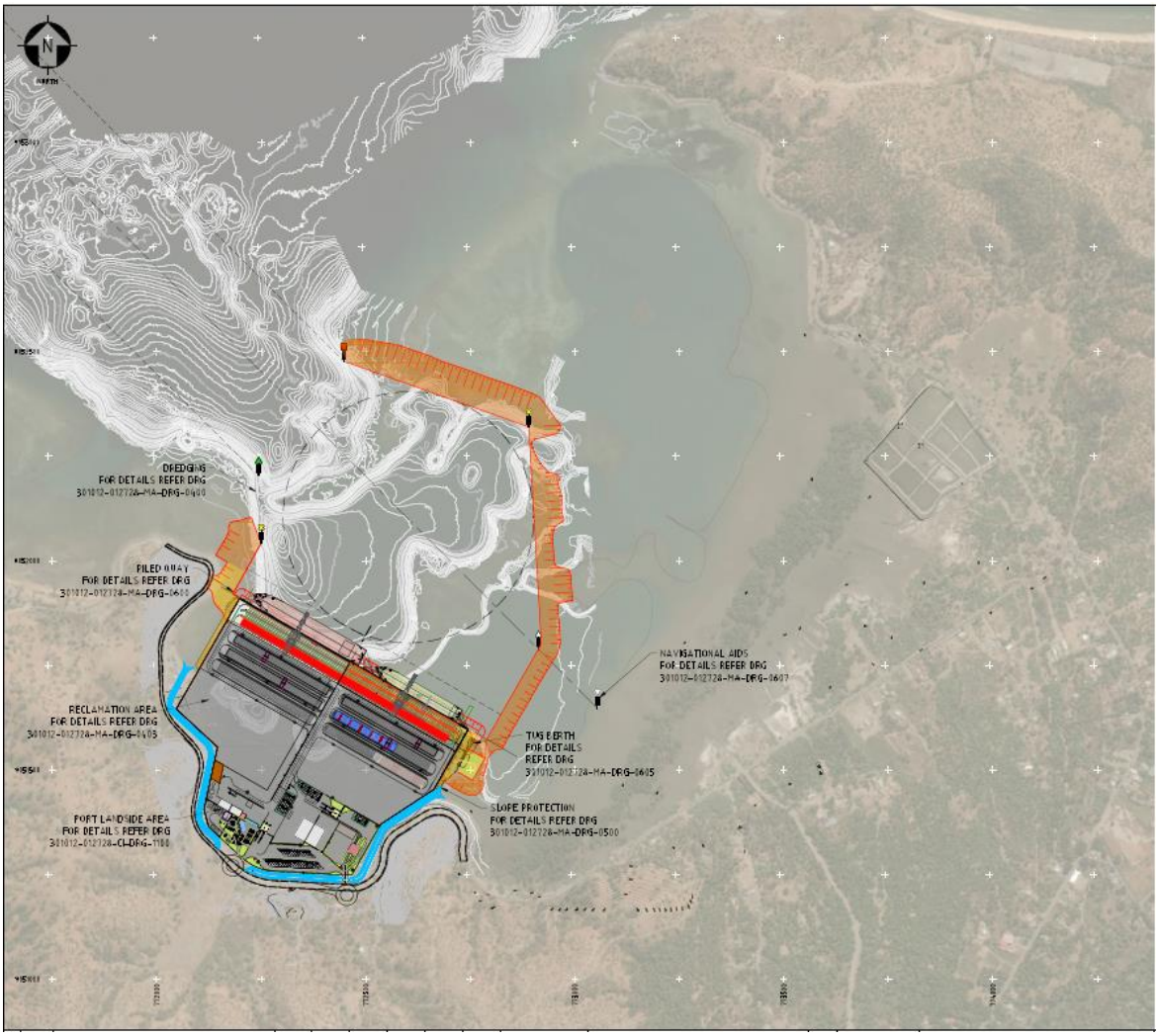

Figure 6-4: Proposed piled quay wall, container terminal area, general cargo area for Tibar Bay Port (Extract from 301320-13728-MA-DRG-0300_0)

The total cost of the project is estimated at 490 million USD over the life of the concession (30 years), including the completion of the yard in phases and the addition of new equipment to cater to the growth of the port activity and the replacement of equipment that will have reached its life expectancy.

The total cost estimated for the first 3 years of main construction and equipment described above is 290 million USD:

- Infrastructures: 230 MUSD
  - Dredging and reclamation: 111 MUSD
  - Quay: 80 MUSD
  - Yard and networks: 29 MUSD
  - Buildings: 8 MUSD
  - Back-up plant: 2 MUSD

- Equipment: 50 MUSD
  - Ship To Shore cranes and Mobile Harbour crane: 30 MUSD
  - Rubber Tyred Gantry cranes: 10 MUSD
  - Marine equipment: 5 MUSD
  - Other handling equipment (reach stackers, empty handlers, trucks, …): 5 MUSD
- Other costs (start-up costs, financing costs): 10 MUSD

6.6 Supporting facilities

The port will require supporting facilities, as identified in the Project Description. These supporting facilities may have different demands from different stages of the port i.e. during pre-construction, construction and operation of the port. These demands and their relevant stages are summarised below. Decommissioning has not been included as while the concession agreement is currently for 30 years, the port is expected to operate beyond this, and therefore decommissioning is not planned as part of this project.

Power Supply	Timor-Leste Power Company Construction: 8 MVA Operations: 15 MVA
Water Supply	Government-owned groundwater borehole in Tibar Construction: 12L/s (1000m^3/day) Operations: 4L/s (345m^3/day)
Building Material and rock	Source of material – Local sources, to be confirmed and included in the construction contractor's scope of work. Quarry location - undefined Responsibility for quarry approvals – construction contractor 740,000 m^3 additional rock material required for construction (Advisian, 2017c)
Solid Waste Management	Solid waste will be trucked to Tibar Landfill during construction and operations
Liquid Waste Management	Construction: Sewage will be collected in port-a-loos and transported to Dili Sewage Treatment Plant Operations: A waste water treatment plant will be constructed and operated during operations to treat sewage prior to discharge of treated liquid effluent to the ocean.

6.7 Project stages

The port development is planned in stages, with the initial construction works to be completed in Phase 1 to achieve an operating port with ability to expand. Minor development is planned in Phase 2 including upgrades of the port facility capacity while it is in operation.

The project phases are:

Pre-construction: Early to mid-2016 including detailed design and procurement.

Construction: Phase 1 is split into two sub-phases, which consist of the following:

- **Phase 1A**: Q4 2017 to Q4 2019 (2 years). This consists of 325 m of quay wall length being constructed, including a portion of the container terminal area (including pavements, services networks, lightings, buildings and supporting infrastructure).
- **Phase 1B**: Q4 2019 to Q4 2020 (1 year). This consists of the construction of a further 305 m of quay wall, including the remainder of the container terminal. This will be constructed while the infrastructure built in Phase 1A is operational.

Phase 2 includes some upgrades and completion of the container terminal yard and buildings:

- **Phase 2**: 2030 for 2 years. Additional laydown area and workshops on the southern extent of the operating cargo and container terminal. This will be constructed while the port is operational.

Operations: Q4 2019 for 28 years.

An artist's impression of the proposed Tibar Bay Port facility is shown in Figure 6-5.

Figure 6-5: Artist's impression of Tibar Bay Port Phase 1 and 2

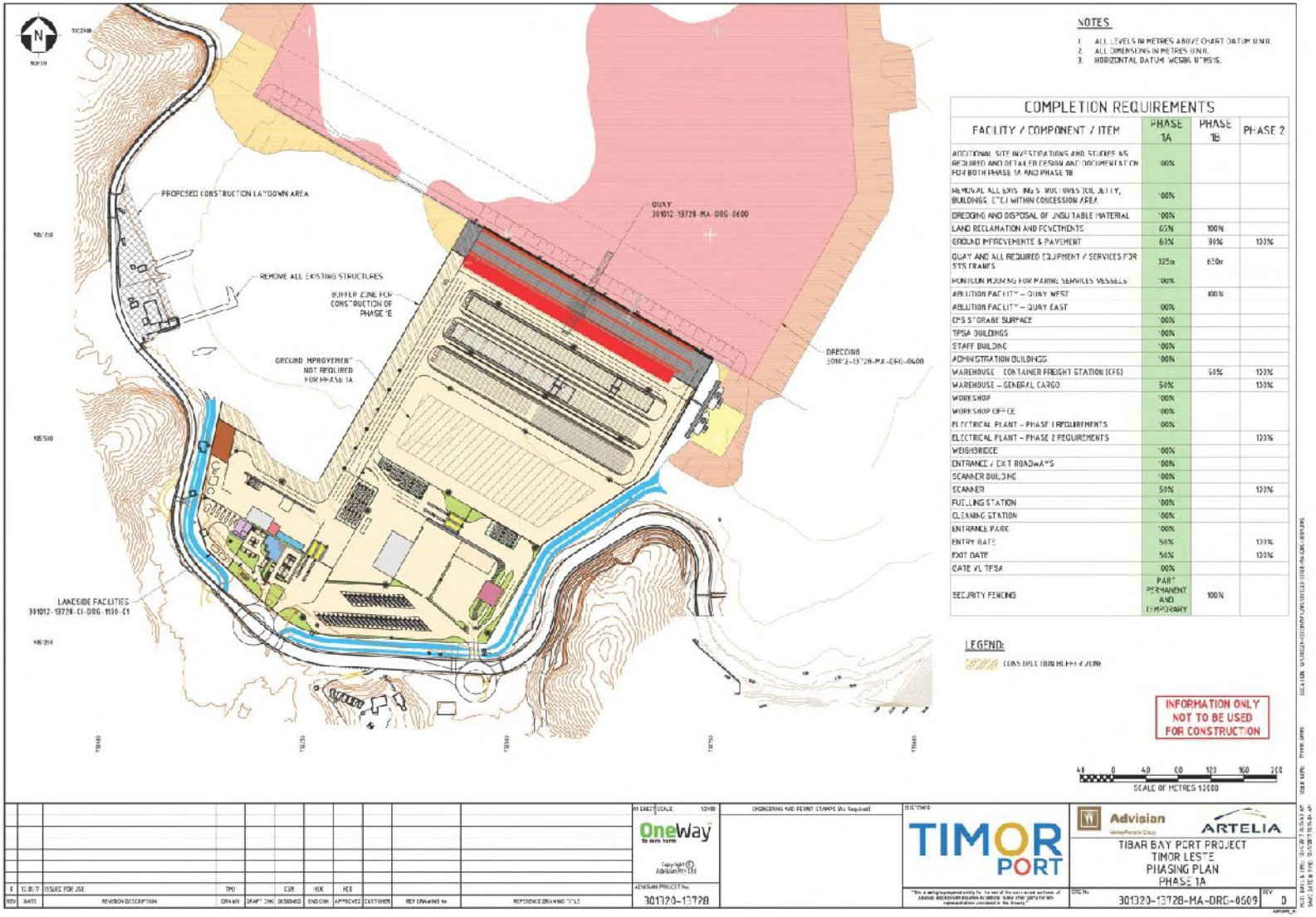

Figure 6-6: Phase 1A infrastructure

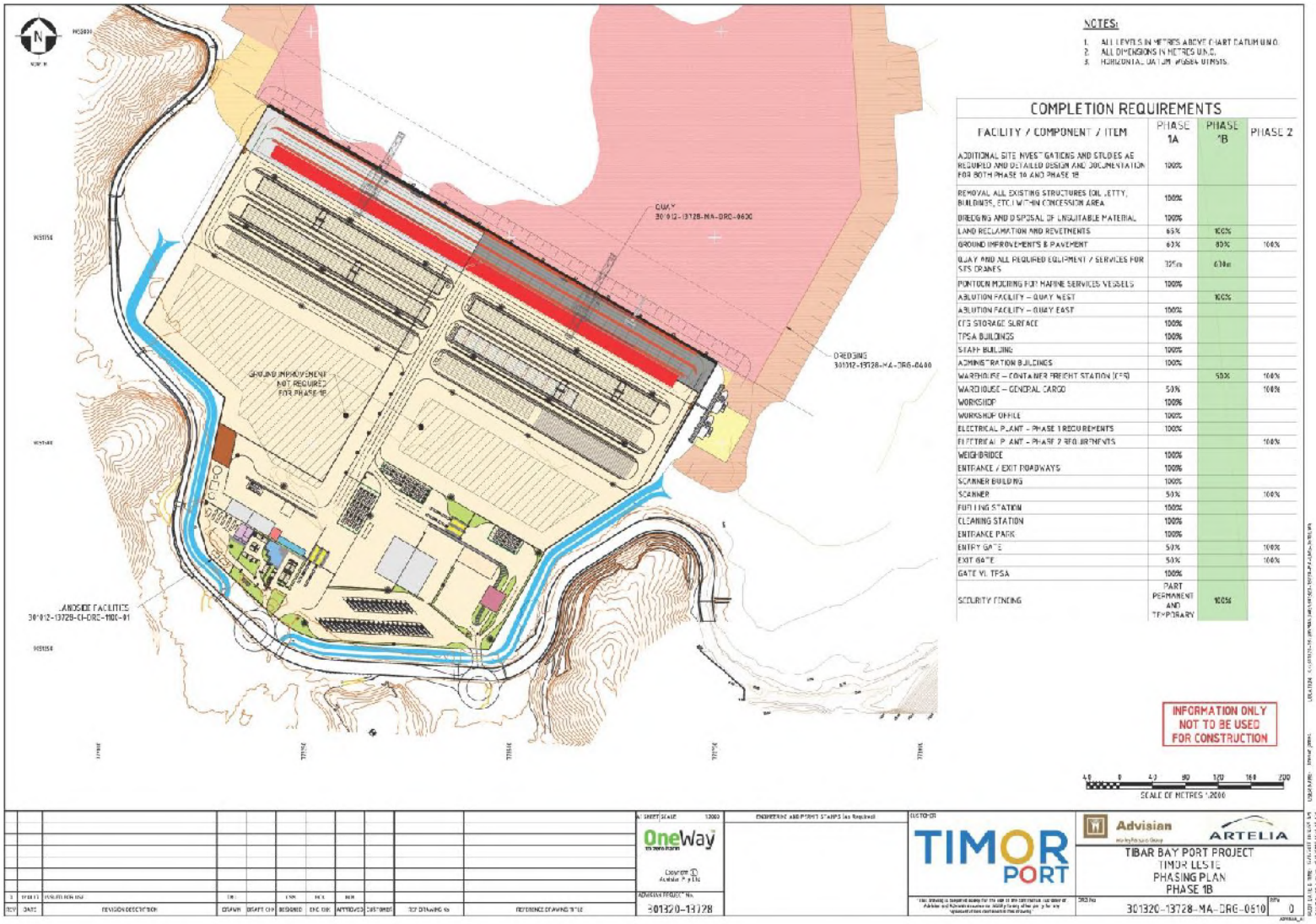

Figure 6-7: Phase 1B infrastructure

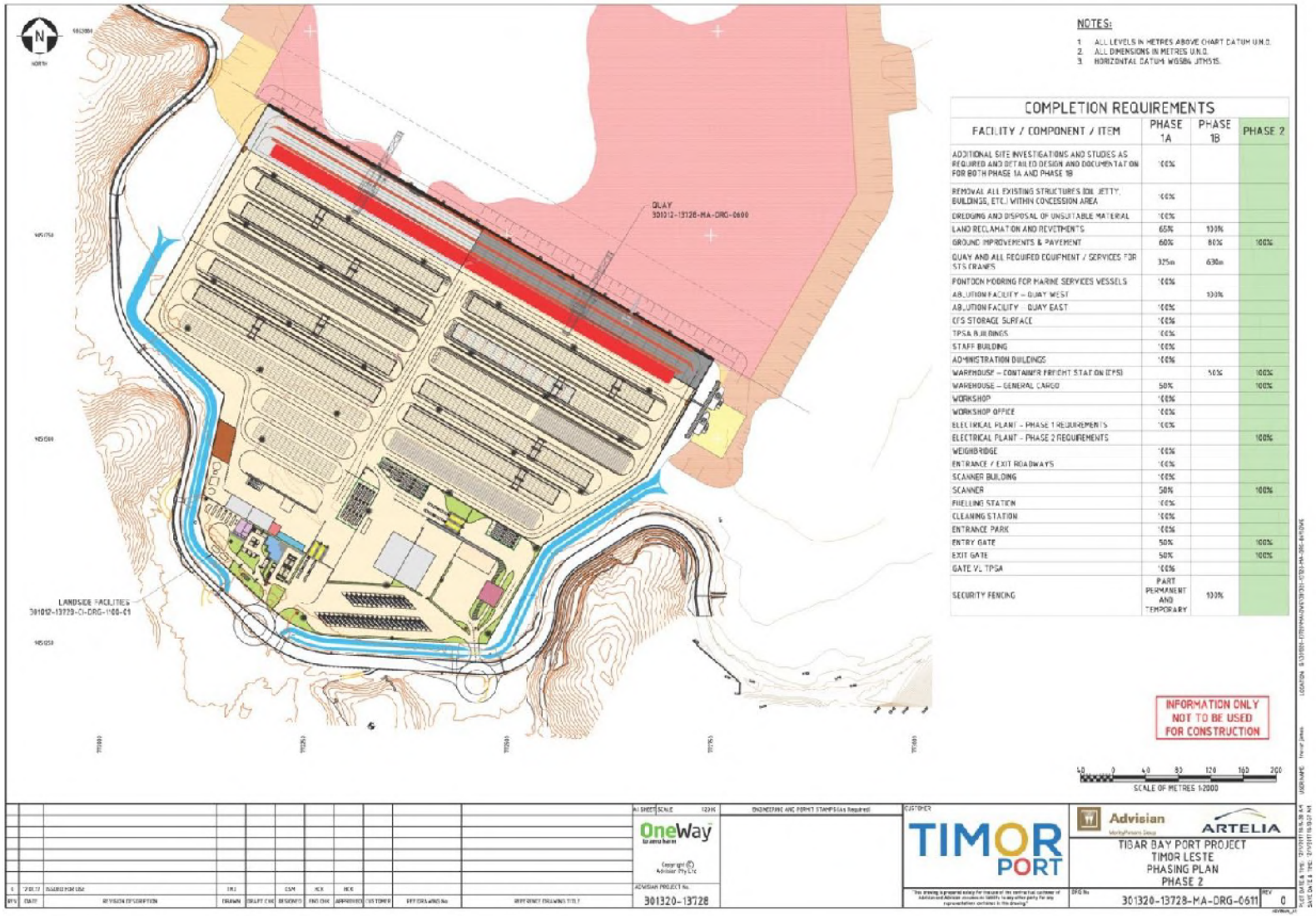

Figure 6-8 Phase 2 infrastructure

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6.8 Project timeline

Following the signing of the Concession Agreement in mid-2016, FEED and EIS commenced. The FEED and EIS are now complete, and Timor Port SA have gone out to tender for the design and construction contract. This will initiate the pre-construction phase. Pre-construction will involve detailed design of Phase 1A and 1B. It will be required to incorporate allowance for mitigation and management measures outlined in the EMPs.

Following detailed design, construction will commence in 2 phases. Phase 1A and Phase 1B will be completed consecutively (one after the other) with Phase 1A completing construction of the majority of infrastructure to allow port operations to commence. Phase 1B construction will be completed while the port is in operation. A second Phase of construction (Phase 2) is planned to be completed in 2030, also while the port is in operation. Both 1B and 2 are for minor additional activities.

The activities to be undertaken during each phase is presented in Table 6-1 below.

Table 6-1: Project activities planned for each stage of Phase 1

Phase	Activities	Timing
Pre-Construction	• Engineering design and finalising of implementation plans. • Relocation/Compensation of people by the GoTL. • Installation/Equipping of water supply wells. • Establishment of exclusion zones around the Project Area. No physical ground work preparation or clearing	Early to mid-2017 to Q3 2017
Construction	• Clearing of the site/area – excavation, piling, pouring of concrete foundations and permanent establishment of laydown area, offices and workshops. • Dredging and reclamation • Building structures in concrete and steel. • Establishment of bunds, drainage areas. • Haulage of building materials and supplies by truck. • Piling and construction of 325 m jetty quay wall. • Construction of portion of container terminal area. • Construction of internal access roads.	**Phase 1A:** Q4 2017, for 2 years to Q4 2019

Phase	Activities	Timing
	• Construction of further 305 m of quay wall. • Construction of remainder of the container terminal.	**Phase 1B:** Q4 2019 to Q4 2020 (12 months)
	• Additional laydown area and workshops on the southern extent of the operating cargo and container terminal. • Upgrades and completion of the container terminal yard and buildings.	**Phase 2**: 2030 for 2 years
Operations	• Port operation 24 hours a day, 7 days a week. • Truck hauling. • Operating port.	Late 2019, for 28 years
Decommissioning	Not applicable	N/A

6.9 Employment and residence

Employment is estimated to be 500 people during construction, with up to 750 people employed during operations.

Construction workers are assumed to be housed in Dili and bussed to the project site each day during the construction period. During operations, it is assumed all workers will live in Dili commute to and from the operating port.

6.10 Pre-construction activities

Pre-construction will consist of detailed design and procurement of equipment and materials. No physical ground work preparation or ground clearing is planned to occur during this phase.

6.11 Construction

Construction will commence with the demolition of the small existing oil jetty. This will be replaced with the project office and a laydown area. There will be a retention bund installed to a minimum of +3 m CD which traverses the outer edge of the Phase 1A reclamation area. Dredging to -16m CD will begin along the eastern end of the berth pocket and a temporary construction load out ramp will be installed adjacent to the dredging. Some seabed reclamation will also occur within the reclamation area.

Step two will see the continuation of dredging with the dredge spoil either used to start the reclamation and ground improvement within the south-western corner of the reclamation area or dumped offshore at a dredge spoil ground if not suitable for fill material.

Dredging of the raised areas of reef will continue, with the reclamation continuing until the bund wall is reached. Once this occurs, the construction of another bund along the norther edge of the reclamation area will be created, with the reclamation continuing until the entire reclamation area is complete.

The initial and final phases of the dredging and reclamation areas are presented in Figure 6-9.

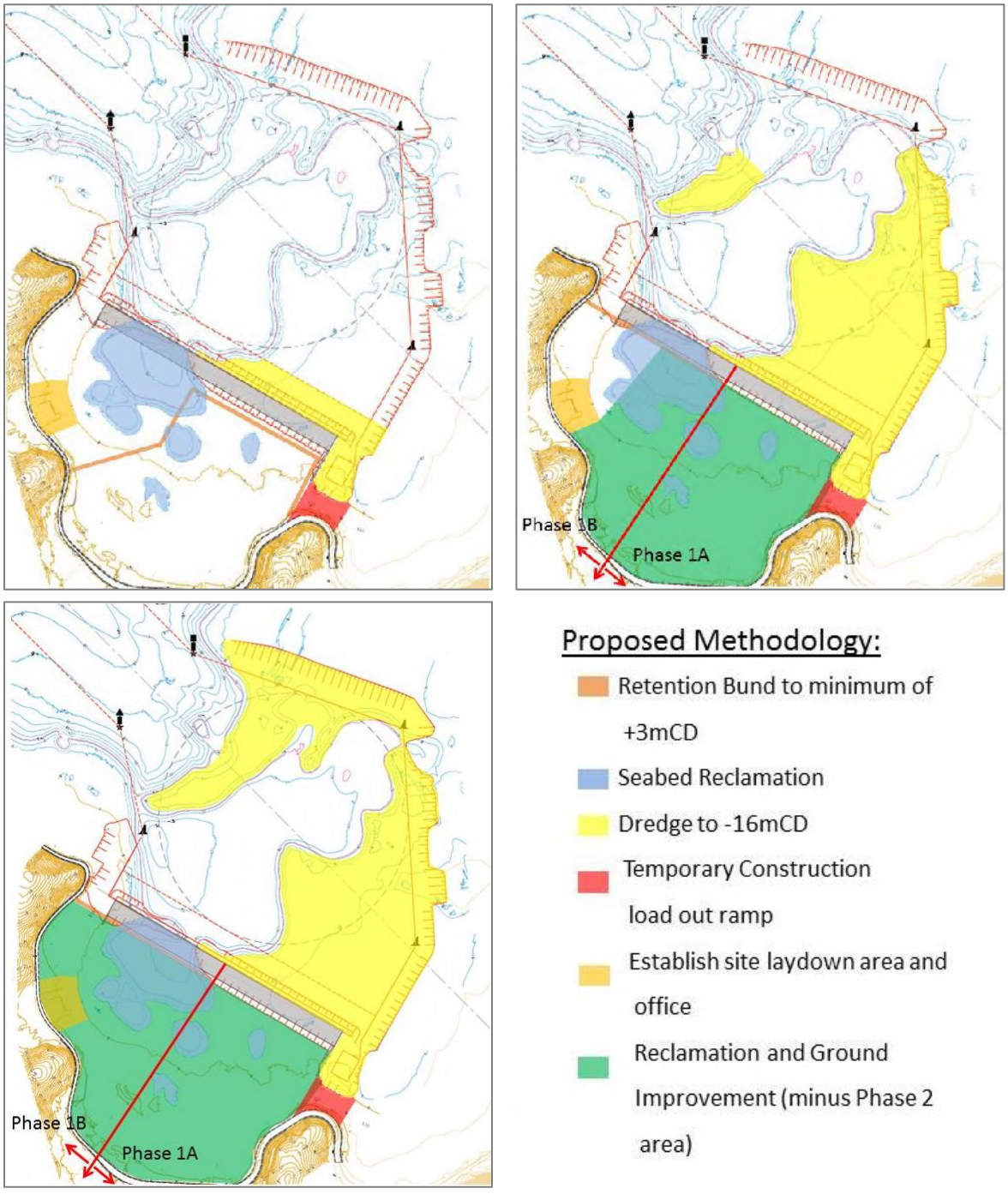


Figure 6-9: Phasing illustration of dredging and reclamation work (TPSA, 2016)

6.11.1 Dredging

The dredging program is estimated to run for nine months and involve the dredging of 3.2 million m^3 of material from within the bay. The dredge spoil material is predicted to be predominantly unsuitable for reclamation use in the top few metres of the seabed, with the underlying bedrock suitable for reclamation. This will result in the initial top layers of dredged material being dumped at a dredge spoil location offshore.

Upon commencement of dredging, a dredge will initially be used to break the coral crust across the area to be dredged. A dredge is then recommended to suck the fine sediments onto barges to be dumped offshore. For the program, three barges will be used for the placement of material in an offshore spoil ground. The purpose of the dredging works is:

- To provide an approach channel to allow access from deep water to the quays;
- To provide safe vessel berth pockets and turning area within the bay; and
- To provide a source of fill for the reclamation of land on which to construct the port landside facilities.

All dredging works shall comply with applicable Permanent International Association of Navigation Congresses (PIANC) / Recomendaciones para Obras Marítimas (ROMS) Guidelines and have the following minimum dimensions:

- Width of approach channel: 250 m
- Diameter of turning circle: 600 m

Siltation criteria shall apply to all areas. It has been assumed that maintenance dredging will occur every 10 years at a minimum.

Approximately 10,000 m^3 - 100,000 m^3 of material will be dredged per week on a continuous basis during construction.

Table 6-2: Assumed design dredge depth

Location	Design Depth
Berth Pocket	-16 m CD
Turning Basin / Approach Channel	-16 m CD

6.11.2 Dredge disposal

Disposal of dredge material not used in reclamation will be disposed of offshore at a dredge spoil disposal site. The estimated volume to be disposed of offshore is estimated to be approximately 15% of the total dredge material, and approximately 480,000 m^3. The dredge disposal site is proposed to be 1.2 km from the dredge channel mouth (Figure 6-2).

It is anticipated that the majority of unsuitable reclamation fill from dredging will be collected and disposed of offshore within the first eight to twelve weeks of dredging. After this, dredge disposal will occur infrequently, if unsuitable material is encountered.

6.11.3 Reclamation

The area to be reclaimed is indicated in orange in Figure 6-2 and does not include batters, except beneath the quay deck. The total area is approximately 270,000 m^2 (27 ha).

It is planned for the reclamation to be undertaken behind a retention bund constructed to a minimum of +3 m CD. Other bunds are anticipated to be designed and constructed by the construction contractor to allow water that has been pumped in with the dredge material to be slowed down and allow it to slowly seep out of the reclamation area. Example of the proposed dredging and reclamation work is provided in Figure 6-9.

It is not yet known where the dewatering discharge location will be, as it will be selected by the construction contractor based on their construction design. It is assumed that it will be closest to the bay mouth to allow sufficient dilution via mixing and will be monitored and sampled for contaminants.

6.11.4 Pile jetty

A pile wall will be constructed at the jetty to protect the reclaimed area from waves. The wall will be a *combiwall* and consist of 600 piles, spaced 2 m apart with a sheet between each pile. This will be constructed using three piling barges in rotation, achieving installation of four piles per day. These will operate six days per week over a period of six months. An example of a pile wall is illustrated in Figure 6-10.

Figure 6-10: Example of a pile wall

6.12 Operations

The operation of the port will consist of vessel loading and offloading of containers and general cargo. Goods to be imported and exported will be stored in the container laydown area and will be transported from the port using haul trucks. Additional periodic activities will include maintenance dredging (every 10 years). The operating port will be supported by a sewage treatment plant on site.

The port is designed to service container vessels between 400 – 7000 TEU capacity. The vessels will have a largest overall design length of 280 m and a maximum draft of 14.5 m. The port will operate continuously 24 hours a day, seven days a week and a forecast of 2 tug trips per day are anticipated. The shipping forecast design is for between 4 and 25 vessels per month visiting the port, dependent on their size and cargo. The port is not expected to be a ship maintenance hub as there are no dry yard facilities.

6.13 Nature of the project area

Tibar Bay Port is located in Suco Tibar in the sub-district of Bazartete. The natural environment in Tibar Bay consists of a sheltered bay bordered by mangrove and sandy silt beaches and two rocky headlands at the mouth of the bay. Within the bay, coralline ridges are found, with intertidal seagrass beds and silty mudflat areas. The bay is bounded by low hills to the east and west, with a minor ephemeral drainage, Rihui River draining an upper catchment of approximately 30 km^2.

The population of Suco Tibar is approximately 1,800 people and there are two primary schools and one clinic located in the village. The primary occupation of the people in the village is fishing and salt harvesting.

6.14 EMP endorsement

The project proponent, Timor Port SA, endorses this EIS and EMP prepared by consultants, Advisian (WorleyParsons) Timor-Leste. Evidence of this endorsement is contained in the next section.

Eric Mancini
Tel +65 64161441
Fax +65 63322548
E-mail eric.mancini@bollore.com

Antonio Lelo Taci
National Director
NDPCEI

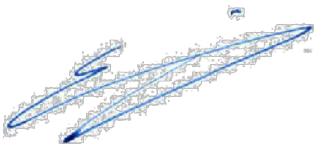
ref 20171018EM01 18/10/2017

SUBJECT: Tibar Bay Port Project – Proponent endorsement of EIS

Dear Sir,

Timor Port S.A. has reviewed and endorses the contents of this Draft Environmental Impact Statement (EIS) and this Draft Environmental Management Plan (EMP) for the Tibar Bay Port Project as prepared by our Consultant, WorleyParsons Services Pty Ltd which include the responses to the detailed and very relevant comments received from NDPCEI following the submission of the first draft.

With best regards,



Eric MANCINI
Project Manager

6.15 EMP structure

This EMP has been prepared in accordance with the template provided in Annex 4 of the Draft General Regulations (Draft 5 dated: 22 April 2014). The contents of this EMP are listed below:

1. Executive Summary;
2. Introduction;
3. Project identification;
4. Details of the EIA consultants;
5. Description of the Project;
6. Policy, Legal, and Institutional Framework;
7. Institutional Roles and Responsibilities;
8. Impact Assessment Summary;
9. Mitigation measures;
10. Governing parameters;
11. Monitoring program;
12. Reporting requirements;
13. Responsibilities matrix;
14. Emergency Plan;
15. Decommissioning plan;
16. Capacity development and training;
17. Public consultation;
18. Complaints and grievances mechanism;
19. Work plan and implementation schedule;
20. Cost estimates;
21. Review of the EMP;
22. Non Technical Summary;

The Environmental Licensing Law requires that the EMP is a separate stand-alone document from the EIS.

The project ToR requires the following supporting documents to be incorporated into the EMP:

- Dredging management plan
- Port Marine Spill Contingency Plan; and
- Biodiversity Action Plan.

7 Policy legal and institutional framework

This section identifies the legislation and guidelines governing the conduct of the environmental and social impact studies and preparation of the EIS and EMP documentation. This section also identifies other applicable laws, regulations, guidelines, and standards governing environmental quality, health and safety, protection of protected areas and sensitive areas, protection of vulnerable and endangered species, land use control, and other environmental and social issues.

In this section, the link is made between the legislated requirements, the studies undertaken in the EIS and the mitigation and monitoring measures contained in the EMP. This is done by cross referencing the applicable section of the EIS with the mitigation measures contained in the applicable section in the EMP.

7.1 Constitution of the republic of Timor-Leste

Timor-Leste's environment and its valuable natural resources, represent a potential source of wealth that may support economic growth and community development (RDTL, 2011b). However, the GoTL recognizes the need to develop these resources in a sustainable way and still provide a better quality of life for its citizens. The GoTL and the constitution recognize the importance of environmental protection as a fundamental task of the government and as a fundamental right of its citizens. The constitution of Timor-Leste provides the guiding principle for environmental protection in the country. Article 61 of the constitution states:

- Everyone has the right to a humane, healthy and ecologically balanced environment and the duty to protect it and improve it for the benefit of the future generations.
- The State shall recognize the need to preserve and rationalize natural resources.
- The State should promote actions aimed at protecting the environment and safeguarding the sustainable development of the economy.

Furthermore, the constitution states 'the exploitation of the natural resources shall preserve the ecological balance and prevent destruction of ecosystems'.

7.2 Environmental legislation

Timor-Leste has developed key environmental legislation used to govern the above constitutional objectives for the country. Below is a list of these environmental laws and regulations, a brief description of each and a demonstration of how the project meets each law.

Name	Description	Project Compliance
Decree Law 26/2012 Environment Basic Law (EBL)	The EBL (also sometimes called the Environmental Framework Law / EFL) sets the overall framework for environmental protection in Timor-Leste. Articles 14, 15 and 16 of the Decree Law No. 26/2012 define the instruments for environmental standards, environmental assessment and licensing and environmental monitoring respectively for Environmental Assessment (EA).	Environmental Assessment study
Decree Law 5/2011 Environmental Licensing Law (ELL)	The objective of the Decree Law is to create a system of environmental licensing for public and private projects likely to produce environmental and social impacts. This system of licensing is based on assessing the size of the potential impacts of projects taking account of their nature, size, technical characteristics and location. Decree-Law No. 5/2011 elaborates the licensing requirement and the Environmental Impact Assessment (EIA) procedure in Timor-Leste. Article 4 of the Decree defines the categories of projects and the Type of EA procedure required. The classification of projects is made in accordance with Annex I and II of the Decree.	The proposed project has been classified by the NDPCEI as a 'Category A' project "that may potentially cause significant environmental impacts, and [is] subject to the procedure of Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP)
Draft Ministerial Diploma for General Regulations for Environmental Assessment	The Asian Development Bank (ADB) has prepared detailed requirements for Screening, Scoping and the Terms of Reference, Environmental Impact Statements and Environmental Management Plans for Environmental Assessment. Although these guidelines have not been formally adopted, they are in practical use by NDPCEI.	Environmental Assessment conducted in conformance with draft regulations. Format of EIS/EMP compliant with guidelines.
Draft Ministerial Diploma Regulation on the Public Consultation Procedures	The Asian Development Bank (ADB) has prepared detailed requirements for Public Consultation Procedures and Requirements during the Environmental Assessment Process. Although these guidelines have not been formally adopted, they are in practical use by NDPCEI.	Public consultation conducted in conformance with draft regulations. Public Consultation conducted by proponent during preparation of draft ToR (scoping) and draft EIS/EMP

7.3 Biodiversity and protected areas legislation

Biodiversity and protected areas legislation frames the requirements for maintaining a high level of natural resource protection during project planning. A list of key legislation, and how the project complies, is presented below.

Name	Description	Project Compliance
UNTAET Regulation 2000/19 on Protected Places	United Nationals Transitional Administration in East Timor (UNTAET) Regulation 2000/19 is still in force and used by the Forestry Department, although it is intended to be replaced by a draft Decree Law on Protected Areas, a draft Decree Law on Forestry, and the draft Decree Law on Biodiversity. Section 3 provides for the protection of endangered species and their habitats. The killing, injuring, harming, taking or disturbing of any endangered species is prohibited. The destruction in any way of the habitat of an endangered species is also prohibited. Section 4 provides for the protection of coral and coral reefs. Section 5 provides for the protection of wetlands and mangrove areas."	EIS Section 9.13 includes results of terrestrial ecology study focused on the flora and fauna in Timor-Leste, including mapping of vegetation, location and description of key habitats
UNTAET Regulation 2000/17 on the Prohibition of Logging Operations and the Export of Wood from East Timor	UNTAET Regulation 2000/17 also remains in force at present. Section 2 prohibits the cutting, removal, and logging of wood from land in East Timor. It also prohibits the burning or any other destruction of forests. These prohibitions are subject to Section 3 which allow for exemption to be authorized for certain logging activities.	
Draft Decree Law on Forest Management, draft 7, received August 2013	The cutting of "forest trees" and harvesting of other forest products in any zone is prohibited unless specifically authorized by the National Director of Forestry (Article 61). The Director may give authorization for such cutting and harvesting if it would be in accordance with this law and other legislation, any community guideline agreements or with the forest management plan. The Director must take into consideration the forest management plan, conservation of the soil and water of the	

Name	Description	Project Compliance
	area, ecology and biodiversity of the area, and any other technical specifications determined by the National Director. Article 61.2 allows for community cutting of trees and harvesting other forest products without authorization, when used for traditional purposes. Article 67 provides for measures to prevent deforestation. No-one is allowed to cut, damage, destroy, remove, transport, purchase, sell, donate or otherwise acquire or dispose of any tree, unless that tree is private property or the person has a Community Forestry Management Agreement or a permit/authorization from the National Director. It is an offence under Article 86 for any person to pollute or contaminate land in any Protected Area with chemicals, industrial waste or organic or other polluting substances.	
Draft Decree Law on Biodiversity, dated March 2012	When preparing an SIA, EIS, EMP or any other environmental assessment, the proponent must include an assessment of the potential impacts of the proposal on biodiversity and biological resources. This assessment must include: (a) Impacts on any natural ecosystems and habitats located within or near the proposed site, in particular the habitat of any protected species and critical habitat; (b) Impacts on any legally protected areas, as well as any areas the subject of cultural or traditional protection mechanisms such as Tara Bandu; (c) Impacts associated with invasive alien species on or near the proposed site; (d) The sustainability of any proposed use of biological resources; and (e) Proposed measures to avoid, minimize, or mitigate identified impacts, and measures to offset or compensate for any affected biological resources and impacts on biodiversity. In analyzing any environmental assessment and before deciding to grant an environmental license, the decision-maker	

Name	Description	Project Compliance
	must take into account whether granting approval for the proposed activity would be consistent with the purpose and principles of the draft Biodiversity Decree Law. In particular, the Decision-maker must be satisfied that: (a) Any adverse impacts and risks identified in the assessment are deemed satisfactory; (b) Adequate measures to avoid, minimize, or mitigate identified adverse impacts have been identified and will be implemented; (c) As a last resort, adequate compensatory measures, which are designed to achieve no net loss of biodiversity, have been identified and will be implemented by the proponent to offset or compensate for any impacts on biodiversity and affected biological resources; (d) The proponent has prepared, in close consultation with affected local communities, a comprehensive plan that includes details about all necessary remedial and restoration efforts, and is satisfied that the plan will be implemented at the proponent's expense.	
United Nations Convention for Biodiversity (1992)	To develop national strategies for the conservation and sustainable use of biological diversity.	
Government Decree-Law 21/2003 on Quarantine and Sanitary Control on Goods Imported and Exported	The Government Decree-Law 21/2003 on Quarantine and Sanitary Control on Goods Imported and Exported establishes the processes for sanitation control of the import and export of plants and animal and their derived products. The objective of the law decree states: • Prevent and control the introduction, establishment and propagation of exotic plagues and diseases and other harmful organisms in the national territory. • Protect the environment, agricultural production and livestock as well as aquaculture production originating from the country. • Control the already existing plagues and diseases in the country. • Protect human beings and the public health from diseases transmitted by animals, plants or their derivatives, or by other organisms.	The Environmental Management Plan deals with introduced marine pests management.

7.4 Ports and shipping

As this is a port project, relevant ports and shipping law requirements and how the project will meet these requirements are detailed below.

Name	Description	Project Compliance
Decree Law 3/2003 Port Authority establishment	The Decree Law 3/2003 on the establishment of the Port Authority and on the approval of the bylaws thereof details the structure, nature and responsibilities of the Administração dos Portos de Timor-Leste or Port Authority of Timor-Leste (APORTIL). The annex to this law requires APORTIL to grant licences for works carried out within their jurisdiction. The marine facilities associated with the project will require the issuing of a port licence from APORTIL prior to commencement of construction.	The project will seek to comply with APORTIL requirements using the relevant information from the project design and construction plans.

7.5 Land legislation

To protect people on the land upon which the project is proposed, the following legislation and project compliance details have been presented below.

Name	Description	Project Compliance
Draft Expropriation Law	Property may only be expropriated for the public interest and upon timely payment of fair compensation (Article 1). Only the State can order expropriation (Article 5). There must be public consultation on any project requiring expropriation of private or community property (Article 13), and the documents made available to the public for consultation and public hearings must include any environmental, social or economic impact assessment studies (Article 15.4).	If expropriation of private or community property is required, this EIS may be provided for public review in accordance with Article 15.4.
United Nations Convention to Combat Desertification	To combat desertification and mitigate drought in affected countries through international cooperation and partnerships.	The EIS assesses impacts associated with climate change, geology and soils, terrestrial vegetation, surface water and groundwater.

7.6 Aquaculture and fishing legislation

The port project compliance with aquaculture and fishing legislation in Timor-Leste is detailed in the table below.

Name	Description	Project Compliance
Decree Law 6/2004 On General Bases of the Legal Regime for Fisheries and Aquaculture Management and Regulation (amended by Decree Law 4/2005)	The Decree-Law responds to the need of regulating fishing activities so as to contribute to the attainment of objectives on the economic and social development policies of the country while simultaneously ensuring the protection and conservation of species, as well as their continuous and sustainable exploitation. It also establishes the legal regime for aquaculture. Prohibits the introduction into national maritime waters and hydrographical basis of Timor-Leste of any substances or toxic objects likely to cause infection, and which poisons or destroys fishing resources, algae or any aquatic flora species.	Sections 6.17 and 9.12 of this EIS provide the results of a coastal processes assessment including modelling of coastal processes. Section 9.15 of this EIS provides the results of marine ecological surveys including a benthic habitat survey and fisheries assessment in the area of the proposed Port to assess potential direct and indirect impacts associated with the proposed infrastructure

7.7 Labour legislation

As part of the SIA, labour laws were investigated. Those identified, along with how the project will comply with these laws are outlined below.

Name	Description	Project Compliance
Law 4/2012 Labor Code	The duties of the employer include providing workers with good working conditions, prevention of risks from diseases and occupational accidents, providing workers with information and equipment necessary to prevent such risks. The employer is under a general obligation to provide appropriate health and safety conditions, to prevent accidents and dangers, and to reduce risks. Employers must ensure that workers are not exposed to risks that are harmful to their health, and must promote awareness programs. Where necessary, employers must provide safety equipment to workers.	Sections 6.19, 6.20, 9.21 and 9.27 of the EIS provide the results of a comprehensive study of the project's socio-economic impacts including labor force, public health and health facilities.

7.8 Cultural heritage legislation

Cultural heritage is an important part of Timor-Leste culture. The laws governing the protection and management of cultural heritage and demonstration of project compliance is presented below.

Name	Description	Project Compliance
Constitution of the Democratic Republic of East Timor	Section 59 for Education and culture, ensure everyone has the right to cultural enjoyment and creativity and the duty to preserve, protect and value cultural heritage.	Sections 6.21 and 9.29 of this EIS and Section 11.26 of the EMP provides the results of a detailed cultural study to avoid or minimize impact on archeological and cultural sites, manage and to protect heritage sites
National Cultural Policy	Section 6.7 Legislation stated "The State Secretariat of Culture has initiated a partnership with the State Secretariat of environment in order to regulate the heritage component in environmental impact assessment studies. Besides this, the creation of a new Heritage Law, aiming at classifying the cultural heritage of East Timor and defining the actions to be taken by the nation, will allow to clarify the rights and duties of citizens towards cultural heritage.	

7.9 Environmental and social sustainability standard

In addition to Timor-Leste environmental legislation, environmental and social standards required to be complied with are detailed below.

Name	Description	Project Compliance
IFC's Performance Standard on Environment and Social Sustainability 2012	The Sustainability Framework comprises IFC's Policy and Performance Standards on Environmental and Social Sustainability. The Policy on Environmental and Social Sustainability describes IFC's commitments, roles, and responsibilities related to environmental and social sustainability. IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced. There are eight performance standards including; Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts, Performance Standard 2: Labor and Working conditions, Performance Standard 3: Resource Efficiency and Pollution Prevention, Performance Standard 4: Community Health, Safety, and Security, Performance Standard 5: Land Acquisition and Involuntary Resettlement, Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources, Performance Standard 7: Indigenous Peoples, Performance Standard 8: Cultural Heritage	Environmental, social and cultural studies have been undertaken. Socio Economic baseline study included educational level, labor force, Socio-cultural environment, community infrastructure, health and educational facilities, land use and land status conducted. The results of these studies, including impacts and associated mitigation measures are incorporated into this EIS.

7.10 Noise regulation

Noise and associated vibration regulations have been identified.

Name	Description	Project Compliance
The Western Australian Environmental Protection (Noise) Regulation 1997 (WA) (DEC, 1997)	Regulation 7 of the Environmental Protection (Noise) Regulations 1997 states that 'noise emitted from any premises when received at other premises must not cause. Or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind'.	Section 9.9 of the EIS provides the results of noise impact modeling to predict the likelihood of impacts on sensitive receptors. Section 9.5 provides recommendations to mitigate or reduce noise impacts to acceptable levels and address any residual risk
AS 2436-2010 Guide to noise and vibration control on construction, demolition and maintenance sites	The standard provides guidance on noise and vibration control in respect to construction, demolition and maintenance sites. The standard provides formulae which have been used to calculate predicted noise emissions.	
UNTAET Guideline on Ambient Noise (2002)	This Guideline was introduced by UNTAET Administration to protect the public from nuisance associated with stationary sources of noise in outdoor environments and does not extend to Occupational and health issues. Its maximum admissible noise levels and abatement levels are identical to those in the World Bank Environmental Health and Safety Guidelines (reference for ADB projects)	

7.11 Air quality guidelines

International guidelines on the assessment and mitigation of air quality impacts by the project, along with project compliance, are detailed below.

Name	Description	Project Compliance
World Health Organization (WHO), 2006: Air Quality Guidelines (AQGs) for PM_{10}	World Health Organization Air Quality Guidelines (WHO AQGs) provide an international reference that countries, particularly those without the resources to conduct their own assessment, can use to develop AAQSs. The 2006 WHO AQGs are composed of a single guideline value and interim targets (ITs). The interim targets provide as stepwise approach to achieving the air quality guideline value. The guideline values can be used by developed countries, with the capacity to implement a strict AAQS, while developing countries, with higher levels of air pollution, could select an interim target level achievable based on their own air quality management infrastructure, and progress towards the AQG value at own pace.	Section 9.8 of the EIS provides the results of air quality monitoring to establish the baseline ambient concentrations of the pollutants of concern and modelling of potential air quality impacts. Section 0 provides recommendations to mitigate or reduce air quality impacts to acceptable levels and address any residual risk

7.12 Climate change and Kyoto Protocol

To assess, mitigate and manage the impacts from climate on the project, the below key framework and guidance has been used.

Name	Description	Project Compliance
United Nations Framework to Combat Climate Change (1992) and the Kyoto Protocol	To stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Requires industrialized countries to reduce emissions by setting a mandatory emission limit. The Democratic Republic of Timor-Leste (RDTL) is currently exempt from the emission reduction target, based on their own air quality management infrastructure, and progress towards the AQG value at own pace.	Section 7 of the EIS assesses the potential Climate Change impacts on the project and environment. Section 0 identifies necessary adaptation measures.

7.13 Ozone layer and Montreal Protocol

To minimise the project impact on the ozone layer, the below protocol has been identified and the project compliance demonstrated.

Name	Description	Project Compliance
Vienna Convention for the Protection of the Ozone Layer (1993) and the Montreal Protocol	To protect the ozone layer by controlling the production and consumption of specific chemicals and phasing out the production of numerous substances believed to be responsible for ozone depletion.	Not applicable to this project.

7.14 Water resources

The sustainable use and consumption of water is managed through the below legislation and guidance. Project compliance is demonstrated below.

Name	Description	Project Compliance
Decree Law 4/2004 Water Supply for public consumption	The Law creates conditions for water distribution for domestic use for urban and non-urban areas. In accordance with the decree law, the Direcção Nacional Serviço de Agua e Saneamento or National Directorate for Water and Sanitation (DNSAS) facilitates, at the national level, the appropriate, secure and sustainable water	Sections 9.10 and 9.11 of the EIS addresses water requirements.

Name	Description	Project Compliance
	supply for public consumption, outside of urban areas, by community-run water supply systems. The water supply system, outside of urban areas, is managed by water management groups, which are appointed by the community. The role of the water management group is to establish a number of procedures, including who, how and how much water is distributed to members of the water management group.	
[Draft] National Water Resources	DNCQA (Direcção Nasional Contolo e Qualidade de Agua or National Directorate for Control and Quality of Water) has advised that they have prepared a Draft Water Resources Law which is currently under consideration by the Council of Ministers. When enacted, the law will require licensing for groundwater extraction, including addressing potential impacts on other users and the environment and compliance with specific conditions.	Section 9.11 of the EIS addresses the impacts of groundwater use by the Project.

7.15 Summary of project approvals

Project approvals are listed in the table which follows. These detail all the licenses which are required prior to port construction.

Table 7-1: Summary of project approvals

Permit	Aspect	Permit / Guideline Name	Legal Framework	Agency with Primary Responsibility	Responsible Ministry	Duration for Approval	Expiry
Yes	Clearing of vegetation	Environmental License	*Decree Law 5/2011* on environment licensing law	National Directorate for Pollution Control and Environment Impact	Ministry for Commerce, Industry and Environment	Approx. 90[1] days from submission of draft ESIA to NDPCEI	Never
Yes	Sand/Gravel extraction	Environmental License - if sourcing more than 5,000 m^3 / year (Category B project)	*Decree Law 5/2011* on environment licensing law	National Directorate for Pollution Control and Environment Impact	Ministry for Commerce, Industry and Environment	30 days	Never
No	Pollution control	Chapter V Section I Pollution	*Decree Law 26/2012* on environment basic law	National Directorate for Pollution Control and Environment Impact	Ministry for Commerce, Industry and Environment	N/A	N/A

[1] *Total timeframe to obtain the environmental license may be up to 24 months incl. specialist studies and scoping for a Category A project.*

Permit	Aspect	Permit / Guideline Name	Legal Framework	Agency with Primary Responsibility	Responsible Ministry	Duration for Approval	Expiry
No	Pollution control	Guideline #7 on storage of fuel and oil	*Decree Law 5/2011* on environment licensing law	National Directorate for Pollution Control and Environment Impact	Ministry for Commerce, Industry and Environment	N/A	N/A
No	Pollution control	Guideline #8 ambient noise from stationery sources	*Decree Law 5/2011* on environment licensing law	National Directorate for Pollution Control and Environment Impact	Ministry for Commerce, Industry and Environment	N/A	N/A
Yes	Abstraction of water	Water Supply for Public use	*Decree Law 4/2004* Draft Water Resources Law	Direcção Nacional Serviço de Agua e Saneamento or National Directorate for Water and Sanitation (DNSAS)	Ministry of Public Works, Transport and Communication (MPWTC)	Uncertain	Never
No	Internal roads		*Decree Law 2/2003* on basic law on the road transport system; Rural Roads Policy (2009, awaiting approval)	Directorate for Roads, Bridges and Flood Control	MPWTC	Uncertain	Uncertain

Permit	Aspect	Permit / Guideline Name	Legal Framework	Agency with Primary Responsibility	Responsible Ministry	Duration for Approval	Expiry
Yes	Hot mix plant (Plant releasing environmental pollutant, producing flammable/hazardous materials)	Environmental License - Installation area >3,000 m^3	*Decree Law 5/2011* on environment licensing law	National Directorate for Pollution Control and Environment Impact	Ministry for Commerce, Industry and Environment	30 days	Uncertain
Yes	Telecommunications	License/Permit to use or establish a radio communications system	*Decree Law 11/2003* on establishing the bases for the telecommunications sector; *Decree Law 12/2003*	Autoridade Nasional Comunicasaun	MPWTC	Uncertain	Never
Yes	Electricity	Section 29 Non-Binding License	*Decree Law 13/2003* on establishing the bases for the national electricity system	Electricidade de Timor-Leste (EDTL)	MPWTC	Uncertain	12 months
Yes	Operating a Port	Port licence from APORTIL	*Decree Law 3/2003* on the establishment of the Port Authority	APORTIL	MPWTC	min 3 months	Never

Permit	Aspect	Permit / Guideline Name	Legal Framework	Agency with Primary Responsibility	Responsible Ministry	Duration for Approval	Expiry
No	Impact on Fishing Resources (Habitat Protection)	Prior opinion from the Minister (APORTIL)	*Decree Law 6/2004* On General Bases of the Legal Regime for Fisheries and Aquaculture Management and Regulation (amended by *Decree Law 4/2005*)	National Directorate for Fisheries and Aquaculture	Ministry for Agriculture and Fisheries	Uncertain	Uncertain
No	Disposal of solid waste (non-sanitation)	Chapter V Section II Waste	*Decree Law 26/2012* on environment basic law	EDTL and DNSAS	MPWTC	N/A	N/A
No	Disposal of solid waste (non-sanitation) - Site selection	Environmental License	Pollution Control Law; Government Decree on Waste Management (draft)	National Directorate for Pollution Control and Environment Impact	Ministry for Commerce, Industry and Environment	N/A	N/A
No	Disposal of solid waste (non-sanitation) - Site selection	Chapter V Section II Waste	*Decree Law 26/2012* on environment basic law	National Directorate for Pollution Control and Environment Impact	Ministry for Commerce, Industry and Environment	N/A	N/A

Permit	Aspect	Permit / Guideline Name	Legal Framework	Agency with Primary Responsibility	Responsible Ministry	Duration for Approval	Expiry
No	Disposal of solid waste (non-sanitation) - Site selection	Chapter V Section II Waste	*Decree Law 26/2012* on environment basic law	National Directorate for Pollution Control and Environment Impact	MPWTC	N/A	N/A
No	Disposal of solid waste (sanitation)	N/A	Draft regulations on Sanitation Control (awaiting approval)	DNSAS	MPWTC	Uncertain	Never
Yes	Disposal of liquid waste to sea	Prior opinion from the Minister (DNSAS)	*Decree Law 6/2004* On General Bases of the Legal Regime for Fisheries and Aquaculture Management	DNSAS	Ministry for Agriculture and Fisheries	min 3 months	Never
No	Hazardous Waste	N/A		National Directorate for Pollution Control and Environment Impact	Ministry for Commerce, Industry and Environment	N/A	N/A

Permit	Aspect	Permit / Guideline Name	Legal Framework	Agency with Primary Responsibility	Responsible Ministry	Duration for Approval	Expiry
Yes	Impact on Heritage Sites	Environmental License	Heritage Law (awaiting approval) / Government Resolution No. 25/2011 / National Policy for Culture (4th Constitutional Government)	Direcção Nacional da Cultura	Ministry for Tourism, Art and Culture	24 months	Never
Yes	Taking water samples for analysis	Licencing regulations, Sale and Quality of Drinking Water	*Decree Law 5/2009* of January 15	DNSAS	Ministry for Agriculture and Fisheries	min 1 week	One-off per sample/consignment
Yes	Import of material and equipment	Import Permit	*Decree Law 1/2006* General Regulations on Quarantine	Quarantine Services Directorate	Ministry for Agriculture and Fisheries	min 1 week	One-off per sample/consignment
Yes	Building Construction	License for Office/Building Construction		Diresaun Nasional Edifikasaun	MPWTC	Uncertain	Never

7.16 Summary of project environmental standards

Phase	Aspect	Standard
Pre-Construction	**Air Quality**	World Health Organization (WHO), 2006: Air Quality Guidelines (AQGs) for PM_{10}
	Noise	UNTAET Guideline on Ambient Noise (2002)
	Water Quality	WHO Drinking Water Standards (2000)
Construction	**Air Quality**	World Health Organization (WHO), 2006: Air Quality Guidelines (AQGs) for PM10
	Noise & Vibration	UNTAET Guideline on Ambient Noise (2002) Regulation 11 Environmental Protection (Noise) Regulations 1997
	Water Quality	WHO Drinking Water Standards (2000)
Operation	**Air Quality**	World Health Organization (WHO), 2006: Air Quality Guidelines (AQGs) for PM_{10}
	Noise	UNTAET Guideline on Ambient Noise (2002)
	Water Quality	WHO Drinking Water Standards (2000)
	Vibration	Regulation 11 Environmental Protection (Noise) Regulations 1997
Decommissioning	N/A - *There is no decommissioning phase*	

8 Institutional roles and responsibilities

This section clearly identifies the responsibilities of the various parties involved in the implementation of mitigation and monitoring requirements[2].

The following are the key managerial roles applicable to the Project during the following phases:

- **Pre-Construction:**
  - Project Manager – Timor Port SA
  - Environment and Social Manager – Timor Port SA
  - Design & Construct (D&C) – Contractor
  - Monitoring Consultant
  - PMU (Project management unit)
- **Construction:**
  - Engineer/Employer – Timor Port SA
  - Design & Construct (D&C) – Contractor
  - Environment and Social Manager – Timor Port SA
  - Monitoring Consultant
  - PMU (Project management unit)
- **Operations:**
  - Port Director – Timor Port SA
  - Environment and Social Manager – Timor Port SA
  - Monitoring Consultant
  - PMU (Project management unit)

The manager/s may delegate to his personnel for various functions, including the Health, Safety Quality Manager/Officer function.

The responsibility for the development, implementation and monitoring of the success of; and review and update of mitigation measures is illustrated in the tables below.

[2] For the avoidance of doubt due to the high degree of overlap and interpretation of the Decree Law 5/2011, this text is replicated exactly in Section 13 : Responsibilities Matrix

8.1 Pre construction

Item	Implement
Environmental Management Plans	- D&C Contractor, approved by Timor Port Environment and Social Manager - Ministry of Transportation & Communications - Ministry of Labour - Ministry of Fishery - Ministry of Environment / DNCPIA - PMU
Mitigation Measures	- D&C Contractor, approved by Timor Port Environment and Social Manager - Ministry of Transportation & Communications - Ministry of Labour - Ministry of Fishery - Ministry of Environment / DNCPIA - PMU
Monitoring Plans	- D&C Contractor, approved by Timor Port Environment and Social Manager - Ministry of Transportation & Communications - Ministry of Labour - Ministry of Fishery - Ministry of Environment / DNCPIA - PMU

8.2 Construction

Develop and author tasks during construction are limited to updates and reviews of the EMP, mitigation measures and associated specialist management plans.

Item	Develop/ Author	Implement	Review / Approve	External review
Environmental Management Plans	- Timor Port Environment and Social Manager, TPSA - PMU	- D&C Contractor - TPSA - PMU	- Timor Port Environment and Social Manager, TPSA - PMU	
Mitigation Measures	- Timor Port Environment and Social Manager, TPSA - PMU	- D&C Contractor - TPSA - PMU	- Timor Port Environment and Social Manager, TPSA - PMU	
Mitigation Measures – Resettlement / Livelihood Restoration	PMU	PMU	- TPSA - PMU	

Item	Develop/ Author	Implement	Review / Approve	External review
Monitoring activities including reporting	N/A *No edits to the monitoring plans post-approval.*	- D&C Contractor - Monitoring consultant - PMU	- Timor Port Environment and Social Manager, TPSA - PMU	
Monitoring Measures – Resettlement / Livelihood Restoration	PMU	PMU		
Compliance monitoring[3]	N/A	Timor Port Environment and Social Manager, TPSA	Timor Port Environment and Social Manager, TPSA	
Compliance reporting[4]	N/A	Timor Port Environment and Social Manager, TPSA		Ministry of Commerce and Environment PMU NDPCEI Ministry of Labour Ministry of Public Works Ministry of Transport Ministry of Fishery

[3] *Compliance monitoring* is the act of validating that the contractor or the monitoring consultant has carried out the monitoring correctly and in accordance with the environmental approval.

[4] *Compliance reporting* is the act of reporting to the regulator that the project is in compliance with the environmental approval

8.3 Operations

Develop and author tasks during operations are limited to updates and reviews of the EMP, mitigation measures and associated specialist management plans.

Item	Develop/Author	Implement	Review / Approve	External review
Environmental Management Plans	- Timor Port Environment and Social Manager - PMU	- Timor Port Environment and Social Manager - PMU	- TPSA - PMU	
Mitigation Measures	- Timor Port Environment and Social Manager - PMU	- Timor Port Environment and Social Manager - PMU	- TPSA - PMU	
Mitigation Measures – Resettlement / Livelihood Restoration	PMU	PMU	- TPSA - PMU	
Monitoring activities including reporting	N/A *No edits to the monitoring plans post-approval.*	- D&C Contractor - Monitoring consultant - PMU	- TPSA - PMU	
Compliance monitoring[5]	N/A	Timor Port Environment and Social Manager, TPSA		
Compliance reporting[6]	N/A	Timor Port Environment and Social Manager, TPSA	TPSA	Ministry of Commerce and Environment PMU NDPCEI Ministry of Labour Ministry of Public Works Ministry of Transport Ministry of Fishery

[5] *Compliance monitoring* is the act of validating that the contractor or the monitoring consultant has carried out the monitoring correctly and in accordance with the environmental approval.

[6] *Compliance reporting* is the act of reporting to the regulator that the project is in compliance with the environmental approval

9 Summary of activities and impacts

Note: there is no decommissioning phase in this project

	Pre-Construction	Construction	Operations
Activities	▪ Engineering design and finalising of implementation plans. ▪ Relocation/Compensation of people by the GoTL. ▪ Installation/Equipping of water supply wells. ▪ Establishment of exclusion zones around the Project Area. **Note: No physical ground work preparation or clearing**	▪ Clearing of the site/area – excavation, piling, pouring of concrete foundations ▪ Dredging and dredge material disposal offshore ▪ Land reclamation with dredge material ▪ Building structures in concrete and steel. ▪ Establishment of bunds, drainage areas. ▪ Haulage of building materials and supplies by truck. ▪ Piling and construction of jetty. ▪ Construction of internal access roads.	▪ Port operation 24 hours a day, 7 days a week. ▪ Truck hauling. ▪ Operating port.

Risk ranking	Pre- Construction Impacts	Construction Impacts	Operations Impacts
Extreme	N/A	N/A	N/A
High	▪ Land Ownership and Land Rights ▪ Natural Resources Rights ▪ Cultural Heritage	▪ Noise ▪ Terrestrial Fauna (birds) ▪ Megafauna - Underwater noise ▪ Benthic Habitat ▪ Fishing and marine Habitat use ▪ Land Ownership and Land Rights ▪ Natural Resources Rights ▪ Cultural Heritage	▪ Noise ▪ Megafauna - Underwater noise ▪
Medium	▪ Community health ▪ Family Structure	▪ Contamination (PASS) ▪ Coastal Marine water quality ▪ Megafauna - Vessel collision ▪ Population and Community ▪ Community health ▪ Institutions Schools and Health Facilities ▪ Family Structure	▪ Contamination (Anthropogenic) ▪ Surface and groundwater ▪ Terrestrial Fauna (birds) ▪ Megafauna - Vessel collision ▪ Traffic ▪ Fishing and marine Habitat use ▪ Population and Community ▪ Community health ▪ Institutions Schools and Health Facilities ▪ Family Structure ▪ Cultural Heritage
Low	▪ Employment ▪ Infrastructure ▪ Institutions Schools and Health Facilities	▪ Greenhouse Gases (Climate) ▪ Topography, geology and soils ▪ Air Quality ▪ Surface and groundwater ▪ Terrestrial Flora ▪ Megafauna – light ▪ Megafauna – oil spills ▪ Traffic ▪ Employment ▪ Infrastructure ▪ Economic use of forest and other natural resources	▪ Greenhouse Gases (Climate) ▪ Air Quality ▪ Coastal Marine water quality ▪ Terrestrial Flora ▪ Megafauna – light ▪ Megafauna – oil spills ▪ Benthic Habitat ▪ Employment ▪ Infrastructure ▪

Description of proposed mitigation measures

The economic values of mitigation measures of the Project below are based on the information available at this stage, and constitute a preliminary estimate.

Parameter	Pre Construction & Construction	Operations
Air Quality	$ 96 322	$ 64 215
Noise and vibration	$ 23 351	$ 35 026
Sedimentation	Included in D&C contract	$ 52 539
Water Quality	$ 14 594	$ 17 513
Benthic Habitat	$ 189 726	$ 43 783
Reclamation	$ 58 377	$ -
Invasive Marine Species	Included in D&C contract	$ -
Marine Megafauna	$ 14 594	$ -
Underwater noise	$ 14 594	$ -
Lighting	$ 8 757	$ 8 757
Offshore disposal	Included in D&C contract	$ -
Terrestrial fauna (incl. birds)	$ 23 351	$ -
Employment	$ 116 754	$ 58 377
Fishing	$ 53 123	$ -
Population and community	$ 72 971	$ 29 189
Cultural Heritage	$ 11 675	$ -
Mangroves and Mudflat/Seagrass	$ 396 090	$ 72 971
Birds and Turtles	$ 23 351	$ -

9.1 Climate

The project impact on this aspect was rated as '**Low**' based on the projected increase in Greenhouse Gases generated in the Project Area.

Objective	**To ensure that atmospheric emissions do not impact the environment. To select equipment and implementation strategies which minimise Greenhouse Gas Emissions**		
Impacts	**Emissions from vehicles and equipment (Greenhouse gases)**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
Consider greenhouse gas performance in the selection of all vehicles and vessels.	All on-site vehicle traffic shall be limited to a speed of 15 mph on unpaved roads. No vehicles or plant will be left idling unnecessarily. Use a good quality fuel (e.g. with low sulphur content); and All heavy duty vehicles should meet emission regulations from local Environmental Protection Agency.	No vehicles or plant will be left idling unnecessarily. Reduce the number of vehicle movements through better planning. Use a good quality fuel (e.g. with low sulphur content); and All heavy duty vehicles should meet emission regulations from local Environmental Protection Agency or nominated standard.	N/A

9.2 Topography, geology and soils

The project impact on this aspect was rated as **'Low'** due to the minimal local changes to drainage and terrestrial sedimentation within the Project Area.

Objective	**Maintain the integrity, ecological functions and environmental values of landforms, geology and soil** **Minimise permanent landform alterations** **Ensure that the modifications to landforms are physically and environmentally stable and sustainable**		
Impacts	**Soil contamination** **Erosion and loss of value** **Landform shape change**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
	Soil contamination should be monitored through maintaining records of spill events	Soil contamination should be monitored through maintaining records of spill events	N/A

9.3 Contamination

The project impact on this aspect was rated as **'Medium'** during construction due to the due to the presence of Potential Acid Sulphate Soils (PASS). The potential for impact during Operations is '**Medium'** due to potential for oil spills, surface oil and grease spills and solid waste litter.

Objective	**Maintain the integrity, ecological functions and environmental values of the soil, sediment and water quality in the marine and terrestrial environment;** **Minimise impact from contamination and spills; and** **Minimise impact from acid sulphate soils.**		
Impacts	**Soil contamination** **Water quality changes** **Smells from 'rotten egg gas'**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
	Maximum liming rate of 14 kg $CaCO_3$/t to mitigate the risk from PASS Implementing the Port Marine Spill Contingency Plan. Implementing the Emergency Plan	Maintenance of Spill response kits Implementing the Port Marine Spill Contingency Plan Implementing the Emergency Plan	N/A

9.4 Air quality and greenhouse gas

The project impact on this aspect was rated as **'Low'** due to the limited potential impact from traffic-generated dust and '**Low**' based on the projected increase in Greenhouse Gases generated in the Project Area.

Objective	To ensure that atmospheric emissions do not impact on the health, welfare and amenity of the population and land uses and the environment. To use all reasonable and practicable measures to minimise airborne dust To select equipment and implementation strategies which minimise Greenhouse Gas Emissions
Impacts	**Dust impacts on human health** **Combustion emissions impacts on human health** **Emissions from vehicles and equipment (Greenhouse gases)**

Pre-construction	Construction	Operations	Decom-missioning
Consider greenhouse gas performance in the selection of all vehicles and vessels.	All areas with vehicle traffic shall be watered or have dust palliative applied All on-site vehicle traffic shall be limited to a speed of 15 mph on unpaved roads. No vehicles or plant will be left idling unnecessarily. Use a good quality fuel (e.g. with low sulphur content); and All heavy duty vehicles should meet emission regulations from local Environmental Protection Agency.	No vehicles or plant will be left idling unnecessarily. Reduce the number of vehicle movements through better planning. Use a good quality fuel (e.g. with low sulphur content); and All heavy duty vehicles should meet emission regulations from local Environmental Protection Agency or nominated standard.	N/A

9.5 Noise

The project impact of Noise on community receptors was rated as **'High'** during construction and **'High'** during operation.

This parameter is Noise in 'air'.

Objective	**To ensure that noise emissions do not impact on the health, welfare and amenity of the population, land uses and environmental values.** **To ensure that noise emissions, both individually and cumulatively, comply with the appropriate statutory requirements**		
Impacts	**Amenity** **Human Health** **Fauna**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
Where practicable, all equipment, plant, machinery and vessel noise emissions shall be rated at maximum 85 dB(A) at 1 metre distance.	Use selected equipment with the lowest possible noise specifications. If a noise complaint is recorded through the grievance framework and monitoring confirms it is above the guideline level a retrofit mitigation measure will be implemented. e.g. temporary barrier. Where practicable, limiting of piling activities to day light hours.	Haulage of goods and movement of vehicles/people and equipment can be scheduled.	N/A

9.6 Surface water

Addressed as ground and surface water below.

9.7 Groundwater and surface water

The project impact on ground water is considered to be **'Low'** during construction and **'Medium'** during operation. Mitigation measures are best practice aspects and the objective can generally be met through best practice procedures and implementing the Emergency Plan with respect to contamination.

9.8 Coastal and marine water quality

The project impact on coastal and marine water quality is considered to be **'High'** during construction and '**Low**' during operation. This is attributed to sedimentation effects within Tibar Bay.

Construction phase dredging-related mitigation measures are detailed in the accompanying Dredge Management Plan (Appendix A)

Mitigation measures relating to spills and oil spill management are detailed in the Port Marine Spill Contingency Plan (Appendix B).

Objective	**Maintain the integrity, ecological functions and environmental values of the marine environment; Minimise the impact on bathymetry and sediment transport Minimise the impact on coastal zone including beaches and mudflats.**		
Impacts	**Sedimentation Shore erosion Marine Pests from Ballast water (Vessels) Spills and ballast water Introduced marine pests Waste water treatment discharge**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
Detailed design to consider sedimentation impacts.	Port Marine Spill Contingency Plan. All ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V	Develop and implement an Operations Port Marine Spill Contingency Plan. All ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V Treated waste water to comply with standards at 'end of pipe'.	N/A

9.9 Terrestrial flora (vegetation)

The project impact on terrestrial flora is considered to be **'Low'** during construction and operation. Mitigation measures are best practice aspects and the objective can generally be met through best practice procedures.

9.10 Terrestrial fauna incl. birds

The project impact on fauna including birds is considered to be '**High**' during construction and '**Medium**' during operation. Impact on fauna especially Birds (Avifauna) are considered in the Biodiversity Action Plan (Appendix C).

Objective	**Maintain the abundance, diversity, geographic distribution and productivity of native and migratory fauna at the species and ecosystem level through the avoidance or management of adverse impacts** **Limit the impact of the project on Critically Endangered, Endangered and Near-Threatened migratory bird species**		
Impacts	**Clearing** **Displacement of fauna**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	Monthly recording of fauna impacts and mortality as a result of project construction. Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass.	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass.	

9.11 Marine fauna incl. fisheries

The project impact on Marine fauna including fisheries is considered to be **'High'** during construction from underwater noise and '**High**' during operations from underwater noise.

The project impacts on Marine fauna from vessel strikes are '**Medium**' during construction and '**Low'** to '**Medium**' during operations.

The project impacts on Marine fauna from light and oil spills are '**Low'** during construction and operations.

Mitigation measures related to the management of marine fauna impacts are outlined in the Marine Mega Fauna Impact Assessment and the Dredge Management Plan (Appendix A) and are summarised below.

Objective	**Minimise the impact on marine fauna, fisheries**		
Impacts	**Displacement of marine fauna** **Noise, vibration and light**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**

Objective	Minimise the impact on marine fauna, fisheries		
Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass.	**Underwater noise piling:** ▪ Prior to commencement of construction, designated crew (one per vessel) will be trained to observe for marine turtles and marine mammals, record sightings and any injury or mortality. ▪ Equipment and vessels shall operate in accordance with appropriate industry and equipment standards including specifications for noise levels. Regular maintenance will be conducted to the manufacturer's specifications. Equipment covers, mufflers and other noise suppression equipment shall also be maintained and in good working order at all times ▪ The use of thrusters and excessively noisy equipment will be avoided wherever practicable and engines, thrusters and auxiliary plant will not be left in 'stand by' or 'running' mode unnecessarily ▪ Observers on the vessels will maintain a watch for the marine turtles/significant marine mammals (during daylight hours) during the dredging and construction. If a significant marine mammal or reptile is sighted within the 'monitoring zone' of 400 m radius around the dredge or piling barge, it will be watched until the marine turtle/significant mammal moves outside of the monitoring zone or is not sighted for 10, 15 or 20 minutes - If the mammal or reptile does not leave the 400m monitoring area or starts to enter the 100m exclusion zone, it will be encouraged to leave the area.. ▪ A "soft start" procedure will be implemented for pile driving. This involves beginning a pile driving session with the lowest power possible and hammering at a low rate, then increasing hammer energy and rate to that desired. ▪ This should allow marine fauna close to the source to move away and not be suddenly exposed to sound intensities	**Waste** ▪ All ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V which came into force on 1 January 2013. **Artificial Light** ▪ Only necessary artificial lights shall be used. 'Unnecessary lighting' includes lighting in unused areas, decorative lighting or lighting that is brighter than needed. ▪ To reduce the potential impacts of marine debris on marine fauna, waste associated with construction and operation must be managed appropriately. **Vessel collisions or entrapment:** ▪ Procedures for marine fauna interaction shall be developed for vessels to reduce the potential impacts to marine fauna.	N/A

Objective	Minimise the impact on marine fauna, fisheries		
	sufficient to cause them serious injury. ▪ Observations of marine turtles and cetaceans are to be recorded on the Observation Record Form. **Vessel collisions or entrapment (DMP):** ▪ Procedures for marine fauna interaction shall be developed for vessels to reduce the potential impacts to marine fauna. ▪ All work-site personnel shall be inducted regarding the proper response to fauna interaction (including unexpected encounters). ▪ The Dredge Contractor shall appoint an individual on each vessel who is trained in faunal observation and distance estimation to be responsible for undertaking marine fauna observations. ▪ The construction workforce and all vessels will be limited to designated areas. Recreational boating, fishing, diving, spear-fishing, fossicking, (i.e. collecting shells and any other biological or natural material e.g. animal bones) will be prohibited during the Project. ▪ Within the operating constraints of the TSHD, dredge pumps will be turned on when the draghead is as close to the seabed as possible. On completion of dredging, the pumps will be turned off as soon as practicable possible (i.e. after the pipes are clear of dredged material). ▪ Turtle exclusion or turtle deflecting devices (tickler chains) will be used if turtles are continuously observed **Artificial Light** ▪ Where practicable, vessel loading and unloading in nearshore areas shall be conducted during daylight hours. Where this is not practicable, artificial lighting shall be reduced to the minimum required for safe operations. ▪ Outside artificial lighting on vessels will be kept to a minimum (i.e. navigational lights and where safety dictates necessary deck lighting). Lighting		

Objective	Minimise the impact on marine fauna, fisheries		
	should be switched off when not in use and automatic timers/sensors installed where possible. ▪ Only necessary artificial lights shall be used. 'Unnecessary lighting' includes lighting in unused areas, decorative lighting or lighting that is brighter than needed. **Waste** ▪ To reduce the potential impacts of marine debris on marine fauna, waste associated with construction and operation must be managed appropriately. ▪ All ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V which came into force on 1 January 2013. ▪ The amendments prohibit the discharge of all garbage from ships into the sea (except under very specific circumstances). This reverses the presumption that garbage may be discharged into the sea based on defined distances from shore and the nature of the garbage. The amendments also list requirements for garbage management plans on ships and port reception facilities for receiving waste.		

9.12 Marine habitats incl. coral

The project impact on marine habitats including coral is considered to be **'High'** during construction and '**Low**' during operation. This relates particularly to the removal of 1.4 ha of Mangrove vegetation to enable the project development to proceed.

Mitigation measures relating to the management of potential additional impacts to remaining marine habitats are outlined in the Marine Benthic and Coastal Habitat Impact Assessment (EIS, Appendix E) and are summarised below.

Construction phase dredging-related mitigation measures are detailed in the accompanying Dredge Management Plan (Appendix A) and summarised below.

Objective	**Maintain the integrity, ecological functions and environmental values of the marine environment** **Minimise the impact on marine habitats including corals**		
Impacts	**Direct impact on mangrove and seagrass from infrastructure footprint** **Direct impact on hard and soft coral coverage from infrastructure footprint** **Indirect impacts on mangroves and seagrass from dredging, construction and operational activities incl. increased anthropological pressures.** **Indirect impacts on hard and soft coral from marine pests, disease, and shipping,**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
Identification of coral, seagrass and mangrove locations on engineering drawings and construction plans. Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass.	▪ To minimise damage to coral reef habitat in the immediate construction area, all construction vessels must limit anchoring over areas of sensitive habitat including mapped seagrass beds and areas of subtidal coral reef ▪ To minimise unnecessary damage to marine habitats Contractor(s) must limit any unnecessary / temporary construction (i.e. through selection of the most appropriate construction methods) and limit any anchoring which is required by vessels. ▪ Dredging operations ceased if levels of suspended sediment become higher than trigger values developed for the Project. **Water quality- DMP** ▪ Installation of a satellite-based vessel monitoring system on the dredge, allowing a track plot analysis to ensure maximum efficiency of the dredging effort and to ensure no dredging occurs outside the approved area. ▪ Use of suitable dredging plant and equipment to minimise turbidity, including well maintained pipelines to be utilised to minimise leakage of turbid water during pumping of material to the reclamation zone and/or to the offshore disposal site.	**Introduced Marine Pests** ▪ All contractors to adopt the Ballast Water Convention (2004) ▪ All contractors to comply with the Guidelines in the Ballast Water Convention (2004) ▪ Contractors to comply with INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS, 2004 (BWM CONVENTION)	N/A

Objective	**Maintain the integrity, ecological functions and environmental values of the marine environment** **Minimise the impact on marine habitats including corals**		
	▪ Maintaining calibration of the hydrographic survey systems on board the dredge to minimise the likelihood of over dredging. ▪ Implementation of the Tiered Monitoring and Management Frameworks (Section 5). ▪ Install the following management measures to control return water discharge associated with reclamation: ▪ Maximise the residence time in the reclamation area to reduce the turbidity plume of the tailwater discharge. Suitable controls (e.g. weir boxes) will be used at the discharge point to control the water level and the rate of discharge; ▪ Cease dewatering or move tailwater within reclamation cells when turbidity is excessive; ▪ Regular inspection and maintenance of erosion and sediment control structures particularly following heavy or prolonged rainfall; ▪ Stabilise uncovered areas of soil promptly; and ▪ Install scour protection measures such as gabions where scouring is likely to occur. **Introduced Marine Pests** ▪ All contractors to adopt the Ballast Water Convention (2004). ▪ All contractors to comply with the Guidelines in the Ballast Water Convention (2004) Contractors to comply with INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS, 2004 (BWM CONVENTION).		

9.13 Traffic

The project impact on traffic is considered to be **'Low'** during construction and '**Low**' to '**Medium**' during operation. The increasing level of impact aligns with the forecast increase in shipping as the project operation duration increases.

The mitigation measures proposed relate to physical infrastructure changes which should occur on infrastructure managed and owned by others.

Objective	**To protect the amenity and safety of nearby residents** **Minimise disturbance to local traffic**		
Impacts	**Traffic volumes** **Traffic types increased trucks and heavy machinery**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
N/A	Transport infrastructure upgrades to support container trucks travelling the local road transport network. Planning to minimize vehicle movements (e.g. use of buses to transport workers).	Transport infrastructure upgrades to support container trucks travelling the local road transport network. Planning to minimize vehicle movements (e.g. use of buses to transport workers).	N/A

9.14 Employment

The project positive impact on employment is considered to be **'Low'** during construction and operation. Mitigation measures are best practice aspects and the objective can generally be met through best practice procedures.

Objective	**To maximise local employment opportunities throughout all phases of the Project** **Prospective employees are provided with the necessary and appropriate skills training for employment opportunities during all phases of the Project;** **The expectation of employment is not over inflated and clearly outlined to the locals, thereby minimising any potential conflicts/discourse amongst the local populace; and** **Existing employment sectors/sources of livelihood are not adversely impacted.**		
Impacts	**Long term beneficial impact on local communities**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
N/A	The Concessionaire and the Grantor will communicate with SEPFOPE to ensure existing programs of SEPFOPE be especially accessible to the residents of host Suco/District/Country prior to and during the construction period. The concession plan should state that it	The Concessionaire should provide continuous training to newly hire port staff. The Concessionaire should adhere to their targets of approximately 50% of Management and Finance-Administration, 80% of O&M and	N/A

Objective	**To maximise local employment opportunities throughout all phases of the Project** **Prospective employees are provided with the necessary and appropriate skills training for employment opportunities during all phases of the Project;** **The expectation of employment is not over inflated and clearly outlined to the locals, thereby minimising any potential conflicts/discourse amongst the local populace; and** **Existing employment sectors/sources of livelihood are not adversely impacted.**		
	targets to employ 75% of Timor-Leste citizens and permanent residents during the construction period for positions where skills are available in Timor-Leste. The Concessionaire should provide continuous training to newly hired port staff. The Concessionaire should adhere to their targets of approximately 50% of Management and Finance-Administration, 80% of O&M and HSE officers and 95% of equipment driver be filled by Timor-Leste as noted in their Local Development Plan. The Concessionaire will give priority were possible to residents of host Suco/District/Country during the hiring of port personnel. Maintenance of the Grievance Redress Mechanism.	HSE officers and 95% of equipment driver be filled by Timor-Leste as noted in their Local Development Plan. The Concessionaire will give priority were possible to residents of host Suco/District/Country during the hiring of port personnel. Maintenance of the Grievance Redress Mechanism. Training for positions available at the Port during Operation should be made available to local community.	

9.15 Infrastructure

The project impact on infrastructure is considered to be **'Low'** during construction and operation. Mitigation measures are best practice aspects and the objective can generally be met through best practice procedures.

9.16 Economic use of forestry and other natural resources

The project impact on economic use of forestry and natural resources is considered to be **'Low'** during construction and operation. Mitigation measures are best practice aspects and the objective can generally be met through best practice procedures.

Mitigation measures addressing alternative use of natural resources is considered in the Biodiversity Action Plan (Appendix C).

9.17 Fishing and marine habitat use

The project impact on Fishing is considered to be **'High'** during construction and '**Medium**' during operation.
Construction phase dredging-related mitigation measures are detailed in the accompanying Dredge Management Plan (Appendix A)
Mitigation measures relating to spills and oil spill management are detailed in the Port Marine Spill Contingency Plan (Appendix B).
Mitigation measures addressing alternative use of natural resources and establishment of offsets is considered in the Biodiversity Action Plan (Appendix C).
Mitigation measures relating to Economic participation are being implemented by the GoTL through the Resettlement Action Plan and the Livelihood Restoration Plan.

Objective	**Ensure the local communities' access to fishing grounds for economic and subsistence use are not adversely affected by the development of the Project;** **Ensure that the communities near the Project are able to contribute to the protection and maintenance of fishing resources**		
Impacts	**Access** **Fish stocks**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
Resettlement Action Plan. Livelihood Restoration Plan.	Providing alternative access locations if necessary. Providing safe passage zones. Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass. Monitoring according to BAP	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass.	N/A

9.18 Socio economic agriculture

There are no impacts to Socio Economic Agriculture in the Project Area because there is no clearing of terrestrial vegetation in the Project Area.

9.19 Population and community

The project impact on population and community is considered to be **'Medium'** during construction and operation.
Mitigation measures relating to Population and Community are being implemented by the GoTL through the Resettlement Action Plan and the Livelihood Restoration Plan.

Objective	**Maintain communities and limit secondary impacts of population increase due to the Project**		
Impacts	**Increase in population locally** **Fragmentation of communities**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
▪ The impact on community during the project will be addressed by resettlement and compensation to be undertaken by the GoTL. ▪ Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders	▪ The impact on community during the project will be addressed by resettlement and compensation to be undertaken by the GoTL. ▪ Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders	▪ Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders	**N/A**
▪ Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders			

9.20 Community health

The project impact on community is considered to be **'Medium'** during construction and operation.

Objective	**Maintain communities health and limit secondary impacts of illness and disease vectors increase due to the Project**		
Impacts	**Increase in illnesses and contamination** **Increase**		
Pre-construction	**Construction**	**Operations**	**Decom-missioning**
▪ Maintenance of the Grievance Redress Mechanism ▪ Facilitate education and awareness programs throughout the lifespan of the project ▪ Establish access controls to the site activities posing health and safety risks to the community ▪ Develop strict protocols for increased traffic safety	▪ Maintenance of the Grievance Redress Mechanism ▪ Facilitate education and awareness programs throughout the lifespan of the project ▪ Establish access controls to the site activities posing health and safety risks to the community ▪ Develop strict protocols for increased traffic safety	▪ Maintenance of the Grievance Redress Mechanism ▪ Facilitate education and awareness programs throughout the lifespan of the project ▪ Establish access controls to the site activities posing health and safety risks to the community ▪ Develop strict protocols for increased traffic safety	▪ N/A

9.21 Institutions, schools and health facilities

The project impact on institutions, schools and health facilities is considered to be **'Medium'** during construction and operation.

Objective	**Minimise potential impact and disturbances to facilities especially during their scheduled operation hours.**		
Impacts	**Constant movement of vehicle from Dili to Tibar will increase dust and noise level thus affecting activities taking place adjacent to the road.** **Increased of noise level due to movement of manpower, earth moving and vegetation clearing activities, use of construction equipment, and civil and mechanical construction** **Increased pressure on healthcare and education infrastructure due to Project related influx**		
Pre-construction	**Construction**	**Operations**	**Decommissioning**
▪ Regular water sprinkling on the roads and application of dust suppressants to sections of roads used routinely by vehicles that pass through and close to habitation and facilities including conducting routine air quality monitoring ▪ Haulage of goods and movement of vehicles / people and equipment can be scheduled and sequenced to reduce the number of noisy operations. ▪ Use selected equipment with the lowest possible noise specifications. If a noise complaint is recorded through the grievance framework and monitoring confirms it is above the guideline level a retrofit mitigation measure will be implemented. E.g. temporary barrier. ▪ Alternative construction methods may also be available which may be more practicable and cost effective in dealing with potential noise impacts ▪ Consulting with NGOs in the area that may support operations at the nearby health centres, with special focus on refurbishment of key areas, equipment and building maintenance, as well as, improved health care management information systems as part of its CSR program.			

9.22 Community and family structure

The project impact on community and family structure is considered to be **'Medium'** during construction and operation.

Objective	**Maintain and protect the community and family structures near the Project site and/or within new site ; and** **Minimize potential conflict and/or tension within community and family members and ensure their kinship is not jeopardized by the development of the Project.**		
Impacts	**The acquisition of land for the port may potentially cause impacts on the community and family structure in the form of:** **· Conflicts over the status of land (i.e. private owned or state owned);** **· Conflicts over land acquisition systems and process/values;** **· Impacts to household subsistence and ability to generate income;** **· Conflicts over the dismantling of graves and customary/traditional ritual houses; and** **· Community resettlement.**		
Pre-construction	**Construction**	**Operations**	**Decommissioning**
▪ Monitor the Implementation of the Resettlement Plan by the GOTL; ▪ Continuous and ongoing consultation with stakeholders throughout the project life;			

9.23 Land ownership and land rights

The project impact on land ownership and land rights is considered to be **'High'** during construction and operation.

Mitigation measures relating to Land ownership and land rights are being implemented by the GoTL through the Resettlement Action Plan.

Objective	**Limit the long term impact of the project on Land Ownership / Land Rights**		
Impacts	**People financially and physically excluded from traditional lands**		
Pre-construction	**Construction**	**Operations**	**Decommissioning**
The GoTL is responsible for implementation of the Resettlement Action Plan.			

9.24 Natural resources rights

The project impact on natural resources rights is considered to be **'High'** during construction and operation.

Mitigation measures relating to natural resources rights are being implemented by the GoTL through the Resettlement Action Plan.

Objective	**Limit the long term impact of the project on Land Ownership / Land Rights**		
Impacts	**People financially and physically excluded from traditional lands**		
Pre-construction	**Construction**	**Operations**	**Decommissioning**
The GoTL is responsible for implementation of the Resettlement Action Plan and the Livelihood Restoration Plan.			

9.25 Cultural heritage, archaeological and sacred sites

The project impact on cultural heritage is considered to be **'High'** during construction and '**Medium**' during operation. There are no artefacts or sites located within the Project Area (Advisian, 2017b).

Objective	**Limit the impact of the project on cultural and sacred sites**		
Impacts	**People physically excluded from traditional lands**		
Pre-construction	**Construction**	**Operations**	**Decommissioning**
	Where a site is to be permanently destroyed, appropriate community consultation is to be undertaken and documentation of this site. Protection of sites which are adjacent to the project site through fencing and access controls. Training and education of all employees on cultural heritage (included in Works induction session).	Training and education of all employees on cultural heritage.	

9.26 Unique landscapes

Unique landscapes are those geological, landform or natural artefacts which have been considered in the context of natural heritage and visual amenity.

There are no unique landscapes in the project footprint.

10 Governing parameters

Emissions standards are determined based on the medium of transmission i.e. water or air and are detailed further under Sections 10.1 and 10.2.

10.1 Ambient water quality standards

Parameter	International best practice standard	Proposed limit value	Comments
Marine Water			
Salinity	Australian Water Quality Guidelines for Fresh and Marine Waters (ANZECC, 1992)	<5% variation from background	

10.2 Ambient air quality standards

Parameter	International best practice standard	Proposed interim target limit ($\mu g/m^3$)
Carbon monoxide	International Ambient Air Quality Standards (IAAQS) http://www3.epa.gov/ttn/naaqs/criteria.html	1 hour = 40,000 $\mu g/m^3$, Not to be exceeded more than once per year
Nitrogen dioxide	IAAQS http://whqlibdoc.who.int/hq/2006/WHO_SDE_PHE_OEH_06.02_eng.pdf	1 hour = 200 $\mu g/m^3$ Annual = 40 $\mu g/m^3$
Photochemical oxidants (as ozone)	IAAQS	1 hour = 235 $\mu g/m^3$
Sulphur dioxide	IAAQS	1 hour = 350 $\mu g/m^3$ 24 hour = 125 $\mu g/m^3$
Particles as $PM_{2.5}$	IAAQS	24 hour = 75 $\mu g/m^3$ Annual = 70 $\mu g/m^3$

10.3 Soil

All the parameters below are obtained from Schedule B1 of the *National Environment Protection (Assessment of Contamination) Measure 1999* (as amended 2013) (NEPC, 2013) for the Groundwater Investigation Levels in Fresh Waters "Table 1C". The measurement of soil contamination is typically taken from groundwater monitoring boreholes located down-gradient from any suspected contamination.

This standard is generally applicable when there has been a spill or suspected contamination from the project area.

#	Parameter	Proposed discharge limit value (µg/L)
1	Aluminium	55 µg/L
2	Chromium (VI)	1 µg/L
3	Nickel	11 µg/L
4	Benzene	950 µg/L
5	Phenol	320 µg/L
6	Lead	3.4 µg/L

#	Parameter	Proposed discharge limit value (µg/L)
7	Manganese	1,900 µg/L
8	Mercury (total)	0.06 µg/L
9	Zinc	8 µg/L
10	Ammonia (NH_3-N)	900 µg/L
11	Ethanol	1,400 µg/L

10.4 Workplace noise and vibration

Parameter	International best practice standard	Proposed discharge limit value	Comments
Blasting (Airblast level)	Regulation 11 Environmental Protection (Noise) Regulations 1997	120 dB L_Z peak at sensitive receptor 125 dB L_Z peak at non sensitive receptor	Blasting carried out between 7 am and 6 pm on any day of the week
Noise and Vibration	Tibar Port Project Maximum Permissible Noise Level (daytime) – Calculated (DEP Noise Regulations,1997)	68 dB(A) at sensitive receptors	

10.5 Drinking water

These standards are applicable for fresh water springs and streams.

Parameter	International best practice standard	Proposed limit value (mg/L)
E.Coli or Thermotolerant coliform bacteria	WHO Drinking Water Standards (2000)	0 mg/L in 100 mL sample
Nitrate		50 mg/L
Nitrite		3 mg/L
Chlorine		5 mg/L
Copper		2 mg/L
Lead		0.01 mg/L
Nickel		0.07 mg/L
Manganese		0.4 mg/L

10.6 Safety management

Safety Management shall be undertaken in accordance with local labour laws and regulations.

10.7 Communicative diseases

Data and statistics on communicative diseases will be confidentially collected through surveying of the health providers to determine if adjustments to the Workplace Health and Safety Standard are required.

Infection control in the workplace aims to prevent pathogens from coming into contact with a person in the first place. The basis of good infection control in the workplace is to assume that everyone is potentially infectious. Proper procedures have to be followed at all times.

Good marketing of personal hygiene is the first line of defence. Infection control procedures relating to good personal hygiene include:

- Hand washing;
- Covering cuts or abrasions with a waterproof dressing; and
- Gloves.

Many infections are food-borne. When preparing food, it is important to:

- Wash hands before and after handling food;
- Keep hot food hot and cold food cold;
- Use separate storage, utensils and preparation surfaces for cooked and uncooked foods; and
- Wash all utensils and preparation surfaces thoroughly with hot water and detergent after use.

Frequently, workplace illnesses are spread by droplet infection. Colds and flu are transmitted in this way, and sharing telephones is an infection risk. If at all possible, users should have personal headsets, and telephones should be regularly cleaned and sterilized.

10.8 Modelling or engineering calculations

Trigger values and monitoring upper limit guideline values have been based on published standards and guideline values and no modelling was undertaken to derive them.

11 Monitoring program

In designing the monitoring program for each aspect identified in the EIS, this section details:

- the specific parameters;
- monitoring protocols;
- sampling locations and frequencies of monitoring; and
- how compliance with implementation of the EMP and sub-EMPs will be checked and reported.

The above information has been presented in table format for each phase of the Project: Pre-construction; Construction; Operation; and Decommissioning.

Monitoring actions are proposed for those aspects which have been ranked a 'Medium' or higher in the Impact Assessment (Advisian, 2017).

The monitoring plan has been developed taking into account the best available **measurement standards** for the relevant criteria. The standard is detailed in Section 10 (Governing Parameters) below, alongside the applicable parameter.

Where possible, the monitoring plan has been developed utilizing **internationally-recognized standards and emissions criteria**. Standards used by the World Health Organization and the International Finance Corporation have been used as first priority, followed by standards used in Australia and elsewhere.

11.1 Climate

In order to undertake monitoring for other aspects including water quality, air quality, noise levels and drainage, it is required to have weather station data. This monitoring requirement collects the climate data for those monitoring actions.

Monitoring Program: Climate			
Pre-construction	**Construction**	**Operations**	**Decommissioning**
Install Automated Weather Station (AWS) recording daily measurements of: ▪ Station identification number; ▪ State and time of record/observation; ▪ Air, wet bulb and wet dew point temperatures. ▪ Precipitation and evaporation; ▪ Relative humidity; ▪ Wind speed and direction; ▪ Solar radiation; ▪ Barometric pressure ; ▪ Visibility; ▪ Cloud cover; and ▪ Cloud ceiling height, if practicable.			

11.2 Topography and soil

The project impact on topography and soil was rated as **'Low'** during construction and operation due to the local changes to drainage and sedimentation within the Project Area.

Monitoring Program: Topography, Geology and Soil			
Pre-construction	**Construction**	**Operations**	**Decommissioning**
Design to minimise the impact on drainage and sedimentation.	Culverts on the project site and along the road adjacent to the site to be maintained and kept free of sediment and debris.		N/A

11.3 Contamination

The project impact on contamination was rated as **'Medium'** during construction and operation due to the potential for contamination from PASS during construction and from spills during operations.

Monitoring Program: Contamination			
Pre-construction	**Construction**	**Operations**	**Decommissioning**
N/A	Implement the Dredge Management Plan incl. in-field testing and liming.	Implement the Emergency Plan and the Marine Spill Contingency Plan.	N/A

11.4 Air quality

The project impact on this aspect was rated as **'Low'** during construction and operations. Monitoring of Air Quality shall be carried out in response to the requirement being determined through the Grievance Redress Mechanism.

Monitoring Program: Air Quality			
Pre-construction	**Construction**	**Operations**	Decom-misioning
N/A	A monitoring and reporting program in response to the Grievance Redress Mechanism should be implemented to monitor the air quality in the following sensitive receptors: AQ1 – Tibar Retreat. AQ2 – Tibar Primary School. The monitoring stations are derived from the Baseline Air Quality monitoring survey (Advisian, 2016a). The monitoring program should assess and report on PM10; and PM2.5.	A monitoring and reporting program in response to the Grievance Redress Mechanism during operation should be implemented to monitor the air quality in the following sensitive receptors: ▪ AQ1 – Tibar Retreat. ▪ AQ2 – Tibar Primary School. The monitoring stations are derived from the Baseline Air Quality monitoring survey (Advisian, 2016a). The monitoring program should assess and report on PM_{10}; and $PM_{2.5}$.	N/A

11.5 Noise and vibration

The project impact of Noise on community receptors was rated as **'High'** during construction and **'High'** during operation.

Monitoring Program: Noise and Vibration			
Pre-construction	**Construction**	**Operations**	Decom-misioning
N/A	As required per the Grievance Mechanism, measurements at sensitive receptors i.e. ▪ Tibar Retreat. ▪ Tibar Primary School. Results interpretation and review of the EMP as required. Collation of results into annual Environmental Report to NDCPEI.	As required per the Grievance Mechanism, measurements at sensitive receptors i.e. ▪ Tibar Retreat. ▪ Tibar Primary School. Results interpretation and review of the EMP as required. Collation of results into annual Environmental Report to NDCPEI.	N/A

11.6 Surface water

Addressed as groundwater and surface water, below.

11.7 Groundwater and surface water

The project impact on ground and surface water is considered to be **'Low'** during construction and '**Medium**' during operation. Monitoring measures are best practice aspects and the objective can generally be met through best practice procedures including implementing a Grievance Redress Mechanism.

11.8 Coastal and marine water quality

The project impact on coastal and marine water quality is considered to be **'Medium'** during construction and '**Low**' during operation.

Construction phase dredging-related monitoring measures are detailed in the accompanying Dredge Management Plan (Appendix A)

Monitoring items measures relating to spills and oil spill management are detailed in the Port Marine Spill Contingency Plan (Appendix B).

Monitoring Program: Coastal and marine water quality			
Pre-construction	**Construction**	**Operations**	**Decommissioning**
N/A	Weekly measurements during dredging Reactive coral health surveys per the Tiered Management Framework. Monthly measurements of sedimentation in mangroves. Reactive mangrove health surveys per the Tiered Management Framework	One post construction survey event of sedimentation and water quality impact and reference is recommended to take a snapshot of the post construction impact. (a few months after construction completed).	N/A

11.9 Terrestrial flora (vegetation)

The project impact on terrestrial flora is considered to be **'Low'** during construction and operation. Monitoring measures are best practice aspects and the objective can generally be met through best practice procedures including implementing a Grievance Redress Mechanism.

11.10 Terrestrial fauna (inc. birds)

The project impact on fauna including birds is considered to be **'High'** during construction and '**Medium**' during operation.

Impact on fauna especially Birds (Avifauna) are considered in the Biodiversity Action Plan (Appendix C).

Monitoring Program: Fauna			
Pre-construction	**Construction**	**Operations**	**Decommissioning**
N/A	Reporting and interpretation of fauna injury and death records every 6 months. Collation of results into Annual Environmental Report to NDCPEI.		N/A

11.11 Marine fauna and fisheries

The project impact on Marine fauna including fisheries is considered to be **'High'** during construction and '**High**' during operations

Construction phase dredging-related monitoring measures are detailed in the accompanying Dredge Management Plan (Appendix A)

Monitoring measures relating to spills and oil spill management are detailed in the Port Marine Spill Contingency Plan (Appendix B).

Impacts on marine fauna are considered in the Biodiversity Action Plan (Appendix C).

Monitoring Program: Marine Fauna incl. Fisheries			
Pre-construction	**Construction**	**Operations**	**Decommissioning**
Monitoring tasks associated with the implementation of the Biodiversity Action Plan	Monitoring as contained in the Dredge Management Plan. Monitoring as contained in the Port Marine Spill Contingency Plan Monitoring tasks associated with the implementation of the Biodiversity Action Plan	Monitoring tasks associated with the implementation of the Biodiversity Action Plan	N/A

11.12 Marine habitats and corals

The project impact on Marine fauna including fisheries is considered to be **'High'** during construction and '**Low**' during operation. This relates particularly to the removal of 1.4 ha of Mangrove vegetation to enable the project development to proceed.

Construction phase dredging-related monitoring measures are detailed in the accompanying Dredge Management Plan (Appendix A) and summarised below.

Monitoring Program: Marine habitat and corals			
Pre-construction	**Construction**	**Operations**	**Decommissioning**
Monitoring tasks associated with the implementation of the Biodiversity Action Plan	▪ Implementation of water quality monitoring as described in the Tiered Monitoring and Management Framework outlined in the Dredge Management Plan (Appendix A) ▪ Reactive benthic habitat monitoring in accordance with the tiered management framework outlined in the Dredge Management Plan (Section 6.5.2) (Appendix A) ▪ Dredge Contractor to monitor the operation on a continual basis and report any incidents that are likely to cause substantial changes to water quality to the PMC contractor. ▪ Monitoring tasks associated with the implementation of the Biodiversity Action Plan	▪ Monitoring tasks associated with the implementation of the Biodiversity Action Plan ▪ Regular bathymetry to monitor sedimentation during Operations	N/A

11.13 Traffic

The project impact on traffic is considered to be **'Low'** during construction and '**Low**' to '**Medium**' during operation. The increasing level of impact aligns with the forecast increase in shipping as the project operation duration increases.

Monitoring Program: Traffic			
Pre-construction	**Construction**	**Operations**	**Decommissioning**
Traffic Management Plan			

11.14 Employment

The project positive impact on employment is considered to be **'Low'** during construction and operation. Monitoring measures are best practice aspects and the objective can generally be met through best practice procedures including implementing a Grievance Redress Mechanism.

11.15 Infrastructure

The project impact on infrastructure is considered to be **'Low'** during construction and operation. Monitoring measures are best practice aspects and the objective can generally be met through best practice procedures including implementing a Grievance Redress Mechanism.

11.16 Economic use of forestry and other natural resources

The project impact on economic use of forestry and natural resources is considered to be **'Low'** during construction and operation. Mitigation measures are best practice aspects and the objective can generally be met through best practice procedures.

Monitoring measures addressing alternative use of natural resources is considered in the Biodiversity Action Plan (Appendix C).

11.17 Fishing and marine habitat use

The project impact on Fishing is considered to be **'High'** during construction and '**Medium**' during operation.

Construction phase dredging-related monitoring measures are detailed in the accompanying Dredge Management Plan (Appendix A)
Monitoring measures relating to spills and oil spill management are detailed in the Port Marine Spill Contingency Plan (Appendix B).
Monitoring measures associated with alternative use of natural resources is considered in the Biodiversity Action Plan (Appendix C).
Mitigation measures relating to Economic participation are being implemented by the GoTL through the Resettlement Action Plan and the Livelihood Restoration Plan. Monitoring measures are best practice aspects and the objective can generally be met through best practice procedures including implementing a Grievance Redress Mechanism.

Monitoring Program: Fishing and marine habitat use			
Pre-construction	**Construction**	**Operations**	**Decommissioning**
Fisheries assessment is a component of the Marine Habitats and Coral monitoring. Monitoring of the GoTL's implementation of the Resettlement Action Plan through the Grievance Redress Mechanism.	Monitoring of the GoTL's implementation of the Resettlement Action Plan through the Grievance Redress Mechanism.	Monitoring of the GoTL's implementation of the Resettlement Action Plan through the Grievance Redress Mechanism.	

11.18 Socio-economic agriculture

There are no impacts to Socio-economic agriculture in the Project Area because there is no clearing of terrestrial vegetation in the Project Area.

11.19 Tourism

The Project location is not considered to be a popular destination for tourism. Therefore, it is not considered that the Project will impact to Tibar Tourism popularity.

11.20 Population and community

The project impact on population and community is considered to be **'Medium'** during construction and operation.

Mitigation measures relating to Population and Community are being implemented by the GoTL through the Resettlement Action Plan and the Livelihood Restoration Plan.

Monitoring measures are best practice aspects and the objective can generally be met through best practice procedures including implementing a Grievance Redress Mechanism.

Monitoring Program: Population and Community			
Pre-construction	**Construction**	**Operations**	**Decommissioning**
	Complaints and Grievance records reviewed regularly.		

11.21 Community health

The project impact on community health is considered to be **'Medium'** during construction and operation. Monitoring measures are best practice aspects and the objective can generally be met through best practice procedures including implementing a Grievance Redress Mechanism.

11.22 Institutions schools and health facilities

The project impact on institutions, schools and health facilities is considered to be **'Medium'** during construction and operation. Monitoring measures are best practice aspects and the objective can generally be met through best practice procedures including implementing a Grievance Redress Mechanism.

11.23 Community and family structure

The project impact on community and family structure is considered to be **'Medium'** during construction and operation. Monitoring measures are best practice aspects and the objective can generally be met through best practice procedures including implementing a Grievance Redress Mechanism.

11.24 Land ownership and land rights

The project impact on land ownership and land rights is considered to be **'High'** during construction and operation.

Mitigation measures relating to Population and Community are being implemented by the GoTL through the Resettlement Action Plan.

Monitoring measures are best practice aspects and the objective can generally be met through best practice procedures including implementing a Grievance Redress Mechanism.

Monitoring Program: Land Ownership and Land Rights			
Pre-construction	**Construction**	**Operations**	**Decommissioning**
Complaints and Grievance records reviewed regularly			

11.25 Natural resources rights

The project impact on natural resources rights is considered to be **'High'** during construction and operation. Monitoring measures include implementing a Grievance Redress Mechanism.

11.26 Cultural heritage, archaeological and sacred sites

The project impact on cultural heritage, archaeological and sacred sites is considered to be **'High'** during construction and '**Medium**' during operation. There are two cultural heritage sites located within the Project Area (Advisian, 2017).

Monitoring measures are best practice aspects and the objective can generally be met through best practice procedures including implementing a Grievance Mechanism.

11.27 Unique landscapes

Unique landscapes are those geological, landform or natural artefacts which have been considered in the context of natural heritage and visual amenity.

There are no unique landscapes in the project footprint.

11.28 Summary of monitoring program

The following table gives a global overview of all environmental & social aspects and actions to be set up for this Project.

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
1	P	Desk study Design & construction of Port	Workplace environment condition	1 - Air Quality	Project Site	1-1 (19)	Consider greenhouse gas performance in the selection of all vehicles and vessels.	-Carbon monoxide ; 1 hour = 40,000 µg/m3 Annual = Max 1 -Nitrogen dioxide ; 1 hour = 200 µg/m3 Annual = 40 µg/m3 -Photochemical oxidants (as ozone) ; 1 hour = 235 µg/m3 -Sulphur dioxide ; 1 hour = 350 µg/m3 24 hour = 125 µg/m3 -Particles as PM2.5 ; 24 hour = 75 µg/m3 Annual = 70 µg/m3 Air Quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4	Planning Stage	-	TPSA
2	P	Desk study Design & construction of Port	Measurement of environmental aspect	1 - Air Quality	Project Site	1-2 (19)	Install Automated Weather Station (AWS) recording daily measurements of: - Station identification number - State and time of record/observation - Air, wet bulb and wet dew point temperatures - Precipitation and evaporation - Relative humidity - Wind speed and direction - Solar radiation - Barometric pressure - Visibility - Cloud cover - Cloud ceiling height, if practicable	-Carbon monoxide ; 1 hour = 40,000 µg/m3 Annual = Max 1 -Nitrogen dioxide ; 1 hour = 200 µg/m3 Annual = 40 µg/m3 -Photochemical oxidants (as ozone) ; 1 hour = 235 µg/m3 -Sulphur dioxide ; 1 hour = 350 µg/m3 24 hour = 125 µg/m3 -Particles as PM2.5 ; 24 hour = 75 µg/m3 Annual = 70 µg/m3 EMP §12.1 EMP §12.28.1	Daily	-	TPSA (D&C)
3	P	Desk study Design & construction of Port	Workplace environment condition	2 - Noise and vibration	Project Site	2-1 (13)	Where practicable, all equipment, plant, machinery and vessel noise emissions shall be rated at maximum 85 dB(A) at 1 metre distance.	Noise §7.1 Hydro §10.2 EMP §10.5 EIS §1.8 EIS §9.9.4	Planning Stage		TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
4	P	Desk study Design & construction of Port	Workplace environment condition	2 - Noise and vibration	Project Site	2-2 (13)	Scheduling of noisy tasks for daytime hours	- Tibar Port Project Max Permissible Noise Level (daytime) – - Calculated (DEP Noise Regulations,1997) 68 dB(A) - Residential, Institutional and Educational Receptors 50 – 55 dB(A) - Commercial Receptors 70 dB(A) - Industrial Receptors 7 dB(A) Noise §7.2	Planning Stage		TPSA
5	P	Desk study Design & construction of Port	Workplace environment condition	3 - Sedimentation	Project Site	3-1 (4)	Detailed design to consider sedimentation impacts	EMP §10.8 EMP §12.2	Planning Stage	-	TPSA
6	P	Desk study Design & construction of Port	Workplace environment condition	4 - Water Quality	Project Site	4-1 (17)	Updating trigger thresholds of DMP for turbidity and sedimentation at reference points	DMP §5.1 DMP §6.1	Planning Stage	-	TPSA (D&C)
7	P	Desk study Design & construction of Port	Workplace environment condition	5 - Benthic Habitat	Project Site	5-1 (26)	Identification of coral, seagrass and mangrove locations on engineering drawings and construction plans	EMP §10.12	Planning Stage	-	TPSA
8	P	Desk study Design & construction of Port	Workplace environment condition	5 - Benthic Habitat	Project Site	5-2 (26)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.12	Planning Stage	-	TPSA and PMU
9	P	Desk study Design & construction of Port	Workplace environment condition	5 - Benthic Habitat	Project Site	-	NA as there is no marine operation during Pre-Construction Phase	-	-	-	
10	P	Desk study Design & construction of Port	Workplace environment condition	7 - Invasive Marine Species	Project Site	-	NA as there is no marine operation during Pre-Construction Phase		-	-	
11	P	Desk study Design & construction of Port	Workplace environment condition	8 - Marine Megafauna	Offset Area	8-1 (15)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.11	Planning Stage	-	TPSA and PMU
12	P	Desk study Design & construction of Port	Workplace environment condition	9 - Underwater noise	Project Site	-	NA as there is no marine operation during Pre-Construction Phase		-	-	
13	P	Desk study Design & construction of Port	Workplace environment condition	10- Lighting	Project Site	-	NA as there is no Construction operation during Pre-Construction Phase		-	-	
14	P	Desk study Design & construction of Port	Workplace environment condition	11- Offshore disposal	Project Site	-	NA as there is no marine operation during Pre-Construction Phase		-	-	
15	P	Desk study Design & construction of Port	Workplace environment condition	12- Terrestrial fauna (incl. birds)	Offset Area	12-1 (9)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.10	Planning Stage	-	TPSA and PMU

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
16	P	Desk study Design & construction of Port	Workplace environment condition	12- Terrestrial fauna (incl. birds)	Project Site	12-2 (9)	Reclamation of land through alternative use of dredge spoil material if possible, thereby reducing the need to clear terrestrial vegetation for infrastructure and limiting the potential habitat destruction for terrestrial fauna	Terrestrial §10.2 EIS §9.13.4	Planning Stage	-	TPSA
17	P	Desk study Design & construction of Port	Workplace environment condition	12- Terrestrial fauna (incl. birds)	Project Site	12-3 (9)	Selection of the site to limit impact on habitat with the site selected having the lowest possible impact footprint of all the configuration options	Terrestrial §10.2 EIS §9.13.4	Planning Stage	-	TPSA
18	P	Desk study Design & construction of Port	Workplace environment condition	13- Terrestrial vegetation	Project Site	13-1 (5)	Reclamation of land through alternative use of dredge spoil material if possible, thereby reducing the need to clear terrestrial vegetation for infrastructure	Terrestrial §10.1	Planning Stage	-	TPSA
19	P	Desk study Design & construction of Port	Workplace environment condition	13- Terrestrial vegetation	Project Site	13-2 (5)	Selection of the site to limit impact on habitat with the site selected having the lowest possible clearing footprint of all the configuration options	Terrestrial §10.1	Planning Stage	-	TPSA
20	P	Desk study Design & construction of Port	Workplace environment condition	14- Traffic	Project Site	14-1 (11)	Traffic Management Plan	EMP §12.13	Planning Stage	-	TPSA (D&C)
21	P	Desk study Design & construction of Port	Workplace environment condition	15- Employment	Project Site	15-1 (15)	The Concessionaire and the Grantor will coordinate with Secretary of State for Professional Training and Employment Policy SEPFOPE to gear its training program at the local vocational training centre to jobs available at the port	SIA §9	Planning Stage	-	TPSA and PMU
22	P	Desk study Design & construction of Port	Settlement and Livelihood	16- Fishing	Project Site	16-1 (6)	Resettlement Action Plan. Livelihood Restoration Plan.	EMP §10.17 EIS §9.27.4	Planning Stage	-	PMU
23	P	Desk study Design & construction of Port	Settlement and Livelihood	17- Population and community	Project Site	17-1 (5)	The impact on community during the project will be addressed by resettlement and compensation to be undertaken by the GoTL.	EMP §10.19	Planning Stage	-	PMU
24	P	Desk study Design & construction of Port	Settlement and Livelihood	17- Population and community	Project Site	17-2 (5)	Continuous and ongoing consultation with stakeholders throughout the project life	EMP §10.22 EIS §9.26.4	Planning Stage	-	PMU and TPSA
25	P	Desk study Design & construction of Port	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-1 (7)	Wherever possible, construction and dredging should avoid the identified Sacred and Cultural Heritage Sites	Cultural §8 EIS §1.8	Planning Stage	-	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
26	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-1 (13)	H1.1. Reduce or eliminate impact on mangroves as part of the final project configuration and design	BAP §11.1.1	Planning Stage		TPSA
27	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-2 (13)	H1.2. When mangrove trees are cleared, ensure that the material is able to be re-used by the community or elsewhere on the project	BAP §11.1.1	Planning Stage		TPSA (D&C)
28	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-3 (13)	- H1.3. The existing mangrove habitat within the Study Area require supporting conservation actions and a Conservation Plan. This includes the 16.4ha of mangroves located on the western boundary of Tibar Bay. Despite their current generally poor condition, they are Critical Habitat. - Active rehabilitation of the mangrove area by planting and/or transplanting mangrove plants - Grantor to strongly assist to obtain all required authorizations	- BAP §11.1.1 - BAP §14.1	Planning Stage		TPSA and PMU (EXT)
29	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Offset Area	19-4 (13)	H1.4. Establish an offset area which comprises mangroves with the same; or similar composition and ecological function as the mangroves which have been cleared. This is to ensure conservation into perpetuity. In the Biodiversity Action Plan document, this has been proposed to take the form of a Community-managed conservation area. - Grantor to strongly assist to obtain all required authorizations	BAP §11.1.1	Planning Stage		TPSA and PMU (EXT)
30	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-5 (13)	Community engagement to reinforce Tara Bandu in the conservation of remnant mangrove stands and the development of alternative sources for building material and wood	BAP §14.1	Planning Stage		TPSA and PMU
31	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-6 (13)	- Community engagement to spearhead the development of alternative fodder sources for livestock with the aim to eliminate the need for livestock to access in the Mangrove stands within Tibar Bay.	BAP §14.1	Planning Stage		TPSA and PMU

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
32	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-7 (13)	Establish and encourage the implementation of an alternative to wood-burning to manufacture salt within the community e.g Solar Salt farming	BAP §14.1	Planning Stage		PMU and TPSA
33	P	Desk study Design & construction of Port	Mangroves	19- BAP (Mangroves)	Project Site	19-8 (13)	Monitor and manage any grievances from the community regarding access to fishing resources	BAP §11.4	As per Grievance mechanis m		PMU and TPSA
34	P	Desk study Design & construction of Port	Mangroves	20- BAP (Mangroves)	Project Site	20-1 (6)	H2.1 Following clearing and during construction, impact should be limited to remaining existing seagrass habitat immediately to the east of the project area and to the north of Tibar Bay	BAP §11.1.2	Planning Stage	-	TPSA
35	P	Desk study Design & construction of Port	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Project Site	20-2 (6)	- H2.2. The existing seagrass habitat within the Study Area require supporting conservation actions and a Conservation Plan. This includes the 7.7ha of remaining seagrass located in Tibar Bay. - Grantor to strongly assist to obtain all required authorizations	BAP §11.1.2	Planning Stage	-	TPSA and PMU (EXT)
36	P	Desk study Design & construction of Port	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Offset Area	20-3 (6)	- H2.3. Establish an offset area which comprises mudflat and seagrass with the same; or similar composition and ecological function as the mudflat and seagrass which have been cleared. This is to ensure conservation into perpetuity. - Grantor to strongly assist to obtain all required authorizations	BAP §11.1.2	Planning Stage	-	TPSA and PMU (EXT)
37	P	Desk study Design & construction of Port	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Project Site	20-4 (6)	Monitor and manage any grievances from the community regarding access to fishing resources	BAP §11.4	As per Grievance mechanis m	-	PMU and TPSA
38	P	Desk study Design & construction of Port	Birds and Turtle	21- BAP (Birds and Turtles)	Project Site	21-1 (7)	S1.1. Reduce or eliminate impact on bird habitat (incl. mudflats and mangroves) as part of the final project configuration and design	BAP §11.2.1	Planning Stage	-	TPSA
39	P	Desk study Design & construction of Port	Birds and Turtle	21- BAP (Birds and Turtles)	Offset Area	21-2 (7)	S1.2. Establish artificial rock outcrops in similar tide-range environment on the northern-most edge of Tibar Bay for bird perches	Terrestrial §10.3 BAP §11.2.1	Planning Stage	-	TPSA (D&C)
40	P	Desk study Design & construction of Port	Birds and Turtle	21- BAP (Birds and Turtles)	Offset Area	21-3 (7)	- S1.3 Establish a Conservation Area within Tibar Bay to protect the habitat visited by birds during migration; providing a permanent link with Lake Tasitolu. - Grantor to strongly assist to obtain all required authorizations	Terrestrial §10.3 BAP §11.2.1	Planning Stage	-	TPSA and PMU (EXT)

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
41	P	Desk study Design & construction of Port	Birds and Turtle	21- BAP (Birds and Turtles)	Project Site	21-4 (7)	S2.1. Reduce or eliminate impact on turtle habitat as part of the final project configuration and design	BAP §11.3	Planning Stage	-	TPSA
42	P	Desk study Design & construction of Port	Birds and Turtle	21- BAP (Birds and Turtles)	Project Site	21-5 (7)	S2.2. Establish turtle rookery and/or protection area at the beach at Fahi Obuk	BAP §11.3	Planning Stage	-	TPSA and PMU (EXT)
43	P	Desk study Design & construction of Port	Ecosystem at Affected Areas	22- BAP (Ecosystem Services)	Offset Area	22-1 (5)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.10	Planning stage	-	TPSA and PMU
44	P	Desk study Design & construction of Port	Ecosystem at Affected Areas	22- BAP (Ecosystem Services)	Offset Area	22-2 (5)	E1.1. Undertake consultation to quantify the uses of any proposed offset area to ensure that their access is maintained or compensated	BAP §11.4.1	Planning stage	-	TPSA and PMU
45	P	Desk study Design & construction of Port	Ecosystem at Affected Areas	22- BAP (Ecosystem Services)	Project Site	22-3 (5)	Monitor and manage any grievances from the community regarding access to fishing resources	BAP §11.4 EIS §9.20.4	As per Grievance mechanis m	-	PMU and TPSA
46	P	Desk study Design & construction of Port	Mudflat/Seagrass	23- BAP (Regulating ES)	Offset Area	23-1 (3)	- E2.1. Establish a Community-managed Conservation Area to incorporate seagrass and mudflat habitat. - Grantor to strongly assist to obtain all required authorizations	BAP §11.3.2	Planning Stage	-	TPSA and PMU (EXT)
47	P	Desk study Design & construction of Port	Carbon emission from running vehicle engine	23- BAP (Regulating ES)	Project Site	23-2 (3)	E2.2. Purchase carbon sequestration credits from the certified community-based Withoneseed program being run on the western edge of Timor-Leste, thereby offsetting the impact on CO2 sequestration and investing directly into the country, which has a socio-economic benefit	BAP §11.3.2	Planning Stage	-	TPSA
48	P	Desk study Design & construction of Port	Carbon emission from running vehicle engine	23- BAP (Regulating ES)	Project Site	23-3 (3)	Verify the alternative sequestration has been implemented.	BAP §11.4	Planning Stage	-	TPSA
49	P	Desk study Design & construction of Port	Settlement and Livelihood	24- Impact on structures in Directly Impacted Areas and Crops/productive trees	Project Site	24-1 (3)	A RAP/Compensation Plan including a livelihood restoration component that adheres to the national law and IFC PS 5 should be prepared and implemented.	SIA §8.2.1 SIA §8.2.2	Planning Stage	-	PMU
50	P	Desk study Design & construction of Port	Settlement and Livelihood	24- Impact on structures in Directly Impacted Areas and Crops/productive trees	Project Site	24-2 (3)	1.2. Establish and implement Grievance mechanism in line with IFC PS 1	SIA §8.2.1 SIA §8.2.2	Planning Stage	-	PMU and TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
51	P	Desk study Design & construction of Port	Settlement and Livelihood	24- Impact on structures in Directly Impacted Areas and Crops/productive trees	Project Site	24-3 (3)	1.3. Set-up an Organization Structure and establish the Institutional Plan to ensure effective and efficient implementation of all plans (e.g. RAP/LRP, etc.) from pre-construction to operation phase of the project	SIA §8.2.1 SIA §8.2.2	Planning Stage	-	PMU
52	P	Desk study Design & construction of Port	Settlement and Livelihood	25- Livelihoods	Project Site	25-1 (2)	Livelihood Restoration Component will be incorporated together with the RAP and will include the provision of allowance for temporary loss of income from fishing, allowance for temporary loss of income from employment, accessibility to training provided for potential employment in the construction and operational phases of the project. This training and the associated employment opportunity as a result of increased skills will be discussed, re-updated and implemented with the concessionaire's support within the framework of the proposed Local Development Plan.	SIA §8.2.3 EIS §9.27.4	Planning Stage	Paid by GoTL	PMU
53	P	Desk study Design & construction of Port	Settlement and Livelihood	25- Livelihoods	Project Site	25-2 (2)	Establish and implement Grievance mechanism in line with IFC PS 1	SIA §8.2.3 EIS §9.27.4	Planning Stage	-	PMU and TPSA
54	P	Desk study Design & construction of Port	Settlement and Livelihood	26- Income for businesses	Project Site	26-1 (4)	The government will give due consideration to affected businesses on the approval of new relocation site proposed by them as well as granting them the license to operate with proper application documents filed to concerned entities.	SIA §8.2.4	Planning Stage	Paid by GoTL	PMU
55	P	Desk study Design & construction of Port	Settlement and Livelihood	26- Income for businesses	Project Site	26-2 (4)	Establish and implement Grievance mechanism in line with IFC PS 1	SIA §8.2.4 EIS §9.28.4	Planning Stage	-	PMU and TPSA
56	P	Desk study Design & construction of Port	Settlement and Livelihood	26- Income for businesses	Project Site	26-3 (4)	Businesses will be provided with sufficient time to transfer to other locations.	SIA §8.2.4	Planning Stage	Paid by GoTL	PMU
57	P	Desk study Design & construction of Port	Settlement and Livelihood	26- Income for businesses	Project Site	26-4 (4)	The Livelihood Restoration Component will be incorporated together with the RAP and will include the provision of allowance for temporary loss of income from fishing, allowance for temporary loss of income from employment, accessibility to training provided for potential employment in the construction and operational phases of the project.	SIA §8.2.4 EIS §9.27.4 EIS §9.28.4	Planning Stage	Paid by GoTL	PMU

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
58	P	Desk study Design & construction of Port	NA as there is no marine activities during Pre-Construction Phase	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	-	NA as there is no marine activities during Pre-Construction Phase		Planning Stage	-	
59	P	Desk study Design & construction of Port	NA as there is no activities on site	28- Population Influx	Project Site	-	NA as there is no activities on site		-	-	
60	P	Desk study Design & construction of Port	Health of Population	29- Community Health and Safety	Project Site	29-1 (9)	Consulting with NGOs in the area that may support operations at the nearby health centres, with special focus on refurbishment of key areas, equipment and building maintenance, as well as, improved health care management information systems as part of its CSR program	EMP §10.21 EIS §9.25.4	Planning Stage	-	TPSA
61	P	Desk study Design & construction of Port	Employment	30- APORTIL staff numbers will be reduced with the building of the new port	Project Site	-	NA as Employment will be settle before Operation Phase		-	-	
62	P	Desk study Design & construction of Port	Visual of the Projects	31- Visual impact of the port on local tourist operator and community	Project Site	-	NA as construction will only completed by Operation Phase		-	-	
63	C	Earthworks & Trenching	Dusty environment	1 - Air Quality	Project Site	1-3 (19)	All areas with vehicle traffic shall be watered or have dust palliative applied and all material transported off-site shall be sufficiently watered	Air quality §8 Terrestrial §10.1 & 10.2 EMP §10.4 EMP §10.21 EIS §9.5.4 EIS §9.8.4 EIS §9.13.4 EIS §9.25.4	Regular Basis	Part of Air Quality ≈ $96,322	TPSA (D&C)
64	C	Mobilization of project materials	Dust resulted from the high speed transportation vehicle	1 - Air Quality	Project Site	1-4 (19)	All on-site vehicle traffic shall be limited to a speed of 15 mph on unpaved roads.	Air quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4 EIS §9.16.4	Regular Basis	Part of Air Quality ≈ $96,322	TPSA
65	C	Mobilization of project materials	Waste of fuel from running engine	1 - Air Quality	Project Site	1-5 (19)	No vehicles or plant will be left idling unnecessarily.	Air quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $96,322	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
66	C	Mobilization of project materials	Carbon emission from running vehicle engine	1 - Air Quality	Project Site	1-6 (19)	Use a good quality fuel (e.g. with low sulphur content)	Air quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $96,322	TPSA
67	C	Mobilization of project materials	Gas emission from engine (exhaust)	1 - Air Quality	Project Site	1-7 (19)	Vehicles, plant, engines and exhaust systems shall be well maintained	Air quality §8 EIS §9.5.4 EIS §9.8.4	Semi-Annual	Part of Air Quality ≈ $96,322	TPSA
68	C	Mobilization of project materials	Gas emission from engine (exhaust)	1 - Air Quality	Project Site	1-8 (19)	All heavy duty vehicles should meet emission regulations from local Environmental Protection Agency	EMP §10.4	Semi-Annual	Part of Air Quality ≈ $96,322	TPSA
69	C	Running Heavy equipment to build the port	Pollution to environment	1 - Air Quality	Project Site	1-9 (19)	Install Automated Weather Station (AWS) recording daily measurements of: - Station identification number - State and time of record/observation - Air, wet bulb and wet dew point temperatures - Precipitation and evaporation - Relative humidity - Wind speed and direction - Solar radiation - Barometric pressure - Visibility - Cloud cover - Cloud ceiling height, if practicable	-Carbon monoxide ; 1 hour = 40,000 µg/m3 Annual = Max 1 -Nitrogen dioxide ; 1 hour = 200 µg/m3 Annual = 40 µg/m3 -Photochemical oxidants (as ozone) ; 1 hour = 235 µg/m3 -Sulphur dioxide ; 1 hour = 350 µg/m3 24 hour = 125 µg/m3 -Particles as PM2.5 ; 24 hour = 75 µg/m3 Annual = 70 µg/m3 EMP §12.1 EMP §12.28.2	Daily	Part of Air Quality ≈ $96,322	TPSA (D&C)
70	C	Running Heavy equipment to build the port	Pollution to people	1 - Air Quality	Tibar Retreat, Tibar Primary School	1-10 (19)	A monitoring and reporting program as required per the Grievance Mechanism, monitor the air quality in the following sensitive receptors: - AQ1 – Tibar Retreat. - AQ2 – Tibar Primary School. The monitoring stations are derived from the Baseline Air Quality monitoring survey (Advisian, 2016a). The monitoring program should assess and report on PM10 and PM2.5.	Air Quality §10 EMP §12.4 EMP §12.28.2 EMP §13.1	As per Grievance Mechanism	Part of Air Quality ≈ $96,322	TPSA (D&C)
71	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Dredging, Land Reclamation, Structure Building, Establishment of Bund, Haulage of building materials by trucks, Piling and Construction of Jetty, Construction of Internal road	Noise and Vibration resulted from the high speed transportation vehicle and Piling	2 - Noise and vibration	Project Site	2-3 (13)	Use selected equipment with the lowest possible noise specifications. If a noise complaint is recorded through the grievance framework and monitoring confirms it is above the guideline level a retrofit mitigation measure will be implemented. e.g. temporary barriers	Noise §7.2 EMP §10.5 EMP §10.21 EIS §1.8 EIS §9.9.4	Regular Basis	Part of Noise & Vibration ≈ $23,351	TPSA (D&C)

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
72	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Dredging, Land Reclamation, Structure Building, Establishment of Bund, Piling and Construction of Jetty, Construction of Internal road	Storage and transportation of material	2 - Noise and vibration	Project Site	2-4 (13)	Storage areas should be located away from sensitive receptors	Noise §7.2 EIS §9.9.4	Regular Basis	Part of Noise & Vibration ≈ $23,351	TPSA
73	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Dredging, Land Reclamation, Structure Building, Establishment of Bund, Haulage of building materials by trucks, Piling and Construction of Jetty, Construction of Internal road	Noise and Vibration resulted from the high speed transportation vehicle and Piling	2 - Noise and vibration	Project Site	2-5 (13)	Haulage of goods and movement of vehicles/people and equipment can be scheduled and sequenced to reduce the number of noisy operations.	Noise §7.2 EMP §10.21 EIS §9.25.4	Regular Basis	Part of Noise & Vibration ≈ $23,351	TPSA
74	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Structure Building, Establishment of Bund, Haulage of building materials by trucks, Piling and Construction of Jetty, Construction of Internal road	Noise and Vibration resulted from the high speed transportation vehicle and Piling	2 - Noise and vibration	Project Site	2-6 (13)	Alternative construction methods and selection of less noisy equipment to do the tasks	Noise §7.2 EMP §10.21 EIS §9.25.4	Regular Basis	Part of Noise & Vibration ≈ $23,351	TPSA
75	C	Clearing of Site/Area - excavation, piling, Piling and Construction of Jetty	Noise and Vibration resulted from Piling	2 - Noise and vibration	Project Site	2-7 (13)	Where practicable, limiting of piling activities to day light hours.	EMP §10.5 EIS §1.8 EIS §9.14.4	Regular Basis	Part of Noise & Vibration ≈ $23,351	TPSA
76	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Dredging, Land Reclamation, Structure Building, Establishment of Bund, Haulage of building materials by trucks, Piling and Construction of Jetty, Construction of Internal road	Noise and Vibration resulted from the high speed transportation vehicle and Piling	2 - Noise and vibration	Project Site	2-8 (13)	Measurements as required per the Grievance Mechanism at sensitive receptors i.e. Tibar Retreat. Tibar Primary School. Results interpretation and review of the EMP as required.	EMP §12.5 EMP §12.28.2 EMP §13.1	As per Grievance Mechanis m	Part of Noise & Vibration ≈ $23,351	TPSA (D&C)
77	C	Haulage of building materials by trucks, Piling and Construction of Jetty	Noise and Vibration resulted from the high speed transportation vehicle and Piling	2 - Noise and vibration	Project Site	2-9 (13)	Collation of results into semi-annual or annual Environmental Report to NDCPEI.	EMP §12.5 EMP §13.1	Semi-Annual or Annual	Part of Noise & Vibration ≈ $23,351	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
78	C	Clearing of Site/Area - excavation, piling, pouring of concrete foundations, Dredging, Land Reclamation, Structure Building, Establishment of Bund, Haulage of building materials by trucks, Piling and Construction of Jetty, Construction of Internal road	Pollution to environment	3 - Sedimentation	Project Site	3-2 (4)	Culverts on the project site and along the road adjacent to the site to be maintained and kept free of sediment and debris.	Hydro §5 & 6 EMP §12.2 EIS §9.6.4 EIS §9.11.4	Regular Basis	Included in D&C contract	TPSA (D&C)
79	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Unnecessary removal of natural material	4 - Water Quality	Project Site	4-2 (17)	Installation of a satellite-based vessel monitoring system on the dredge, allowing a track plot analysis to ensure maximum efficiency of the dredging effort and to ensure no dredging occurs outside the approved area.	DMP §5.1 EMP §10.12	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
80	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Turbidity of the water	4 - Water Quality	Project Site	4-3 (17)	Use of suitable dredging plant and equipment to minimise turbidity, including well maintained pipelines to be utilised to minimise leakage of turbid water during pumping of material to the reclamation zone and/or to the offshore disposal site.	DMP §5.1 EMP §10.12	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
81	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Unnecessary removal of natural material	4 - Water Quality	Project Site	4-4 (17)	Maintaining calibration of the hydrographic survey systems on board the dredge to minimise the likelihood of over dredging.	DMP §5.1 EMP §10.12	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
82	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Pollution to environment	4 - Water Quality	Project Site	4-5 (17)	Cleaning of all oil, fuel and waste spills immediately. Hydrocarbon spill report	Hydro §5 DMP §7 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
83	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Pollution to environment	4 - Water Quality	Project Site	4-6 (17)	Waste management procedure to control litter	- E.Coli : 0 mg/L in 100 mL sample - Nitrate : 50 mg/L - Nitrite : 3 mg/L - Chlorine : 5 mg/L - Copper : 2 mg/L - Lead : 0.01 mg/L - Nickel : 0.07 mg/L Hydro §5 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
84	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Flooding	4 - Water Quality	Project Site	4-7 (17)	Mitigation of flooding during extreme runoff events through the use of berms and diversion drains to limit flooding of the construction site	Hydro §5 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
85	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Pollution to environment	4 - Water Quality	Project Site	4-8 (17)	Correct operation and maintenance of waste water treatment unit	Hydro §5 & 6 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
86	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Pollution to environment	4 - Water Quality	Project Site	4-9 (17)	Dredge Contractor to monitor the operation on a continual basis and report any incidents that are likely to cause substantial changes to water quality to the engineer/employer.	DMP §5.1 EMP §12.12	Continual Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
87	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Turbidity of the water	4 - Water Quality	Project Site	4-10 (17)	Results of the monitoring of turbidity at impact and reference locations. Commentary on any trigger exceedances and resulting management measures	DMP §6.2 DMP §7 EMP §12.8 EMP §12.28.2 EMP §13.1	Continual Basis	Part of Water Quality ≈ $14,594	TPSA (D&C)
88	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Turbidity of the water, Pollution to environment	4 - Water Quality	Project Site	4-11 (17)	Monthly monitoring of sediment deposition. Commentary on any trigger exceedances and resulting management measures	DMP §6.2 DMP §7 EMP §12.8 EMP §12.28.2 EMP §13.1	Monthly	Part of Water Quality ≈ $14,594	TPSA (D&C)
89	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty		4 - Water Quality	Project Site	4-12 (17)	Dredge tracking reports.	DMP §7	Daily	Part of Water Quality ≈ $14,594	TPSA
90	C	Dredging	Damage to coral reef	5 - Benthic Habitat	Project Site	5-3 (26)	To minimise damage to coral reef habitat in the immediate construction area, all construction vessels must limit anchoring over areas of sensitive habitat including mapped seagrass beds and areas of subtidal coral reef	Marine §9.1 EMP §10.12	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA
91	C	Dredging	Damage to marine habitats	5 - Benthic Habitat	Project Site	5-4 (26)	To minimise unnecessary damage to marine habitats Contractor(s) must limit any unnecessary / temporary construction (i.e. through selection of the most appropriate construction methods) and limit any anchoring which is required by vessels.	Marine §9.1 EMP §10.12	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA
92	C	Dredging	Turbidity of the water	5 - Benthic Habitat	Project Site	5-5 (26)	Dredging operations ceased if levels of suspended sediment become higher than trigger values developed for the Project.	Marine §9.1 EMP §10.12	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
93	C	Dredging	Biodiversity of the Affected Areas	5 - Benthic Habitat	Project Site	5-6 (26)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass		Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA and PMU
94	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-7 (26)	The Vessel Master will be responsible for the management of any spill response during construction activities	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
95	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-8 (26)	As required under MARPOL 73/78 Annex I/ Marine Order 91 all construction greater than 400 gross tonnes must carry, a SOPEP	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
96	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-9 (26)	The Vessel Master will form and incident management team to response to any spills	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
97	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-10 (26)	In the event of a hydrocarbon spill, the Vessel Master will implement available controls and resources of the SOPEP	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
98	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-11 (26)	An oil spill response drill will be undertaken in accordance with SOPEP requirements on all vessels prior to conducting the activity (within 3 months prior)	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
99	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-12 (26)	The Vessel Master will have sufficient boom onsite to fully encircle the largest vessel	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
100	C	Dredging	Pollutions to the waters and mangroves	5 - Benthic Habitat	Project Site	5-13 (26)	If the spill from the vessel cannot be contained and the mangroves to the west of Tibar Bay are at risk the protection/containment boom will be installed to protect the mangroves. The boom will be deployed to protect the area of mangroves with the highest canopy cover and where it will be most effective	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
101	C	Dredging	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-14 (26)	Implementation of water quality monitoring as described in the Tiered Monitoring and Management Framework	Marine §9.1 DMP §5.1 DMP §6.7.1 EMP §12.12 EMP §12.28.2 EMP §13.1	Continual Basis	Part of Benthic Habitat ≈ $189,726	TPSA (D&C)
102	C	Dredging	Pollution to Coral + Mangroves + Mudflat/Seagrass	5 - Benthic Habitat	Project Site	5-15 (26)	Reactive benthic habitat (Coral + Mangrove + Mudflat/Seagrass) monitoring in accordance with the tiered management framework Comparison to baseline and reference data.	DMP §5.1 DMP §6.5 DMP §6.6 DMP §6.7.2 DMP §7 EMP §10.12 EMP §12.8 EMP §12.12 EMP §12.28.2 EMP §13.1	In accordanc e with the tiered managem ent framework	Part of Benthic Habitat ≈ $189,726	TPSA (EXT)
103	C	Dredging		5 - Benthic Habitat	Project Site	5-16 (26)	In the event of a spill the Vessel Master will make notifications outlined in Section 4	PMSCP §8	Event Trigger	Part of Benthic Habitat ≈ $189,726	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
104	C	Land Reclamation	Turbidity of the water	6 - Reclamation	Project Site	6-1 (8)	Maximise the residence time in the reclamation area to reduce the turbidity plume of the tailwater discharge. Suitable controls (e.g. weir boxes) will be used at the discharge point to control the water level and the rate of discharge;	DMP §5.1 EMP §10.12	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
105	C	Land Reclamation	Turbidity of the water	6 - Reclamation	Project Site	6-2 (8)	Cease dewatering or move tailwater within reclamation cells when turbidity is excessive;	DMP §5.1 EMP §10.12	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
106	C	Land Reclamation	Turbidity of the water	6 - Reclamation	Project Site	6-3 (8)	Regular inspection and maintenance of erosion and sediment control structures particularly following heavy or prolonged rainfall;	DMP §5.1 EMP §10.12	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
107	C	Land Reclamation	Soil erosion leading to pollution to the environment	6 - Reclamation	Project Site	6-4 (8)	Stabilise uncovered areas of soil promptly	DMP §5.1 EMP §10.12	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
108	C	Land Reclamation	Soil erosion leading to pollution to the environment	6 - Reclamation	Project Site	6-5 (8)	Install scour protection measures such as gabions where scouring is likely to occur.	DMP §5.1 EMP §10.12	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
109	C	Land Reclamation	Soil Pollution	6 - Reclamation	Project Site	6-6 (8)	Lime dosing due to PASS at a rate of 14 kg CaCO3/t	EMP §10.3	Regular Basis	Part of Reclamation ≈ $58,377	TPSA (D&C)
110	C	Land Reclamation	Pollution to the waters	6 - Reclamation	Project Site	6-7 (8)	Monitoring per the Water Quality requirements regarding turbidity, dissolved oxygen, conductivity, pH and temperature.	DMP §6.3	Daily	Part of Reclamation ≈ $58,377	TPSA (D&C)
111	C	Land Reclamation	Soil Pollution	6 - Reclamation	Project Site	6-8 (8)	PASS Verification testing of treated dredge material shall be conducted at a frequency of 1 sample per 250 m3 of dried material All samples will be subjected to on-site field testing for (pHF and pHFOX). The dredge material ASS performance criteria are : Medium Acceptable Threshold Untreated Dredge Material pHF > 4 pHFOX > 4 Treated Dredge Material pHF > 6.5 pHFOX > 6.5 If samples of treated dredge material are not within acceptable thresholds, the relevant materials shall be re-treated and re-tested, until successful treatment has been achieved	- Aluminium : 55 µg/L - Chromium (VI) : 1 µg/L - Nickel : 11 µg/L - Benzene : 950 µg/L - Phenol : 320 µg/L - Lead : 3.4 µg/L - Manganese : 1,900 µg/L - Mercury (total) : 0.06 µg/L - Zinc : 8 µg/L - Ammonia (NH3-N) : 900 µg/L - Ethanol : 1,400 µg/L DMP §6.4 EIS §9.7.4	If PASS confirmed, 1 sample per 250 m3	Part of Reclamation ≈ $58,377	TPSA (D&C)

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
112	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Potential Impact to Invasive Marine health	7 - Invasive Marine Species	Project Site	7-1 (5)	All contractors to adopt the Ballast Water Convention (2004)	DMP §5.2 EMP §10.12	Regular Basis	Included in D&C contract	TPSA (D&C)
113	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Potential Impact to Invasive Marine health	7 - Invasive Marine Species	Project Site	7-2 (5)	All contractors to comply with the Guidelines in the Ballast Water Convention (2004) Contractors to comply with INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS, 2004 (BWM CONVENTION)	DMP §5.2 EMP §10.12	Regular Basis		TPSA (D&C)
114	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Potential Impact to Invasive Marine health	7 - Invasive Marine Species	Project Site	7-3 (5)	All ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V	EMP §10.8	Regular Basis		TPSA
115	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-2 (15)	Procedures for marine fauna interaction shall be developed for vessels to reduce the potential impacts to marine fauna.	DMP §5.3 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
116	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-3 (15)	All work-site personnel shall be inducted regarding the proper response to fauna interaction (including unexpected encounters).	DMP §5.3 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
117	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-4 (15)	The Dredge Contractor shall appoint an individual on each vessel who is trained in faunal observation and distance estimation to be responsible for undertaking marine fauna observations.	Megafauna §3.1.5 DMP §5.3 EMP §10.11 EIS §1.8 EIS §9.14.4	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
118	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-5 (15)	The construction workforce and all vessels will be limited to designated areas. Recreational boating, fishing, diving, spear-fishing, fossicking, (i.e. collecting shells and any other biological or natural material e.g. animal bones) will be prohibited during the Project.	DMP §5.3 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA
119	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-6 (15)	All vessels will not travel at speeds no higher than 6 knots, 300 m of a whale (caution zone), and not approach closer than 100 m from a whale. A vessel will not approach closer than 50 m or a dolphin and/or 100 m for a whale (with the exception of animals bow riding)	Megafauna §3.2.4 EIS §1.8 EIS §9.14.4	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
120	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-7 (15)	Within the operating constraints of the TSHD, dredge pumps will be turned on when the draghead is as close to the seabed as possible. On completion of dredging, the pumps will be turned off as soon as practicable possible (i.e. after the pipes are clear of dredged material).	Megafauna §3.3.3 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA
121	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-8 (15)	Turtle exclusion or turtle deflecting devices (tickler chains) will be used if turtles are continuously observed.	Megafauna §3.3.3 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
122	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-9 (15)	To reduce the potential impacts of marine debris on marine fauna, waste associated with construction and operation must be managed appropriately. In addition, all ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V which came into force on 1 January 2013. The amendments prohibit the discharge of all garbage from ships into the sea (except under very specific circumstances). This reverses the presumption that garbage may be discharged into the sea based on defined distances from shore and the nature of the garbage. The amendments also list requirements for garbage management plans on ships and port reception facilities for receiving waste.	Marine §9.2 EMP §10.11	Regular Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
123	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-10 (15)	Observers on the vessels will maintain a watch for the marine turtles/significant marine mammals (during daylight hours) during the dredging and construction. If a significant marine mammal or reptile is sighted within the 'monitoring zone' of 400 m radius around the dredge or piling barge, it will be watched until the marine turtle/significant mammal moves outside of the monitoring zone or is not sighted for 10, 15 or 20 minutes - If the mammal or reptile does not leave the 400m monitoring area or starts to enter the 100m exclusion zone, it will be encouraged to leave the area.	Megafauna §3.3.3	Continual Basis	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
124	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-11 (15)	Marine fauna incident report: the Dredge Contractor must report any turtle, dugong or cetacean injury or mortality immediately to Engineer/Employer	DMP §7	Event Trigger	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
125	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-12 (15)	Marine fauna sighting report: species identified, behaviour, occurrence, numbers of individuals and location.	DMP §7 EMP §10.11	Event Trigger	Part of Marine Megafauna ≈ $14,594	TPSA (D&C)
126	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-1 (8)	Prior to commencement of construction, designated crew (one per vessel) will be trained to observe for marine turtles and marine mammals, record sightings and any injury or mortality.	Megafauna §3.1.5 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA (D&C)
127	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-2 (8)	A “soft start” procedure will be implemented for pile driving. This involves beginning a pile driving session with the lowest power possible and hammering at a low rate, then increasing hammer energy and rate to that desired. This should allow marine fauna close to the source to move away and not be suddenly exposed to sound intensities sufficient to cause them serious injury.	Megafauna §3.1.5 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA (D&C)
128	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-3 (8)	Equipment and vessels shall operate in accordance with appropriate industry and equipment standards including specifications for noise levels. Regular maintenance will be conducted to the manufacturer’s specifications. Equipment covers, mufflers and other noise suppression equipment shall also be maintained and in good working order at all times.	Megafauna §3.1.5 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
129	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-4 (8)	Observations of marine turtles and cetaceans are to be recorded on the Observation Record Form.	Megafauna §3.1.5 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA (D&C)
130	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-5 (8)	Observers on the vessels will maintain a watch for the marine turtles/significant marine mammals (during daylight hours) during the dredging and construction. If a significant marine mammal or reptile is sighted within the 'monitoring zone' of 400 m radius around the dredge or piling barge, it will be watched until the marine turtle/significant mammal moves outside of the monitoring zone or is not sighted for 10, 15 or 20 minutes - If the mammal or reptile does not leave the 400m monitoring area or starts to enter the 100m exclusion zone, it will be encouraged to leave the area.	Megafauna §3.1.5 DMP §5.3 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA (D&C)
131	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-6 (8)	The use of thrusters and excessively noisy equipment will be avoided wherever practicable and engines, thrusters and auxiliary plant will not be left in 'stand by' or 'running' mode unnecessarily	Megafauna §3.1.5 EMP §10.11	Regular Basis	Part of Underwater Noise ≈ $14,594	TPSA
132	C	All Vessel Sea Movement (Dredging, Transportation, Tugboats etc) during Construction and Piling Activities during Land Reclamation	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-7 (8)	Marine Mammal Observations daily	Megafauna §3.1.5	Daily	Part of Underwater Noise ≈ $14,594	TPSA (D&C)
133	C	All Vessel Activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-1 (8)	Where practicable, vessel loading and unloading in nearshore areas shall be conducted during daylight hours. Where this is not practicable, artificial lighting shall be reduced to the minimum required for safe operations.	DMP §5.3 EMP §10.11	Regular Basis	Part of Lighting ≈ $8,757	TPSA
134	C	All Vessel Activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-2 (8)	Outside artificial lighting on vessels will be kept to a minimum (i.e. navigational lights and where safety dictates necessary deck lighting). Lighting should be switched off when not in use and automatic timers/sensors installed where possible.	Megafauna §3.4.5 DMP §5.3 EMP §10.11	Regular Basis	Part of Lighting ≈ $8,757	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
135	C	All Construction Activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-3 (8)	Only necessary artificial lights shall be used. 'Unnecessary lighting' includes lighting in unused areas, decorative lighting or lighting that is brighter than needed.	Megafauna §3.4.5 DMP §5.3 EMP §10.11	Regular Basis	Part of Lighting ≈ $8,757	TPSA
136	C	All Construction Activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-4 (8)	Monitoring of light use after hours to ensure it is essential lighting only		Daily	Part of Lighting ≈ $8,757	TPSA (EXT)
137	C	Dredging	Turbidity of the water	11- Offshore disposal	Project Site	11-1 (3)	Use of suitable dredging plant and equipment to minimise turbidity during transfer of material to the offshore disposal site.	DMP §5.1 EMP §10.12	Regular Basis	Included in D&C contract	TPSA (D&C)
138	C	Dredging	Turbidity of the water	11- Offshore disposal	Project Site	11-2 (3)	Weekly Report by the D&C contractor on the volumes disposed at the offshore disposal ground	DMP §7	Weekly		TPSA (D&C)
139	C	Dredging	Turbidity of the water	11- Offshore disposal	Project Site	11-3 (3)	A report on the bathymetric survey will be provided to Engineer/Employer within two months of the final bathymetric survey being undertaken. This report will include a chart showing the change in sea floor bathymetry as a result of disposal and include written commentary on the volume of dumped material that appears to have been retained within the spoil ground.	DMP §7	2 months after final bathymetri c survey		TPSA (D&C)
140	C	All Construction Activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Project Site	12-4 (9)	Monthly recording of fauna impacts and mortality as a result of project construction.	EMP §10.10	Monthly	Part of Biodiversity ≈ $23,351	TPSA (D&C)
141	C	All Construction Activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Offset Area	12-5 (9)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.10	Regular Basis	Part of Biodiversity ≈ $23,351	TPSA and PMU
142	C	All Construction Activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Project Site	12-6 (9)	Reporting and interpretation of fauna injury and death records every 6 months.	EMP §10.10 EMP §12.10 EMP §12.28.2 EMP §13.1	Semi-Annual	Part of Biodiversity ≈ $23,351	TPSA (D&C)
143	C	All Construction Activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Project Site	12-7 (9)	Collation of results into Annual Environmental Report to NDCPEI.	EMP §12.10 EMP §13.1	Annual	Part of Biodiversity ≈ $23,351	TPSA
144	C	All Construction Activities	Soil Contamination	13- Terrestrial vegetation	Project Site	13-3 (5)	Soil contamination should be monitored through maintaining records of spill events	EMP §10.2	Event Trigger	-	TPSA (D&C)
145	C	Haulage of building materials by trucks	Safety	14- Traffic	Project Site	14-2 (11)	Transport infrastructure upgrades to support container trucks travelling the local road transport network	EMP §10.13 EIS §9.16.4	Regular Basis	-	PMU
146	C	Haulage of building materials by trucks	Safety	14- Traffic	Project Site	14-3 (11)	Planning to minimize vehicle movements (e.g. use of buses to transport workers).	EMP §10.13 EIS §9.16.4	Regular Basis	-	TPSA (D&C)

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
147	C	Haulage of building materials by trucks	Safety	14- Traffic	Project Site	14-4 (11)	Implementation of one-way systems, ensuring reversing sensor/alarms are installed on all vehicles and mobile equipment and signage in reversing areas can reduce the risk of reversing accidents	EIS §9.16.4	Regular Basis	-	TPSA (D&C)
148	C	Haulage of building materials by trucks	Safety	14- Traffic	Project Site	14-5 (11)	Traffic signage – all traffic signage will be clearly and prominently displayed in well-lit areas. Signage will be posted to indicate speed limits, restricted access, visitor parking, headroom, and other route hazards	EIS §9.16.4	Regular Basis	-	TPSA (D&C)
149	C	Haulage of building materials by trucks	Safety	14- Traffic	Project Site	14-6 (11)	Traffic Management Plan	EMP §12.13 EMP §12.28.2	Annual	-	TPSA (D&C)
150	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-2 (15)	The Concessionaire and the Grantor will communicate with SEPFOPE to ensure existing programs of SEPFOPE be especially accessible to the residents of host Suco/District/Country prior to and during the construction period.	SIA §8.3.2 SIA §9 EMP §10.14 EIS §9.17.4 EIS §9.23.4	Regular Basis	Part of Employment ≈ $116,754	PMU and TPSA
151	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-3 (15)	The concession plan should state that it targets to employ 75% of Timor-Leste citizens and permanent residents during the construction period for positions where skills are available in Timor-Leste.	SIA §8.3.2 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $116,754	TPSA
152	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-4 (15)	The Concessionaire should provide continuous training to newly hired port staff.	SIA §8.3.2 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $116,754	TPSA
153	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-5 (15)	The Concessionaire should adhere to their targets of approximately 50% of Management and Finance-Administration, 80% of O&M and HSE officers and 95% of equipment driver be filled by Timor-Leste as noted in their Local Development Plan.	EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $116,754	TPSA
154	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-6 (15)	The Concessionaire will give priority were possible to residents of host Suco/District/Country during the hiring of port personnel.	EMP §10.14 EIS §9.17.4 EIS §9.20.4	Regular Basis	Part of Employment ≈ $116,754	TPSA
155	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-7 (15)	Maintenance of the Grievance Mechanism.	EMP §10.14 EIS §9.17.4 EIS §9.23.4	Regular Basis	Part of Employment ≈ $116,754	PMU and TPSA
156	C	All Construction Activities	Employment Rate, Skill Training	15- Employment	Project Site	15-8 (15)	Monitoring of the GoTL's implementation of the Resettlement Action Plan and Livelihood Restoration Plan through the Grievance Mechanism.		see PMU	Part of Employment ≈ $116,754	PMU

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
157	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Settlement and Livelihood	16- Fishing	Project Site	16-2 (6)	Providing alternative access locations if necessary.	EMP §10.17	Regular Basis	Part of Fishing ≈ $53,123	PMU
158	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Settlement and Livelihood	16- Fishing	Project Site	16-3 (6)	Providing safe passage zones.	EMP §10.17	Regular Basis	Part of Fishing ≈ $53,123	TPSA
159	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Settlement and Livelihood	16- Fishing	Offset Area	16-4 (6)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.17	Regular Basis	Part of Fishing ≈ $53,123	TPSA and PMU
160	C	Dredging, Land Reclamation, Structure Building, Piling and Construction of Jetty	Settlement and Livelihood	16- Fishing	Project Site	16-5 (6)	Monitoring according to BAP	EMP §10.17	see BAP	Part of Fishing ≈ $53,123	TPSA
161	C	All Construction Activities	Settlement and Livelihood	17- Population and community	Project Site	17-3 (5)	The impact on community during the project will be addressed by resettlement and compensation to be undertaken by the GoTL.	EMP §10.19	Regular Basis	Part of Population ≈ $72,971	PMU
162	C	All Construction Activities	Settlement and Livelihood	17- Population and community	Project Site	17-4 (5)	Continuous and ongoing consultation with stakeholders throughout the project life	EMP §10.22 EIS §9.26.4	Regular Basis	Part of Population ≈ $72,971	PMU and TPSA
163	C	All Construction Activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-2 (7)	Where a site is to be permanently destroyed, appropriate community consultation is to be undertaken and documentation of this site.	EMP §10.25 EMP §12.28.2 EIS §9.29.4	Regular Basis	Part of Cultural Heritage ≈ $11,675	TPSA
164	C	All Construction Activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-3 (7)	Protection of sites which are adjacent to the project site through fencing, access controls and signpost in accordance with the requirements of the local community.	Cultural §8 EMP §10.25 EIS §9.29.4	Regular Basis	Part of Cultural Heritage ≈ $11,675	TPSA (EXT)
165	C	All Construction Activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-4 (7)	Training and education of all employees on cultural heritage (included in Works induction session).	Cultural §8 EMP §10.25 EIS §1.8	Regular Basis	Part of Cultural Heritage ≈ $11,675	TPSA (D&C)
166	C	All Construction Activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-5 (7)	Prior to excavation and construction works, consultation to be undertaken with the community and the caretaker of the identified Sacred Site, 05-Usu Madesan and the identified Cultural heritage site, 04-Bilimau ain. This consultation is likely to include conducting a traditional ceremony to approve the project construction and permit the site to be impacted by the project.	Cultural §8	Regular Basis	Part of Cultural Heritage ≈ $11,675	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
167	C	All Construction Activities	Mangroves	19- BAP (Mangroves)	Project Site	19-9 (13)	Mangrove health assessments during construction according to tiered monitoring and management framework	BAP §11.4 EMP §13.1	As per tiered monitoring and management framework	BAP Mangroves ≈ $396,090	TPSA (EXT)
168	C	All Construction Activities	Mangroves	19- BAP (Mangroves)	Project Site	19-10 (13)	Sedimentation monitoring during construction	BAP §11.4 EMP §13.1	Monthly	BAP Mangroves ≈ $396,090	TPSA (D&C)
169	C	All Construction Activities	Mangroves	19- BAP (Mangroves)	Offset Area	19-11 (13)	Regular review and monitoring of progress of implementation of Community-managed offset area (CMA)	BAP §11.4	Monthly	BAP Mangroves ≈ $396,090	TPSA and PMU (EXT)
170	C	All Construction Activities	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Project Site	20-5 (6)	Seagrass health assessments during construction according to tiered monitoring and management framework	BAP §11.4	As per tiered monitoring and management framework	BAP Mangroves ≈ $396,090	TPSA (EXT)
171	C	All Construction Activities	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Project Site	20-6 (6)	Sedimentation monitoring during construction	BAP §11.4 EMP §13.1	Monthly	BAP Mangroves ≈ $396,090	TPSA (D&C)
172	C	All Construction Activities	Birds and Turtle	21- BAP (Birds and Turtles)	Project Site	21-6 (7)	Reporting of fauna deaths as per the Project Environmental Management Plan (EMP)	BAP §11.4	Event Trigger	≈ $23,351	TPSA (D&C)
173	C	All Construction Activities	Ecosystem at Affected Areas	22- BAP (Ecosystem Services)	Project Site	22-4 (5)	Monitor and manage any grievances from the community regarding access to fishing resources	BAP §11.4 EIS §9.20.4	As per Grievance mechanism	-	PMU and TPSA
174	C	All Construction Activities	NA as it should be settled before the Construction Phase	23- BAP (Regulating ES)	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
175	C	All Construction Activities	NA as it should be settled before the Construction Phase	24- Impact on structures in Directly Impacted Areas and Crops/productive trees	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
176	C	All Construction Activities	NA as it should be settled before the Construction Phase	25- Livelihoods	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
177	C	All Construction Activities	NA as it should be settled before the Construction Phase	26- Income for businesses	Project Site	-	NA as it should be settled before the Construction Phase		-	-	

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
178	C	All Construction Activities	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-1 (10)	The Concessionaire will clearly delineate work areas, ensuring access to fishermen going to the deeper offshore and implement measures to minimize impacts on adjacent fishing ground as well as impacts from increased in turbidity. This will be monitored on a regular basis as part of the scope of work under the Environmental Management Plan for the port	SIA §8.3.1 EIS §1.8 EIS §9.20.4	Regular Basis	-	TPSA (D&C)
179	C	All Construction Activities	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-2 (10)	A RAP will be prepared which include the provision of allowance for temporary loss of income from fishing and allowance for temporary loss of income from employment at the site	SIA §8.3.1 EIS §1.8 EIS §9.20.4	Regular Basis	Paid by GoTL	PMU
180	C	All Construction Activities	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-3 (10)	The Livelihood Restoration Plans will be incorporated into the RAP to be prepared and implemented by the Government. Training for jobs available during the construction period should be made accessible to the Suco/District residents. This will be discussed, re-updated and implemented with the concessionaire's support as the impact is likely to occur and extend during port construction and operation.	SIA §8.3.1 EIS §1.8 EIS §9.20.4	Regular Basis	Paid by GoTL	PMU
181	C	All Construction Activities	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-4 (10)	Mitigation measures applicable to increased turbidity will be determined in detail during the preparation of the Dredging Management Plan that will be part of the Environmental Impact Statement (EIS) development	SIA §8.3.1 EIS §1.8	Regular Basis	-	TPSA
182	C	All Construction Activities	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-5 (10)	Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders	SIA §8.3.1 EIS §1.8 EIS §9.20.4	Regular Basis	-	PMU and TPSA
183	C	All Construction Activities	Employment Rate	28- Population Influx	Project Site	28-1 (3)	The Concessionaire and the Grantor will communicate with SEPFOPE to ensure existing programs of SEPFOPE be especially accessible to the residents of host Suco/District/Country prior to and during the construction period.	SIA §8.3.3	Regular Basis	-	TPSA and PMU

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
184	C	All Construction Activities	Employment Rate	28- Population Influx	Project Site	28-2 (3)	Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders	SIA §8.3.3	Regular Basis	-	PMU and TPSA
185	C	All Construction Activities	Employment Rate	28- Population Influx	Project Site	28-3 (3)	Avoid hiring on the spot in front of the port	SIA §8.3.3	Regular Basis	-	TPSA (D&C)
186	C	All Construction Activities	Health of Population	29- Community Heathly and Safety	Project Site	29-2 (9)	Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	PMU and TPSA
187	C	All Construction Activities	Health of Population	29- Community Heathly and Safety	Project Site	29-3 (9)	Facilitate education and awareness programs throughout the lifespan of the port	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA and PMU
188	C	All Construction Activities	Health of Population	29- Community Heathly and Safety	Project Site	29-4 (9)	Establish access controls to the site activities posing health and safety risks to the community	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA
189	C	All Construction Activities	Health of Population	29- Community Heathly and Safety	Project Site	29-5 (9)	Develop strict protocols for increased traffic safety	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA (D&C)
190	C	All Construction Activities	Employment	30- APORTIL staff numbers will be reduced with the building of the new port	Project Site	-	NA as Employment will be settle before Operation Phase		-	-	
191	C	All Construction Activities	Visual of the Projects	31- Visual impact of the port on local tourist operator and community	Project Site	-	NA as construction will only completed by Operation Phase		-	-	
192	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-11 (19)	No vehicles or plant will be left idling unnecessarily.	-Carbon monoxide ; 1 hour = 40,000 µg/m3 Annual = Max 1 -Nitrogen dioxide ; 1 hour = 200 µg/m3 Annual = 40 µg/m3 -Photochemical oxidants (as ozone) ; 1 hour = 235 µg/m3 -Sulphur dioxide ; 1 hour = 350 µg/m3 24 hour = 125 µg/m3 -Particles as PM2.5 ; 24 hour = 75 µg/m3 Annual = 70 µg/m3 Air Quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA
193	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-12 (19)	Reduce the number of vehicle movements through better planning (including optimising tug boats working time)	Air Quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
194	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-13 (19)	Use a good quality fuel (e.g. with low sulphur content)	Air Quality §8 EMP §10.4 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA
195	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-14 (19)	All heavy duty vehicles should meet emission regulations from local Environmental Protection Agency or nominated standard.	EMP §10.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA
196	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-15 (19)	Provide the need-based safety measures by providing PPE to the workers based on the nature of the work	Air Quality §8 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA
197	O	Using crane & other heavy equipment for port activities	Exhaust carbon from engine	1 - Air Quality	Project Site	1-16 (19)	Controlled access to the site with warnings around the perimeter	Air Quality §8 EIS §9.5.4 EIS §9.8.4	Regular Basis	Part of Air Quality ≈ $64,215	TPSA
198	O	Using crane & other heavy equipment for port activities	Pollution to environment	1 - Air Quality	Project Site	1-17 (19)	Install Automated Weather Station (AWS) recording daily measurements of: - Station identification number - State and time of record/observation - Air, wet bulb and wet dew point temperatures - Precipitation and evaporation - Relative humidity - Wind speed and direction - Solar radiation - Barometric pressure - Visibility - Cloud cover - Cloud ceiling height, if practicable	EMP §12.1 EMP §12.28.3	Daily	Part of Air Quality ≈ $64,215	TPSA (EXT)
199	O	Using crane & other heavy equipment for port activities	Pollution to people	1 - Air Quality	Tibar Retreat, Tibar Primary School	1-18 (19)	A monitoring and reporting program as required per the Grievance Mechanism, monitor the air quality in the following sensitive receptors: - AQ1 – Tibar Retreat. - AQ2 – Tibar Primary School. The monitoring stations are derived from the Baseline Air Quality monitoring survey (Advisian, 2016a). The monitoring program should assess and report on PM10 and PM2.5.	Air Quality §10 EMP §12.4 EMP §12.28.3 EMP §13.1.1	As per Grievance Mechanism	Part of Air Quality ≈ $64,215	TPSA (EXT)
200	O	Using crane & other heavy equipment for port activities	Pollution to environment	1 - Air Quality	Project Site	1-19 (19)	Safety with staff training and the organisation of annual awareness campaigns	Air Quality §8 EIS §9.8.4	Annual	Part of Air Quality ≈ $64,215	TPSA
201	O	Using crane & other heavy equipment for port activities	Noise and Vibration resulted from the high speed transportation	2 - Noise and vibration	Project Site	2-10 (13)	Haulage of goods and movement of vehicles/people and equipment can be scheduled.	EMP §10.5 EIS §1.8 EIS §9.25.4	Regular Basis	Part of Noise & Vibration ≈ $35,026	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
202	O	Using crane & other heavy equipment for port activities	Noise and Vibration resulted from the high speed transportation	2 - Noise and vibration	Project Site	2-11 (13)	Use selected equipment with the lowest possible noise specifications. If a noise complaint is recorded through the grievance framework and monitoring confirms it is above the guideline level a retrofit mitigation measure will be implemented. e.g. temporary barriers	Noise §7.2 EIS §1.8 EIS §9.9.4	Regular Basis	Part of Noise & Vibration ≈ $35,026	TPSA (EXT)
203	O	Using crane & other heavy equipment for port activities	Noise and Vibration resulted from the high speed transportation	2 - Noise and vibration	Tibar Retreat, Tibar Primary School	2-12 (13)	As required per the Grievance Mechanism measurements at sensitive receptors i.e. Tibar Retreat. Tibar Primary School. Results interpretation and review of the EMP as required.	EMP §12.5 EMP §12.28.3 EMP §13.1.1	As per Grievance Mechanism	Part of Noise & Vibration ≈ $35,026	TPSA
204	O	Using crane & other heavy equipment for port activities	Noise and Vibration resulted from the high speed transportation	2 - Noise and vibration	Project Site	2-13 (13)	Collation of results into semi-annual or annual Environmental Report to NDCPEI.	EMP §12.5 EMP §12.28.3 EMP §13.1.1	Semi-Annual or Annual	Part of Noise & Vibration ≈ $35,026	TPSA
205	O	Using crane & other heavy equipment for port activities	Pollution to environment	3 - Sedimentation	Project Site	3-3 (4)	Culverts on the project site and along the road adjacent to the site to be maintained and kept free of sediment and debris.	Hydro §5 & 6 EMP §12.2 EIS §9.6.4 EIS §9.11.4	Regular Basis	Part of Sedimentation ≈ $52,539	TPSA
206	O	Using crane & other heavy equipment for port activities	Pollution to environment	3 - Sedimentation	Project Site	3-4 (4)	Regular bathymetry to monitor sedimentation during Operations	Hydro §5 & 6 EMP §12.2 EMP §12.28.3 EMP §13.1.1 EIS §9.6.4 EIS §9.11.4	1 year and 3 years after completion ; then, when required	Part of Sedimentation ≈ $52,539	TPSA
207	O	Using crane & other heavy equipment for port activities	Pollution to environment	4 - Water Quality	Project Site	4-13 (17)	Cleaning of all oil, fuel and waste spills immediately	Hydro §5 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $17,513	TPSA
208	O	Using crane & other heavy equipment for port activities	Pollution to environment	4 - Water Quality	Project Site	4-14 (17)	Waste management procedure to control litter	Hydro §5 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $17,513	TPSA
209	O	Using crane & other heavy equipment for port activities	Pollution to environment	4 - Water Quality	Project Site	4-15 (17)	Mitigation of flooding during extreme runoff events through the use of berms and diversion drains to limit flooding of the construction site	Hydro §5 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $17,513	TPSA
210	O	Using crane & other heavy equipment for port activities	Pollution to environment	4 - Water Quality	Project Site	4-16 (17)	Correct operation and maintenance of waste water treatment unit	Hydro §5 & 6 EMP §10.8 EIS §9.11.4	Regular Basis	Part of Water Quality ≈ $17,513	TPSA
211	O	Using crane & other heavy equipment for port activities	Pollution to environment	4 - Water Quality	Project Site	4-17 (17)	One post construction survey event of sedimentation and water quality impact and reference is recommended to take a snapshot of the post construction impact. (a few months after construction completed).	EMP §12.8 EMP §12.28.3 EMP §13.1.1	1 time after construction	Part of Water Quality ≈ $17,513	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
212	O	Using crane & other heavy equipment for port activities	Biodiversity of the Affected Areas	5 - Benthic Habitat	Offset Area	5-17 (26)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass.		Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA and PMU
213	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-18 (26)	The Vessel Master will be responsible for the management of any spill response during construction activities	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
214	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-19 (26)	As required under MARPOL 73/78 Annex I/ Marine Order 91 all construction greater than 400 gross tonnes must carry a SOPEP	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
215	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-20 (26)	The Vessel Master will form and incident management team to response to any spills	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
216	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-21 (26)	In the event of a hydrocarbon spill, the Vessel Master will implement available controls and resources of the SOPEP	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
217	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-22 (26)	An oil spill response drill will be undertaken in accordance with SOPEP requirements on all vessels prior to conducting the activity (within 3 months prior)	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
218	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-23 (26)	The Vessel Master will have sufficient boom onsite to fully encircle the largest vessel	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
219	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-24 (26)	If the spill from the vessel cannot be contained and the mangroves to the west of Tibar Bay are at risk the protection/containment boom will be installed to protect the mangroves. The boom will be deployed to protect the area of mangroves with the highest canopy cover and where it will be most effective	PMSCP §8	Regular Basis	Part of Benthic Habitat ≈ $43,783	TPSA
220	O	Using crane & other heavy equipment for port activities	Pollutions to the waters	5 - Benthic Habitat	Project Site	5-25 (26)	In the event of a spill the Vessel Master will make notifications outlined in Section 4	PMSCP §8	Event Trigger	Part of Benthic Habitat ≈ $43,783	TPSA
221	O	Using crane & other heavy equipment for port activities	Pollution to Coral + Mangroves + Mudflat/Seagrass	5 - Benthic Habitat	Project Site	5-26 (26)	One post construction survey event of Coral, Mangrove and Seagrass impact and reference is recommended to take a snapshot of the post construction impact. (a few months after construction completed).	EMP §12.28.3 EMP 13.1.1	1 time after constructio n	Part of Benthic Habitat ≈ $43,783	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
222	O	Using crane & other heavy equipment for port activities	No impact as Reclamation is completed in Construction Phase	6 - Reclamation	Project Site	-	NA as Reclamation is completed in Construction Phase		-	-	
223	O	Marine Tugboat and Container Vessel Sea Movement	Potential Impact to Invasive Marine Species' health	7 - Invasive Marine Species	Project Site	7-4 (5)	The operations manual for the port should include reference to: All vessels entering the port to comply with the Guidelines in the Ballast Water Convention (2004) All vessels entering comply with INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS, 2004 (BWM CONVENTION)	EIS §9.13.4 EMP §10.12	Regular Basis	-	TPSA
224	O	Marine Tugboat and Container Vessel Sea Movement	Potential Impact to Invasive Marine Species' health	7 - Invasive Marine Species	Project Site	7-5 (5)	All ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V	EMP §10.8	Regular Basis	-	TPSA
225	O	Marine Tugboat and Container Vessel Sea Movement	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-13 (15)	To reduce the potential impacts of marine debris on marine fauna, waste associated with construction and operation must be managed appropriately. In addition, all ships at sea must adhere with the amendments to the International Maritime Organisation's (IMO's) International Convention for the Prevention of Pollution from Ships (Marine Pollution: MARPOL) Annex V which came into force on 1 January 2013. The amendments prohibit the discharge of all garbage from ships into the sea (except under very specific circumstances). This reverses the presumption that garbage may be discharged into the sea based on defined distances from shore and the nature of the garbage. The amendments also list requirements for garbage management plans on ships and port reception facilities for receiving waste.	Marine §9.2 EMP §10.11	Regular Basis	-	TPSA
226	O	Marine Tugboat and Container Vessel Sea Movement	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna	Project Site	8-14 (15)	A vessel will not travel greater than 6 knots within 300 m of a whale (caution zone) and not approach closer than 100 m from a whale; and a vessel will not approach closer than 50 m or a dolphin and/or 100 m for a whale (with the exception of animals bow riding).	Megafauna §3.2.4 EIS §1.8 EIS §9.14.4	Regular Basis	-	TPSA

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
227	O	Marine Tugboat and Container Vessel Sea Movement	Potential Impact to Marine Megafauna's health	8 - Marine Megafauna		8-15 (15)	Procedures for marine fauna interaction shall be developed for vessels to reduce the potential impacts to marine fauna.	EMP §10.11	Regular Basis	-	TPSA
228	O	Using crane & other heavy equipment for port activities	Underwater Noise pollution affecting marine animals	9 - Underwater noise	Project Site	9-8 (8)	A vessel will not travel greater than 6 knots within 300 m of a whale (caution zone) and not approach closer than 100 m from a whale; and a vessel will not approach closer than 50 m or a dolphin and/or 100 m for a whale (with the exception of animals bow riding).	Megafauna §3.1.6	Regular Basis	-	TPSA
229	O	Using crane & other heavy equipment for port activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-5 (8)	Where practicable, vessel loading and unloading in nearshore areas shall be conducted during daylight hours. Where this is not practicable, artificial lighting shall be reduced to the minimum required for safe operations.	DMP §5.3	Regular Basis	Part of Lighting ≈ $8,757	TPSA
230	O	Using crane & other heavy equipment for port activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-6 (8)	Outside artificial lighting on vessels will be kept to a minimum (i.e. navigational lights and where safety dictates necessary deck lighting). Lighting should be switched off when not in use and automatic timers/sensors installed where possible.	Megafauna §3.4.5 DMP §5.3	Regular Basis	Part of Lighting ≈ $8,757	TPSA
231	O	Using crane & other heavy equipment for port activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-7 (8)	Only necessary artificial lights shall be used. 'Unnecessary lighting' includes lighting in unused areas, decorative lighting or lighting that is brighter than needed.	Megafauna §3.4.5 EMP §10.11	Regular Basis	Part of Lighting ≈ $8,757	TPSA
232	O	Using crane & other heavy equipment for port activities	Excessive Light pollution to the Project Area	10- Lighting	Project Site	10-8 (8)	Monitoring of light use after hours to ensure it is essential lighting only		Regular Basis	Part of Lighting ≈ $8,757	TPSA (EXT)
233	O	Using crane & other heavy equipment for port activities	No impact as Reclamation is completed in Construction Phase	11- Offshore disposal	Project Site	-	No impact as Reclamation is completed in Construction Phase		-	-	
234	O	Using crane & other heavy equipment for port activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Offset Area	12-8 (9)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.10	Regular Basis	-	TPSA and PMU
235	O	Using crane & other heavy equipment for port activities	Biodiversity of the Affected Areas	12- Terrestrial fauna (incl. birds)	Offset Area	12-9 (9)	Collation of results into Annual Environmental Report to NDCPEI.	EMP §12.10 EMP §13.1.1	Annual	-	TPSA
236	O	Using crane & other heavy equipment for port activities	Soil Contamination	13- Terrestrial vegetation	Project Site	13-4 (5)	Maintenance of Spill response kits	EMP §10.3	Regular Basis	-	TPSA
237	O	Using crane & other heavy equipment for port activities	Soil Contamination	13- Terrestrial vegetation	Project Site	13-5 (5)	Soil contamination should be monitored through maintaining records of spill events	EMP §10.2	Event Trigger	-	TPSA
238	O	Using crane & other heavy equipment for port activities	Safety	14- Traffic	Project Site	14-7 (11)	Transport infrastructure upgrades to support container trucks travelling the local road transport network	EMP §10.13 EIS §9.16.4	Regular Basis	-	PMU

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
239	O	Using crane & other heavy equipment for port activities	Safety	14- Traffic	Project Site	14-8 (11)	Planning to minimize vehicle movements (e.g. use of buses to transport workers).	EMP §10.13 EIS §9.16.4	Regular Basis	-	TPSA
240	O	Using crane & other heavy equipment for port activities	Safety	14- Traffic	Project Site	14-9 (11)	Implementation of one-way systems, ensuring reversing sensor/alarms are installed on all vehicles and mobile equipment and signage in reversing areas can reduce the risk of reversing accidents	EIS §9.16.4	Regular Basis	-	TPSA
241	O	Using crane & other heavy equipment for port activities	Safety	14- Traffic	Project Site	14-10 (11)	Traffic signage – all traffic signage will be clearly and prominently displayed in well-lit areas. Signage will be posted to indicate speed limits, restricted access, visitor parking, headroom, and other route hazards	EIS §9.16.4	Regular Basis	-	TPSA
242	O	Using crane & other heavy equipment for port activities	Safety	14- Traffic	Project Site	14-11 (11)	Traffic Management Plan	EMP §12.13 EMP §12.28.3 EMP §13.1	Annual	-	TPSA (D&C)
243	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-9 (15)	The Concessionaire should provide continuous training to newly hire port staff.	SIA §8.4.5 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $58,377	TPSA
244	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-10 (15)	The Concessionaire should adhere to their targets of approximately 50% of Management and Finance-Administration, 80% of O&M and HSE officers and 95% of equipment driver be filled by Timor-Leste as noted in their Local Development Plan.	SIA §8.4.5 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $58,377	TPSA
245	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-11 (15)	The Concessionaire will give priority were possible to residents of host Suco/District/Country during the hiring of port personnel.	SIA §8.4.5 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $58,377	TPSA
246	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-12 (15)	Maintenance of the Grievance Mechanism.	SIA §8.4.5 EMP §10.14 EIS §9.17.4	Regular Basis	Part of Employment ≈ $58,377	PMU and TPSA
247	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-13 (15)	Training for jobs available during Operations and Maintenance phase should be made accessible to Suco/District residents.	SIA §9	Regular Basis	Part of Employment ≈ $58,377	TPSA and PMU
248	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-14 (15)	The Concessionaire and the Grantor will coordinate with Secretary of State for Professional Training and Employment Policy SEPFOPE to gear its training program at the local vocational training centre to jobs available at the port	SIA §9	Regular Basis	Part of Employment ≈ $58,377	TPSA and PMU
249	O	Using crane & other heavy equipment for port activities	Employment Rate, Skill Training	15- Employment	Project Site	15-15 (15)	Monitoring of the GoTL's implementation of the Resettlement Action Plan and Livelihood Restoration Plan through the Grievance Mechanism.		see PMU	Part of Employment ≈ $58,377	PMU

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
250	O	Using crane & other heavy equipment for port activities	Settlement and Livelihood	16- Fishing	Offset Area	16-6 (6)	Implement the BAP & establish offset equivalent to 3.5 ha mangrove and 15 ha seagrass	EMP §10.17	Regular Basis	-	TPSA and PMU
251	O	Using crane & other heavy equipment for port activities	Settlement and Livelihood	17- Population and community	Project Site	17-5 (5)	Continuous and ongoing consultation with stakeholders throughout the project life	EMP §10.22 EIS §9.26.4	Regular Basis	'≈ $ 29,189	PMU and TPSA
252	O	Using crane & other heavy equipment for port activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-6 (7)	Training and education of all employees on cultural heritage.	EIS §1.8	Regular Basis	-	TPSA
253	O	Using crane & other heavy equipment for port activities	Cultural Heritage Site	18- Cultural Heritage	Project Site	18-7 (7)	Any and all occurrences of damage sites are to be recorded;	EMP §12.28.3 EMP §13.1.1	Event Trigger	-	TPSA
254	O	Using crane & other heavy equipment for port activities	Mangroves	19- BAP (Mangroves)	Project Site	19-12 (13)	Monitoring implementation of the BAP	BAP §11.4	see BAP	BAP Mangrove ≈ $72,971	TPSA and PMU (EXT)
255	O	Using crane & other heavy equipment for port activities	Mangroves	19- BAP (Mangroves)	Project Site	19-13 (13)	Regular review and monitoring of progress of implementation of Community-managed conservation area (CMA)	BAP §11.4	Semi-Annual	BAP Mangrove ≈ $72,971	TPSA and PMU (EXT)
256	O	Using crane & other heavy equipment for port activities	Mudflat/Seagrass	20- BAP (Mudflat/Seagrass)	Project Site	-	NA as all construction will be completed		-	-	
257	O	Using crane & other heavy equipment for port activities	Birds and Turtle	21- BAP (Birds and Turtles)	Project Site	21-7 (7)	Reporting of fauna deaths as per the Project Environmental Management Plan (EMP)	BAP §11.4	Event Trigger	-	TPSA (EXT)
258	O	Using crane & other heavy equipment for port activities	Ecosystem at Affected Areas	22- BAP (Ecosystem Services)	Project Site	22-5 (5)	Monitor and manage any grievances from the community regarding access to fishing resources	BAP §11.4 EIS §9.20.4	As per Grievance mechanis m	-	PMU and TPSA
259	O	Using crane & other heavy equipment for port activities	NA as it should be settled before the Construction Phase	23- BAP (Regulating ES)	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
260	O	Using crane & other heavy equipment for port activities	NA as it should be settled before the Construction Phase	24- Impact on structures in Directly Impacted Areas and Crops/productive trees	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
261	O	Using crane & other heavy equipment for port activities	NA as it should be settled before the Construction Phase	25- Livelihoods	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
262	O	Using crane & other heavy equipment for port activities	NA as it should be settled before the Construction Phase	26- Income for businesses	Project Site	-	NA as it should be settled before the Construction Phase		-	-	
263	O	Marine Tugboat and Container Vessel Sea Movement	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-6 (10)	Consultation with local community members should be on-going to include regular communications regarding fishing access and availability.	SIA §8.4.4	Regular Basis	-	TPSA and PMU

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
264	O	Marine Tugboat and Container Vessel Sea Movement	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-7 (10)	The Concessionaire should regularly maintain access to offshore fishing ground including maintaining proper navigational aid to avoid collision between fishermen and vessels	SIA §8.4.1 SIA §8.4.4 EIS §1.8	Regular Basis	-	TPSA
265	O	Marine Tugboat and Container Vessel Sea Movement	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-8 (10)	Mitigation measures to minimize impacts on fishing ground within the Bay and impacts from higher turbidity of water that will impact sources of livelihood will be determined during the preparation of the Environmental Impact Statement (EIS). The EMP should be strictly implemented by the Concessionaire.	SIA §8.4.1	Regular Basis	-	TPSA
266	O	Marine Tugboat and Container Vessel Sea Movement	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-9 (10)	Training for positions available at the Port during Operation should be made available to local community	SIA §8.4.1 EIS §1.8 EIS §9.17.4 EMP §10.14	Regular Basis	-	TPSA
267	O	Marine Tugboat and Container Vessel Sea Movement	Fishing, Livelihood	27- Impacts on access to the deeper ocean, fishing ground within the Bay, increased in turbidity and reduction in sources of livelihood	Project Site	27-10 (10)	Maintenance of Grievance Redress Mechanisms to address changes to local access	SIA §8.4.4 EIS §1.8 EIS §9.20.4	Regular Basis	-	PMU and TPSA
268	O	Using crane & other heavy equipment for port activities	NA as Employment will be settle before Operation Phase	28- Population Influx	Project Site	-	NA as Employment will be settle before Operation Phase		-		
269	O	Using crane & other heavy equipment for port activities	Health of Population	29- Community Heathly and Safety	Project Site	29-6 (9)	Maintenance of the Grievance Redress Mechanism established pre-construction and expansion to include construction impacted stakeholders	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	PMU and TPSA
270	O	Using crane & other heavy equipment for port activities	Health of Population	29- Community Heathly and Safety	Project Site	29-7 (9)	Facilitate education and awareness programs throughout the lifespan of the port	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA and PMU
271	O	Using crane & other heavy equipment for port activities	Health of Population	29- Community Heathly and Safety	Project Site	29-8 (9)	Establish access controls to the site activities posing health and safety risks to the community	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA
272	O	Using crane & other heavy equipment for port activities	Health of Population	29- Community Heathly and Safety	Project Site	29-9 (9)	Develop strict protocols for increased traffic safety	SIA §8.3.4 EMP §10.20 EIS §9.24.4	Regular Basis	-	TPSA (D&C)
273	O	Using crane & other heavy equipment for port activities	Employment	30- APORTIL staff numbers will be reduced with the building of the new port	Project Site	30-1 (3)	A Strategic Port Area Development Plan (APORTIL Development Plan) is being developed to encompass port operations in other districts.	SIA §8.4.2	Regular Basis	-	PMU

No	Stages	Activities	Potential Impact	Parameter / Aspect	Sampling Location	ID #	Mitigation Plan	Doc reference / Limit Value	Frequency	Cost	Respon-sibility
274	O	Using crane & other heavy equipment for port activities	Employment	30- APORTIL staff numbers will be reduced with the building of the new port	Project Site	30-2 (3)	A National Port Organisational structure should be developed to include position descriptions and demobilisation and or re skilling of staff.	SIA §8.4.2	Continual basis	-	PMU and TPSA
275	O	Using crane & other heavy equipment for port activities	Employment	30- APORTIL staff numbers will be reduced with the building of the new port	Project Site	30-3 (3)	Some staff will be transferred to the Tibar Bay Port.	SIA §8.4.2	Continual basis	-	TPSA and PMU
276	O	Using crane & other heavy equipment for port activities	Visual of the Projects	31- Visual impact of the port on local tourist operator and community	Project Site	31-1 (3)	Existing vegetation around the perimeter of the port should be retained, if possible to act as a visual screen	SIA §8.4.3	Continual basis	-	TPSA
277	O	Using crane & other heavy equipment for port activities	Visual of the Projects	31- Visual impact of the port on local tourist operator and community	Project Site	31-2 (3)	Where feasible the elements within the construction site should be located to minimise visual impact	SIA §8.4.3	Continual basis	-	TPSA
278	O	Using crane & other heavy equipment for port activities	Visual of the Projects	31- Visual impact of the port on local tourist operator and community	Project Site	31-3 (3)	Preparation of Light Management Plan should be considered to mitigation night time lighting	SIA §8.4.3	Continual basis	-	TPSA

11.28.1 Pre-construction

Environmental Concern	Parameter to Monitor	Frequency and Variation
Climate	Automated Weather Station (AWS) recording measurements of: ▪ Station identification number; ▪ Date and time of record/observation; ▪ Air, wet bulb and wet dew point temperatures. ▪ Precipitation and evaporation; ▪ Relative humidity; ▪ Wind speed and direction; ▪ Solar radiation; ▪ Barometric pressure ; ▪ Visibility; ▪ Cloud cover; and ▪ Cloud ceiling height, if practicable.	Daily measurements for project life

11.28.2 Construction

Environmental Concern	Parameter to Monitor	Frequency and Variation
Climate	As per pre-construction.	Daily measurements for project life.
Air Quality	A monitoring and reporting program implemented to monitor the air quality in the following sensitive receptors: ▪ AQ1 - Tibar Retreat ▪ AQ2 - Tibar Primary School The monitoring program should assess and report on PM_{10}; and $PM_{2.5}$.	In response to the Grievance Redress Mechanism
Noise and Vibration	At sensitive receptors: ▪ Tibar Retreat ▪ Tibar Primary School	In response to the Grievance Redress Mechanism. Collation of results into annual Environmental Report to NDCPEI.
Coastal and Marine	Sedimentation effects	Monitoring of sedimentation and water quality per the Tiered Management Framework and trigger levels. Weekly monitoring of water quality with reactive coral health surveys. Monthly monitoring of sedimentation with reactive mangrove health surveys.
Flora	All flora damage	Reporting & Interpreation
Fauna	All fauna injury and death records.	Reporting and interpretation every six months.
Marine fauna (including fisheries)	Coral and sedimentation monitoring Monitoring tasks associated with the implementation of the Biodiversity Action Plan	Only in the event that trigger values are exceeded (Refer to Dredge management plan (Appendix A). Reporting in accordance with the Biodiversity Action Plan
Marine Habitats (including Coral)	Monitoring tasks associated with the implementation of the Biodiversity Action Plan	Reporting in accordance with the Biodiversity Action Plan
Traffic	Traffic incidents and mitigation measures implemented.	Update Traffic Management Plan
Social	Complaints and Grievance records review. Stakeholder consultation to check progress. Monitoring tasks associated with the implementation of the Biodiversity Action Plan	Regular review of Complaints and Grievance record. Regular stakeholder consultation. Reporting in accordance with the Biodiversity Action Plan
Cultural Heritage, Archaeological & Sacred Sites	Any and all occurrences of damage to sites are to be recorded.	

11.28.3 Operations

Environmental Concern	Parameter to Monitor	Frequency and Variation
Climate	As per pre-construction	
Air Quality	A monitoring and reporting program implemented to monitor the air quality in the following sensitive receptors: ▪ AQ1 – Tibar Retreat ▪ AQ2 – Tibar Primary School The monitoring program should assess and report on PM_{10}; and $PM_{2.5}$.	In response to the Grievance Redress Mechanism
Noise and Vibration	At sensitive receptors (as per construction).	In response to the Grievance Redress Mechanism. Collation of results into Annual Environmental Report to NDCPEI.
Water	N/A	N/A
Coastal and Marine	Sedimentation effects	One post construction survey event of sedimentation impact and reference is recommended to take a snapshot of the post construction impact. (a few months after construction completed). Regular bathymetry to monitor sedimentation during Operations
Marine Fauna (including fisheries)	Regular community engagement surveys around fisheries. Survey of sedimentation and fisheries. Collection of water quality measurements at reference and impact sites	One post construction survey event of sedimentation and water quality impact and reference is recommended to take a snapshot of the post construction impact. (a few months after construction completed).
Marine habitats (including coral)	One post construction survey event of Coral, Mangrove and Seagrass impact and reference is recommended to take a snapshot of the post construction impact. (a few months after construction completed).	One post construction survey event
Traffic	Traffic incidents and mitigation measures implemented	Update Traffic Management Plan
Social	Grievance redress mechanism – grievance register Stakeholder consultation to check progress.	Regular review of Complaints and Grievance record. Regular stakeholder consultation.
Cultural Heritage, Archaeological & Sacred Sites	Any and all occurrences of damage sites are to be recorded.	

12 Reporting requirements

This section outlines the reporting frequencies and types of reports to be prepared for each aspect identified in the EMP. Details of the reporting requirements include:

1. Monitoring limit or trigger which would dictate the need for reporting;
2. Frequency of reporting for internal and/or external purposes;
3. Incident, accident and emergency reporting;
4. Identification of the appropriate authorities/regulator to which the report is to be provided;
5. Measuring performance indicators and interpreting and acting on the indicators; and
6. Training programs required for employees/contractors.

12.1 Construction

Environmental Concern	Report	Frequency	External Reviewer
Air Quality	Air Quality Monitoring Report	As required per the Grievance Mechanism	
Noise and Vibration	At sensitive receptors: ▪ Tibar Retreat ▪ Tibar Primary School	As required per the Grievance Mechanism measurements at sensitive receptors i.e. Results interpretation and review of the EMP as required. Collation of results Environmental Report to NDCPEI.	Annual Environmental Report to NDCEPI
Sedimentation	Sedimentation effects	Monitoring of sedimentation and water quality per the Tiered Management Framework and trigger levels. Weekly monitoring of water quality with reactive coral health surveys. Monthly monitoring of sedimentation with reactive mangrove health surveys.	Exceedances Reporting to NDCEPI in accordance with the Tiered Management Framework (Dredge Management Plan)
Flora	Flora records	Reporting and interpretation every year	Annual Environmental Report to NDCPEII

Environmental Concern	Report	Frequency	External Reviewer
Fauna	Fauna injury records	Reporting and interpretation every six months.	Annual Environmental Report to NDCEPI
Marine fauna (including fisheries)	Marine Fauna and Habitat Report	Regular measurements of sedimentation and water quality Reactive survey in accordance with Tiered Management Framework (Dredge Management Plan)	Annual Environmental Report to NDCEPI
Marine Habitats (including Coral)	Marine Fauna and Habitat Report	One post construction benthic habitat survey.	Annual Environmental Report to NDCEPI
Traffic	Safety Report	Regular review e.g. monthly	N/A
Social	Grievance redress mechanism – grievance register	Regular review e.g. monthly	Annual Environmental Report to NDCEPI
Cultural Heritage, Archaeological and Sacred Sites	Any and all occurrences of damage to sites are to be recorded.		Annual Environmental Report to NDCEPI

12.2 Operations

Environmental Concern	Report	Frequency	External Reviewer
Air Quality	Air Quality Monitoring Report	As required per the Grievance Mechanism	
Noise and Vibration	Noise and Vibration report	In response to the Grievance Redress Mechanism	Annual Environmental Report to NDCEPI
Sedimentation	Coastal and Marine water quality report	One post construction survey event of sedimentation and water quality impact and reference is recommended to take a snapshot of the post construction impact. (a few months after construction completed).	
Flora	Flora records	Reporting and interpretation every year	Annual Environmental Report to NDCPEI
Marine fauna (including fisheries)	Marine Fauna and Habitat Report	One post construction survey event of sedimentation and water quality impact and reference is recommended to take a snapshot of the post construction impact. (a few months after construction completed).	

Environmental Concern	Report	Frequency	External Reviewer
Marine Habitats (including Coral)	Marine Fauna and Habitat Report	One post construction survey event of Coral, Mangrove and Seagrass impact and reference is recommended to take a snapshot of the post construction impact. (a few months after construction completed). Regular bathymetry to monitor sedimentation during Operations	Annual Environmental Report to NDCEPI
Traffic	Safety Report	Regular review e.g. monthly	N/A
Social	Grievance redress mechanism – grievance register	Regular review e.g. monthly	Annual Environmental Report to NDCEPI
Cultural Heritage, Archaeological and Sacred Sites	Safety Report	Regular review	Annual Environmental Report to NDCEPI

13 Responsibilities matrix

This section clearly identifies the responsibilities of the various parties involved in the implementation of mitigation and monitoring requirements[7].

The following are the key managerial roles applicable to the Project during the following phases:

- **Pre-Construction:**
  - Project Manager – Timor Port SA
  - Environment and Social Manager – Timor Port SA
  - Design & Construct (D&C) – Contractor
  - Monitoring Consultant
  - PMU (Project management unit)
- **Construction:**
  - Engineer/Employer – Timor Port SA
  - Design & Construct (D&C) – Contractor
  - Environment and Social Manager – Timor Port SA
  - Monitoring Consultant
  - PMU (Project management unit)
- **Operations:**
  - Port Director – Timor Port SA
  - Environment and Social Manager – Timor Port SA
  - Monitoring Consultant
  - PMU (Project management unit)

The manager/s may delegate to his personnel for various functions, including the Health, Safety Quality Manager/Officer function.

The responsibility for the development, implementation and monitoring of the success of; and review and update of mitigation measures is illustrated in the tables below.

[7] For the avoidance of doubt due to the high degree of overlap and interpretation of the Decree Law 5/2011, this text is replicated exactly in Section 8 : Responsibilities Matrix

13.1 Pre construction

Item	Implement
Environmental Management Plans	- D&C Contractor, approved by Timor Port Environment and Social Manager - Ministry of Housing Development, Spatial Planning and Environment - DNSA (Direccao Nasional Dos Servicos de Agua) - Ministry and/or Directorate of Manpower - Ministry das Obras Publicas Secretariado do Estado Agua, Saneamento e Urbanizacao - PMU
Mitigation Measures	- D&C Contractor, approved by Timor Port Environment and Social Manager - PMU
Monitoring Plans	- D&C Contractor, approved by Timor Port Environment and Social Manager - PMU

13.2 Construction

Develop and author tasks during construction are limited to updates and reviews of the EMP, mitigation measures and associated specialist management plans.

Item	Develop/ Author	Implement	Review / Approve	External review
Environmental Management Plans	- Timor Port Environment and Social Manager, TPSA - PMU	- D&C Contractor - TPSA - PMU	- Timor Port Environment and Social Manager, TPSA - PMU	
Mitigation Measures	- Timor Port Environment and Social Manager, TPSA - PMU	- D&C Contractor - TPSA - PMU	- Timor Port Environment and Social Manager, TPSA - PMU	
Mitigation Measures – Resettlement / Livelihood Restoration	PMU	PMU	- TPSA - PMU	
Monitoring activities including reporting	N/A *No edits to the monitoring plans post-approval.*	- D&C Contractor - Monitoring consultant - PMU	- Timor Port Environment and Social Manager, TPSA	

Item	Develop/ Author	Implement	Review / Approve	External review
			- PMU	
Monitoring Measures – Resettlement / Livelihood Restoration	PMU	PMU		
Compliance monitoring[8]	N/A	Timor Port Environment and Social Manager, TPSA	Timor Port Environment and Social Manager, TPSA	
Compliance reporting[9]	N/A	Timor Port Environment and Social Manager, TPSA		Ministry of Commerce and Environment PMU NDPCEI Ministry of Labour Ministry of Public Works Ministry of Transport Ministry of Fishery

[8] *Compliance monitoring* is the act of validating that the contractor or the monitoring consultant has carried out the monitoring correctly and in accordance with the environmental approval.

[9] *Compliance reporting* is the act of reporting to the regulator that the project is in compliance with the environmental approval

13.3 Operations

Develop and author tasks during operations are limited to updates and reviews of the EMP, mitigation measures and associated specialist management plans.

Item	Develop/Author	Implement	Review / Approve	External review
Environmental Management Plans	- Timor Port Environment and Social Manager - PMU	- Timor Port Environment and Social Manager - PMU	- TPSA - PMU	
Mitigation Measures	- Timor Port Environment and Social Manager - PMU	- Timor Port Environment and Social Manager - PMU	- TPSA - PMU	
Mitigation Measures – Resettlement / Livelihood Restoration	PMU	PMU	- TPSA - PMU	
Monitoring activities including reporting	N/A *No edits to the monitoring plans post-approval.*	- D&C Contractor - Monitoring consultant - PMU	- TPSA - PMU	
Compliance monitoring[10]	N/A	Timor Port Environment and Social Manager, TPSA		
Compliance reporting[11]	N/A	Timor Port Environment and Social Manager, TPSA	TPSA	Ministry of Commerce and Environment PMU NDPCEI Ministry of Labour Ministry of Public Works Ministry of Transport Ministry of Fishery

[10] *Compliance monitoring* is the act of validating that the contractor or the monitoring consultant has carried out the monitoring correctly and in accordance with the environmental approval.

[11] *Compliance reporting* is the act of reporting to the regulator that the project is in compliance with the environmental approval

14 Emergency plan

14.1 Purpose

The Emergency Plan (EP) outlines the approach for managing the handling, storage and leak / spillage of dangerous chemicals and hazardous wastes associated with the development and operation of Tibar Port Project.

Following discussions with NDPCEI, it was clarified that this scenario is unlikely to happen, however Timor Port would like to maintain this Emergency Plan to have a "What if?" plan ready to implement in the unlikely event of a spill caused through construction and operation assets.

The purpose of the EP is to identify appropriate management strategies, procedures and processes to ensure that in the event of a spill / leak it is dealt with quickly and efficiently to ensure it is:

- Stopped at the source;
- Contained and collected; and
- If necessary, the site is remediated.

14.2 Objective

The objective of the EP is to:

- Reduce the risk of contamination and pollution to water and land from any dangerous chemicals or hazardous wastes;
- Respond effectively and quickly to all spills and leaks, regardless of the size / volume; and
- Minimise the risk exposure of any dangerous chemicals or hazardous wastes to all employees and contractors and subsequent health impacts.

14.3 Responsibilities

Timor Port SA Environment and Society Manager:

- Regular review and updating of the EP;
- Ensure the EP is effective and drills are conducted;
- Notify the regulatory authority of any major spills within the required timeframes;
- Ensure all employees are provided with the necessary training, Personal Protective Equipment (PPE) and equipment to deal with spills;
- Notify and coordinate emergency services, if required;
- Oversee incident reporting and investigation process and ensure an adequate investigation is undertaken, if required;

- Ensure the Safety Data Sheets (SDS) is maintained and current for all of the chemicals and hazardous materials used and stored on the Project site; and
- Ensure spill kit materials are adequately stored and restocked following any spill or leak.

All employees and contractors are responsible for:

- Clean-up and removal of spills, if it is safe to do so;
- Reporting all spills to the Environment and Society Manager using the appropriate procedure;
- Participate in emergency drills; and
- Ensure appropriate PPE is used when dealing with the clean-up and removal of spills.

14.4 Standards

The storage, management of and handling of all dangerous chemicals or hazardous wastes will be undertaken in accordance with the requirements of the following standards and legislation:

- Australian National Standard for the Storage and Handling of Workplace Dangerous Goods [NOHSC: 1015 (2001)];
- Australian Standards AS 1940-2004: The storage and handling of flammable and combustible liquids;
- Regulation 37 Annex 1 of the International Convention for the Prevention of Pollution from Ships 1973; and
- Guidelines for development of Shipboard Oil Pollution Emergency Plan (MEPC, 86:44).

14.5 Incident classification

All spills, leaks and or uncontrolled release of materials, regardless of the size / volume are classified as an event, which needs to be reported to the Timor Port Environment and Society Manager.

An incident includes a spill, leak or uncontrolled release of any of the following substances to water sources, ground; bitumen; bunded areas (concrete or plastic lined); concrete pads; and spill trays:

- Hydrocarbons;
- Chemicals;
- Saline water;
- Powdered chemicals;
- Oily waste water;
- Sewage;
- Ships ballast water;
- Concrete washout; and
- Bitumen.

The following table outlines the potential 'Incident Types' which may be applicable to the Project.

Table 14-1: Incident classifications

Level 1 Minor	Level 2 Moderate	Level 3 Medium	Level 4 Major
Minor uncontrolled spill or release of materials within a bunded or contained area* including on board a ship that may: ▪ Impact disturbed land but not vegetation; ▪ Does not impact water (surface or groundwater); ▪ Does not reach the water in the case of spills on a vessel; ▪ Does not harm fauna; and ▪ Can be easily cleaned up.	Moderate uncontrolled spill or release of materials contained within bunded or contained area that may: ▪ Reaches the water as a result of wash-down or spill overboard; ▪ Has minor impacts on soil, fauna and flora but not priority flora/fauna or significant species; and ▪ Minor impacts to surface or groundwater.	Uncontained spill or release of materials that may: ▪ Has impact on sea water, fauna and flora and is uncontrolled and extensive in its release; ▪ Impacts on native vegetation including priority / rare flora; ▪ Moderate impacts on soil requiring soil treatment or replacement ▪ Has moderate impacts on low value surface / groundwater sources; and ▪ Has reasonable probability of being detrimental to fauna.	Major uncontained spill or release of materials that may: ▪ Has impact on sea water, fauna and flora and is major, uncontrolled and time extensive in its release; ▪ Impact soil, requiring significant treatment and soil replacement; ▪ Major impacts on surface and/or groundwater sources; ▪ Impacts on vegetation over an extensive area that causes loss of priority / rare flora; ▪ Results in fauna deaths of rare / priority species; and ▪ Has a reasonable probability of being detrimental to public health.

* Contained area can include: surface of the vessel; concrete bunds; plastic lined bunds; concrete pads; and spill trays.

14.6 Prevention

The following are some simple techniques that shall be adopt and implemented on the Project to prevent spillages and leaks from occurring:

- No tanks are to be filled prior to checking available tank volume.
- Tank filling and dispensing procedures shall be carried out only by appropriately trained personnel and within designated and bunded area.
- The main outlet valve on tanks will be locked shut when unattended.
- Each tank/storage facility will be gauged and monitored daily.
- All chemical and hazardous materials are contained in bunded areas with an appropriate holding capacity.
- Bunded compound shall be lined with low permeability (less than 10 – 9 m/s) material that is not adversely affected by contact with the stored chemicals. It should be constructed in such a way that permits full recovery of contents spilt from tanks and ensures that the lining material is not damaged. The bund itself should be constructed of waterproof membrane, reinforced concrete or an approved equivalent.
- The bunded compound shall have a minimum capacity of 110% of the capacity of the largest tank. The compound shall also have sufficient capacity to retain spilt chemicals and not be affected during extreme rainfall events.
- After a rainfall event, pumping should be used to empty the compound, provided the water is not contaminated. The water should be checked by a suitably qualified and experienced person.
- Under no circumstances shall contaminated water be allowed to discharge to the environment, but shall be pumped into a tanker for appropriate disposal.
- Emptying of the compound should not be achieved through a valved (i.e. gravity flow) outlet as this may be inadvertently be left open.
- Vehicle refuelling and maintenance will only be conducted in the designated Vehicle Maintenance and Refuelling areas.
- Tanks; vehicles and equipment will be regularly inspected and maintained as per the required specifications.
- The network of storm water drains, diversion ditches and drains will be regularly inspected to ensure there are no blockages.
- All spills and leaks will be cleaned up immediately and reported to the Port Manager.
- All vessels and vessel activities are to operate in accordance with Regulation 37 Annex 1 of the International Convention for the Prevention of Pollution from Ships 1973 and Guidelines for development of Shipboard Oil Pollution Emergency Plan (MEPC, 86:44).
- Shovels, drip pans and absorbent materials will be strategically located throughout the Project site.
- Ensure that all chemical and hazardous materials are stored appropriately. Substances may escape from storage facilities through various means, including, but not limited to:
  - Absence of containment facilities;
  - Poor construction or deterioration of containment facilities;
  - Inappropriate equipment maintenance operations; and
  - Poor ‘house-keeping’ practices.

14.7 Safety Data Sheets (SDS)

Before a contractor can bring a chemical onto site, they must inform and receive approval from the Environmental Manager.

All chemicals which have been approved for use on site by the Environment Manager will be stored in accordance with the SDS and in a designated bunded / contained area.

14.8 Spill response

In the event of a spill and/or leak Timor Port SA shall adopted the following '3C Response Policy':

- Control;
- Contain; and
- Clean-up.

The following sections provide an outline of the '3C Response Policy'.

14.8.1 Control

The 'Control' aspect of the response policy includes, but is not limited to; the following steps for all spills / leaks (i.e. Minor to Major):

- Identification of the source and material involved of the spill / leak.
- If required, get help / advice from the Environment and Society Manager.
- Ensure the appropriate personal protective equipment (PPE) is used.
- If it is safe to do so, control the spill / leak at the source by:
  - Shut off valves;
  - Stop the pump process;
  - Upright the container.
- Clear the area of people and equipment not directly involved in the clean-up process.
- Complete the appropriate Form estimating the quantity spilled and submit to the Safety and Quality Officer.

14.8.2 Contain

The 'Contain' aspect of the response policy includes, but is not limited to, the following steps for all spills / leaks (i.e. Minor to Major):

- Ensuring that the appropriate PPE is in place, it is essential for spills on or over water for the edge of the spill to be contained with booms. For land spills, sand, rags or other like materials should be used.
- Block or divert the flow of the spill / leak from entering any stormwater drain.

- Place appropriate spill kit material over the body of the spill to ensure it does not disperse further.

14.8.3 Clean up

The 'Clean Up' aspect of the response policy includes, but is not limited to; the following steps:

- Ensuring that the appropriate PPE is in place; spills / leaks should be cleaned up using appropriate absorbent materials which should then be disposed of to a suitably labelled "Contaminated Material Bin" for storage and eventual transportation via a licenced contractor to a licenced disposal facility.
- Any equipment used from spill kits must be recorded and the Environment Manager / Environment Officer is to ensure the spill kit is restocked.
- For spills on soil, they may be either remediated in-situ or the contaminated soil may need to be removed for appropriate disposal.

14.9 Equipment

14.9.1 Spill response

The following spill response equipment will be stored in the fuel and other chemical storage areas:

- 55 gallon drum of absorbent granules;
- 100 absorbent pads;
- 30 metres of absorbent pigs;
- Shovels;
- Two (2) empty 55 gallon drums (steel) for collecting used absorbent;
- A hand pump and 10 metres of plastic hose;
- All PPE to safely handle spills (e.g. gloves and eye protection).

In the case of soil contaminated by a fuel or chemical spill, the soil should be excavated and taken to the volatilisation pad, before being disposed of in the approved solid waste landfill. This also applies to any sorbent material used to clean up spills.

14.10 Marine spill response

The following spill prevention measures are to be carried out for general ship operations:

- Before bunker handling commences, all deck scuppers and open drains must be effectively plugged to prevent spilled oil from escaping from the vessel.
- All water accumulation on deck should be periodically drained and scupper plugs replaced.
- All collected water is to be transferred to a slop tank or other suitable receptacle ready for proper disposal.
- When not in use, sea and overboard discharge valves connected to the bunker and ballast system must be securely closed.

- All emergencies at sea which have the potential to cause pollution are to be managed in accordance with Regulation 37 Annex 1 of the International Convention for the Prevention of Pollution from Ships 1973.

More detailed information is contained in the Port Marine Spill Contingency Plan (Appendix B)

14.10.1 First aid facilities and personal protective equipment

First aid facilities will be located in every site office and work vehicle. The location of first aid kits in the site offices will be clearly displayed. The first aid kits will be kept clean and restocked on a three monthly basis.

Timor Port SA (and its contractors) will provide all employees with the necessary PPE, including but not limited to:

- Ear plugs;
- Eye protection; and
- Gloves.

14.10.2 Fire-fighting equipment

Fire-fighting equipment (i.e. extinguishers) will be located in every site office and work vehicle. The extinguishers will be easily accessible and clearly displayed. All employees will be provided with the necessary training on the appropriate usage of extinguishers.

The fire-fighting equipment will be tested and tagged by a competent person every six months. Used or expired extinguishers will be removed from site and will be immediately replaced.

A complete fire-fighting hydrant system will be built for site.

14.11 Training

All personnel will receive environmental training as part of a mandatory induction for the Project. The environmental induction will include as a minimum the requirements of this EP.

All personnel will be trained in the use of the spill response kit and firefighting equipment required for the implementation of this EP.

Environmental notices will be developed and placed on the Project site notice boards on a regular basis and in response to non-compliance and environmental incidents. The training register will be kept onsite in an easily accessible location for inspection and auditing.

15 Decommissioning plan

The project does not have a decommissioning phase as a component of the Concession Agreement and is not discussed further.

16 Capacity development and training

Training is essential for ensuring that the provisions of the EMP are implemented efficiently and effectively. Training needs will be identified based on the existing and available capacity of the site and Project personnel (including the proponent, contractors and subcontractors) to undertake the required management actions and monitoring activities. A training program will be presented in this section of the EMP. The training program will be developed and delivered by suitably qualified personnel, in a language and medium understood by workers and/or employees.

A training needs analysis will be conducted by Timor Port SA as part of the resource planning for the Project implementation. The training needs analysis will consider:

- Practical training via instruction;
- Formal vocational training;
- Success and completion criteria;
- Delivery method;
- Certification and recognition system; and
- Training refreshers and frequency.

During the life of the Project, the following EMP training will be provided to relevant personnel:

- Field sampling and sample handling techniques;
- Data collection and collation;
- Emergency response procedures (e.g. vehicle accident, fire);
- Management of exceedances (e.g. dust levels); and
- Roles and responsibilities for EMP implementation.

17 Public consultation

Involving the public in preparation of the EIS and EMP is fundamental to increasing the public's understanding and acceptance of the Project (e.g. how the Project may affect or improve their living conditions). Public involvement also enables members of the public to identify and bring forward impacts and issues that are not immediately obvious to the EIS team. The earlier in the Project preparation process the public can be involved, the more likely that a trusting relationship can be built and useful recommendations made.

17.1 Purpose of public consultation

The public consultation process for the environmental assessment is carried out in accordance with the Draft Ministerial Diploma for the "Regulation on the Public Consultation Procedures and Requirements during the Environmental Assessment Process" dated 22 April 2014.

Considerable resources were invested into stakeholder engagement from the inception of this project by the GoTL. Stakeholder engagement has been institutionally anchored in the inter-ministerial PPP Working Group, which in October 2013 appointed a Special Panel for Stakeholder Engagement (Special Panel) chaired by the Vice Minister for Transport and Communication. The Special Panel delegated the work to a Technical Team representing 7 ministries and secretaries of state in January 2014.

The GoTL Stakeholder Engagement Team met regularly to develop the stakeholder engagement program and building mutual trust and ownership to the process among the members. The Stakeholder Engagement Team subsequently oversaw the conduct of public consultation and disclosure, conducted detailed measurement surveys as well as mapping of cultural heritage sites. The Timor Port team have continued the open and transparent consultation with all stakeholders. Table 17-1: Public Consultation Summary contains a summary of Stakeholder Engagement activities to date, all conducted during the Pre-Construction Phase for the purpose of general and specific information dissemination and discussion sessions.

17.2 Fieldwork

The Government of Timor-Leste (GoTL) socio-economic census that was conducted from December 14 – 16, 2015 to further collect in-depth socio-economic information more suited for the preparation of SIA and RAP. This detailed census identified a total of 217 affected people consisting of 68 Project Affected People (PAPs) in Group A and 149 PAPs in Group B.

Then on the 10 – 14, October 2016, Advisian conducted socio- economic surveys in the greater project area with indirectly affect community members. This refers to community members who will not be physical or economically displaced by the project, however will still be impacted. The households mainly consisted of Tibar community members living on the other side of the road from the proposed port location, as well households in neighbouring Ulmera. The survey was undertaken for 25 households currently living near the proposed development. Two of the survey were conducted with fish Co-Ops (homesteads with only men living together to fish collectively)

The survey questionnaire included the socio -economic status of PAPs, migration patterns, fishing activities and other sources of livelihood, and perceptions on impacts. Refer to Figure 17-1, Figure 17-3, Figure 17-4 and Figure 17-4 for pictures of community members being interviewed for the socio-economic surveys

Figure 17-1: Members of fishing co-op being interviewed for socio-economic survey

Figure 17-2: Tibar community members being interviewed for socio-economic survey

Figure 17-3: Tibar community member being interviewed for socio economic survey

Figure 17-4: Interview the Tibar Primary School Principal

Table 17-1: Public Consultation Summary

Stakeholder Engagement	Type of Engagement	Date	Tools Used	Number of Attendees	Project Information Presented	Comments Raised
Local Community	Community meeting	June 11, 2014	Presentation, discussion and leaflet	120: Locally affected population; district and sub district administrators; representatives from the relevant agencies	Plans, rationale, potential social and environmental impacts of project	Compensation mechanism, Benefit sharing mechanism
Local Community	Community meeting	August 1, 2014	Presentation, discussion and leaflet	65: Locally affected population; sub district, Administrator; *Chefi du Suco* of Tibar and Ulmera	Informing the community about data; cadastral mapping process in the area of the Tibar Bay port	Relocation sites to those physically affected. Exact are to be affected by the development. Mitigation plans to avoid affecting community water supply (Natural Spring). Timeline of relocation. Effect of development to livelihood activities (Salt making)
Business Owners	Community Meetings	Nov 18, 2015	Presentation Discussion session	25: Representatives from affected businesses, Stakeholder Engagement Team members	Project timeline, status and clearance of the area.	The businesses noted that enough time should be provided for them to transfer to other locations. The best solution was not compensation but to provide them a place to move to.
Principal Of Tibar Primary school	One on one meeting	October 12, 2016	Background information document provided and discussion session	3: The Principal and two Advisian staff	Introduction to Advisian, EIS scope and timeframe	The Principal supports the project but was concerned about the increased traffic in the area due to the project.
Doctor at Tibar Clinic	One on one meeting	October, 12, 2016	Background information document provided and discussion session	3: The Doctor and two Advisian staff	Introduction to Advisian, EIS scope and timeframe	Dr Do Santos has heard about the Tibar Port project he received the information from community members.

Stakeholder Engagement	Type of Engagement	Date	Tools Used	Number of Attendees	Project Information Presented	Comments Raised
Manager at Tibar Training Centre	One on once consultation	October 12, 2016	Background information document provided and discussion session	3: Training Centre Manager and two Advisian staff	Introduction to Advisian, EIS scope and timeframe	The centre also has external contracts with companies to design training course for specific company requirements. So this is something that can be explored if required for Tibar Port.
Manager at Tibar Bay resort		October 12, 2016	Background information document provided and discussion session	2: Resort Manager and two Advisian staff	Introduction to Advisian, EIS scope and timeframe	The Resort Manager explained that she had consultation with the government for many years regarding the project.
Jesuit Religions Group	One on one discussion	January 16, 2017	Project introduction and discussion session	3: Jesuit Priest and Advisian representatives	Introduction to Advisian, EIS scope and timeframe	The Jesuit church representatives have not been directly approached by the GoTL to inform them of the project. They have obtained information via the internet.

In addition to the local community and business owner consultations, the GoTL PPP Unit and Timor Port held separate consultation activities with relevant government agencies, as shown in Table 17-2. This is consultation to collection information related to the relocation of fuel importing businesses out of the area. A summary of the government agency consultation is provided below.

Table 17-2: GoTL and Timor Port Business Consultation

Agency Consulted	Type of Engagement	Date	Tools Used	Number of Attendees	Objectives of Consultation	Results of Discussion
Police Maritime	Consultation meeting	August 6, 2015	Interview site inspection	4: 3 PPPLU offers; and 1 Police Maritime officer.	To collect information regarding all activities relative to the businesses that are currently operating at the Tibar Port	▪ Global Fuel, Laiara Fuel, Arjumar Fuel have business license and still active in loading and unloading the goods. The three companies are constructing their own jetty in Liquiça area. When the construction of TBP Port starts, they will move to their own Jetty. This information has also been verified by ANP see result of discussion with ANP. ▪ Atauro Express: This company no longer imports fuel, but its ship are still anchored in the berth or using the existing port's Jetty. Atauro Express also invested to the existing port such as fencing the port area, installation of the pipe system, rehabilitation of the facilities and building its office inside the existing port. ▪ ETO and PUALAKA; These two companies previously operated at the existing Tibar Port. They still have their assets inside existing Tibar Port. According to the Maritime Police, these two companies informed them that they will clear or remove their assets soon. Note: As of May, 2016 these two companies have cleared their assets within the Port
ANP	Meeting	August 25, 2015	Consultation meeting	5: ANP (2); and PPPLU (3).	Discuss the existing business operators at Tibar Port.	Information gathered on businesses: ▪ Equipment: there are 2 barges in Tibar Port; each barge has a capacity of 2,500 kL (kilolitre) fuel (diesel). Owner of the barges is Star King Construction. Laiara knows the contact person. The barges receive and store diesel fuel for marketing to fuel refilling stations, power stations including Betano, Atauro and Oecusse and operators of heavy equipment. ▪ Fuel for Hera Power Plant is directly transported to the

Agency Consulted	Type of Engagement	Date	Tools Used	Number of Attendees	Objectives of Consultation	Results of Discussion
						power station which has an existing jetty. ▪ Pertamina, on the other hand has its own jetty, however, they do not share this with other oil importers. ▪ Tibar Port exists since 2002. ANP as the proper authority will no longer allow wooden vessels to transport fuel to Timor-Leste, due to non-compliance with the International Standard (Wooden Vessel is inappropriate to carry fuel).This does not mean that ANP will stop the businesses of these companies, but rather to require them meet the minimum Safety Standards. Follow-up discussions went through for 3 months already and some resistance have been encountered. ▪ Regarding documentations, wooden-vessel operators have no papers to show. Based on information, the hauling of fuel which is not acceptable anywhere in the world occurred in East Timor somewhere in the middle of the sea being brought by a certain vessel. ANP, on the other hand, is obliged to check the quality of incoming fuel by taking and sending samples to Australia for analysis. ▪ Ajumar has Fiber Glass vessel and is handling 300,000 to 1,000,000 litres. ▪ Global and Lai Ara - Vessel used is owned by another company. ▪ According to ANP, gasoline is not allowed to be transported through this port. ▪ Regarding Mr. Lourenço, he is an operator and the facilities in Tibar Port are owned by the Government. ▪ ANP received proposals to build jetty in Liquiça 7 km away from Tibar Port.

Agency Consulted	Type of Engagement	Date	Tools Used	Number of Attendees	Objectives of Consultation	Results of Discussion
						▪ **Noted that a resolution for this issue (clearing of area for TBP) should be prepared and the Minister of MPWTC shall present this to the Council of Ministers for approval.**
	Meeting	December 11, 2015	Consultation meeting	4: ANP (1); and PPPLU (3).	Discuss about businesses in Tibar Port and providing copies of Notice to Businesses for posting to visible locations.	▪ Update Information: oil transporters using wooden vessels were no longer allowed since Nov. 7, 2015. ▪ Copies of Notice to Businesses to collect relevant information to the Technical Team was received by ANP and ANP understood that these will be posted in locations visible to businesses including on ANP's Bulletin Board.
	Meeting	April 11, 2016	Consultation meeting	4: ANP (1); and PPPLU (3).	To get updates on businesses and other related information.	▪ Of the 13 businesses listed to have conducted fuel importing activities on Tibar Bay, only three have license from ANP to continue operating because they met the safety standards. These are Global Fuel and P. Trading Pty, Lda., Arjumar Unip. Lda, and Lai Ara Unip. Lda. ▪ ANP updated PPPLU on the status of the development of Global, Arjumar and Lai Ara's plans to develop their own jetty facility. Global and Lai Ara has teamed up to develop their own facility also Arjumar is going to build their own facility. These sites are located in Liquiça. ▪ To build their own facility, these businesses have to submit ▪ Page 31 v. June 10, 2016 ▪ Application to secure permit from ANP. Application to be submitted will be reviewed and should be completed in accordance with ANP requirements.

Agency Consulted	Type of Engagement	Date	Tools Used	Number of Attendees	Objectives of Consultation	Results of Discussion
						▪ As to potential impacts to availability of diesel fuel in Timor-Leste should the businesses stop activities, ANP highlighted that during the relocation phase, there could be impacts on the supply of diesel fuel but specific to construction works in the country (as Pertamina is supplying the bulk of consumer diesel demand).
Autoridade Natcional do Petroleo e Minerais (ANPM)	One on one consultation	November 29, 2016	Discussion session	11: Chairman of Timor Ports, Advisian staff and ANPM representatives	Project infrastructure and approvals requirements	▪ The ANPM with need to issue a formal approval for a Ministerial Diploma for Mineral activities.
Project Management Unit –Roads (PMU)	Presentation and one on one consultation	November 30, 2016	Discussion session	11: Timor Port, Advisian and PMU Roads representatives	Infrastructure requirements around proposed port	▪ The requirement for the PMU's assistance with Storm water channels and roundabouts close to the proposed port.
PPPLU	Presentation and one on one consultation	November 30, 2016	Discussion session	18: Timor Port, Advisian and PPPLU representatives	Livelihood Restoration plans status, Independent Engineer appointment	▪ Timor Ports noted that the delay in the appointment of the Independent Engineer could delay the project submissions.
Electricidade De Timor-Leste (EDTL)	Presentation one on one consultation	December 1, 2016	Discussion session	11: Timor Port, Advisian and EDTL representatives	Project Power requirements during construction and operations of the proposed project	▪ The EDTL will work on existing network to ensure sufficient power to Timor Port.

Agency Consulted	Type of Engagement	Date	Tools Used	Number of Attendees	Objectives of Consultation	Results of Discussion
(DNSA) Water and Sanitation Department	Presentation one on one consultation	December 1, 2016	Discussion session	12: Timor Port, Advisian and DNSA representatives	Project water requirements	▪ DNSA indicated that they will perform new test (during 72 hours and monitoring surrounding bores) to check rate available and water quality.
National Procurement Commission (NPC)	One on one consultation	December 1, 2016	Discussion session	11: PPPLU, NPC, Advisian and Timor Port representatives	The appointment of the Independent Engineer	▪ The requirements of the Independent Engineer in concession agreement were discussed.
Customs	Presentation and one on one consultation	December 2, 2016	Discussion session	9: Customs, Advisian and Timor Port representatives	Timor Port presented the customs operation of the port	▪ The general layout of the customs facility at the proposed port was presented. GoTL Customs to provide comments.

17.3 Public meetings

Public Consultation with the community, stakeholders and NGO's was held in Tibar on 23 February 2017. The consultation was undertaken in accordance with Decree Law 5/2011 requirements that the results of the EIS and EMP are shared with the community and their concerns and questions captured.

A total of 138 people attended the meeting held at the Tibar Retreat from 09h00 to 16h00. The meeting was undertaken utilising a presentation of the key information in English with simultaneous translation into Tetum. A copy of the Non Technical Summary, in English and Tetum was provided to the attendees.

A question and answer session was held over 4 hours following the technical presentation. The key issues for the community and NGO's included:

- Vibration from piling and damage to homes
- Loss of fishing livelihood
- Water quality in the spring in use by the community
- Sedimentation impacts from dredging
- Resettlement and compensation
- Mitigation measures to be implemented for dust and noise
- Mitigation measures to be implemented for vibration from piling

The record of the consultation questions and answers are provided in the Environmental Impact Statement document.

17.4 BAP meeting

Consultation with the Chefes do Suco of local communities who may be affected by Conservation and Offset areas proposed in the Biodiversity Action Plan was held in Ulmera and Tibar on the 14 and 16 August 2017.

Timor Port presented a description of the Project, explained the BAP process and provided a summary of the Offset and Conservation areas. The PMU also assisted to this meeting. Following the presentation, a question and answer time was lead.

The record of the consultation questions and answers are provided in the Environmental Impact Statement document.

Chefe Sucos agreed in principle with the BAP and action plan and they look forward to the subsequent progress.

18 Grievance redress mechanism

The Project Proponent will establish a Grievance Redress Mechanism (GRM) related to environmental and social issues arising during the pre-construction, construction and operation of the Project.

In this Public Private Partnership Project, it is established in the Concession Agreement that there is no decommissioning as infrastructures and equipment are transferred to the Grantor at the end of the Concession, including all the relevant documents and procedures.

The Complaints and Grievance Mechanism shall be developed to ensure that concerns and potential conflicts arising during the various phases of the Project can be satisfactorily addressed. WorleyParsons has developed this grievance mechanism framework for discussion with stakeholders (including government) to refine the procedure to meet stakeholder needs through consultation.

Once refined, project staff (comprising a representative who will receive grievances at each Project site's grievance office, and a Dili office representative) should be provided with training. These staff will accept and log incoming grievances and, if the grievance is directly related to the Project's actions, follow a prioritisation process to identify the required remedial action.

The chart below illustrates a suggested procedure for managing and resolving complaints during the feasibility stage. The procedure is equally relevant during the development stage of the Project with responsibility for resolution defined between the Project Proponent and the construction contractor. It is important to ensure the following values are upheld throughout the grievance process:

- Awareness;
- Accessibility;
- Transparency; and
- Expediency.

Stakeholder awareness of the existence of the GRM will mean that when an issue arises, community members will know where to go to address and resolve the issue. This will encourage the issue to be dealt with through the appropriate mechanism and will improve expediency of resolution and good will with the community. Therefore, when engaging with the villages and other stakeholders they should be made aware of the grievance mechanism and where or whom they should contact to access the mechanism.

Accessibility to the GRM will also enable stakeholders to air their complaints directly thereby avoiding other forums such as the media. Typically, the earlier the Proponent becomes aware of potential issues, the more efficiently these can be mitigated and contained. Furthermore early detection of potential issues can prevent problems arising later in the Project lifecycle. It will be essential to break down barriers to accessibility which, based on baseline investigations, include,

geographic location, literacy levels, language and cultural appropriateness, and distrust in government or corporate structures.

Recommended strategies to overcome these barriers include:

- Establishing a grievance office at Tibar Bay village.
- Upon request, remote locations and vulnerable individuals (e.g. elderly and disabled) should be visited by a representative of the project on a regular basis that will disseminate information regarding the Project and receive complaints from stakeholders at their village or residence. This will promote accessibility of the grievance procedure and help build a relationship with communities and encourage dialogue.
- Complaints should be able to be registered via a toll-free mobile telephone number to be established by the Proponent in cooperation with local telecom provider to allow direct access to each individual to the grievance mechanism. Another option is to provide a pre-paid mobile phone to each village chief to be exclusively used for lodging grievances. The mobile phone would allow the chief to send a message to the nearest grievance office requesting the grievance officer to visit the village and record the grievance. The pre-paid mobile option needs to be further investigated in consultation with village chiefs.
- Representatives should be instructed to note down complaints where the individual is unable or unwilling to write the complaint themselves.
- Local people fluent in the relevant languages should be engaged as representatives.
- Locals should be consulted regarding the cultural appropriateness of the complaints process.
- Complainants should be given the option of maintaining anonymity throughout the complaints process.

Transparency of process cultivates trust and ensures expectations among the stakeholders are set at an appropriate level. Elements of the grievance procedure which will encourage transparency include explaining the process and timescales associated with processing a complaint, providing the complainant with a copy of the complaint when it has been submitted and ensuring the complainant is kept informed of developments in processing their complaint. Written complaints should be held at the respective grievance offices where the complainant (or a designated advocate) should be allowed access.

Expediency will enable efficient processing of complaints. In order to encourage expediency the project should set deadlines for processing complaints and a case management approach should be established among the relevant staff, with oversight from a senior individual who should be assigned responsibility for management of the grievance mechanism.

As well as committing to the values mentioned here, the project will work to IFC guidelines (IFC, 2011) regarding grievance mechanisms.

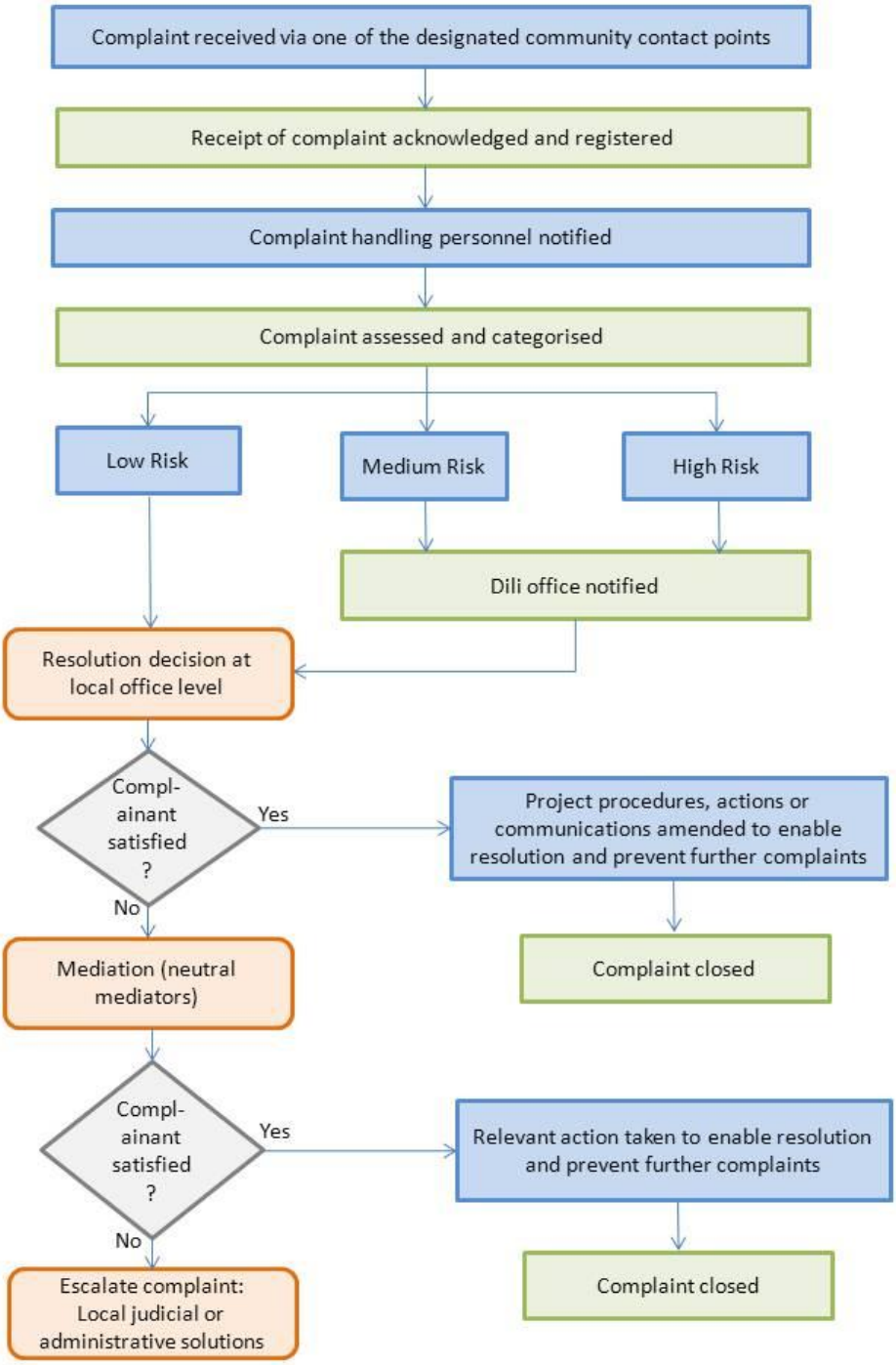


Figure 18-1 Grievance resolution framework

19 Work plan and implementation schedule

This section details the sequential environment and social assessments, mitigation and management measures which are required for each phase in order to successfully implement this Environmental Management Plan and its associated plans, the Dredge Management Plan, Marine Oil Spill Contingency Plan and the Biodiversity Action Plan.

This section is a requirement of the NDCEPI and it is acknowledged that this is subject to change depending on project schedule and achievement of key milestones.

	Post project Approval	2016 - 2017 *1	2018 -2019	2019 -2047
Tasks to implement EMP	**Tender and detailed design Phase**	**Preconstruction**	**Construction**	**Operations**
Project Approvals		•		
Relocation of affected land owners		•		
Heritage pre-clearance activities		•		
Complaints & grievance mechanism		•		
Reactivate monitoring of coral, fisheries, water quality (optional)			•	
Monitoring of water quality and sedimentation			•	
Weed management and control of invasive species		•	•	•
Install automated weather station & climate controlling		•		
Accident Emergency Response Review		•	•	•
Finalise and implement Biodiversity Action Plan		•	•	•
Annual Environmental Reporting to the GoTL			•	•

20 Cost estimate

The amounts below are based on the information available at this stage, and constitute a preliminary estimate.

Description	Pre Construction & Construction	Operations
Environmental	$ 443 666	$ 221 833
Social	$ 254 524	$ 87 566
BAP	$ 419 440	$ 72 971

The economic values of environmental impacts of the Project below are based on the information available at this stage, and constitute a preliminary estimate.

Parameter	Pre Construction & Construction	Operations
Air Quality	$ 96 322	$ 64 215
Noise and vibration	$ 23 351	$ 35 026
Sedimentation	Included in D&C contract	$ 52 539
Water Quality	$ 14 594	$ 17 513
Benthic Habitat	$ 189 726	$ 43 783
Reclamation	$ 58 377	$ -
Invasive Marine Species	Included in D&C contract	$ -
Marine Megafauna	$ 14 594	$ -
Underwater noise	$ 14 594	$ -
Lighting	$ 8 757	$ 8 757
Offshore disposal	Included in D&C contract	$ -
Terrestrial fauna (incl. birds)	$ 23 351	$ -
Employment	$ 116 754	$ 58 377
Fishing	$ 53 123	$ -
Population and community	$ 72 971	$ 29 189
Cultural Heritage	$ 11 675	$ -
Mangroves and Mudflat/Seagrass	$ 396 090	$ 72 971
Birds and Turtles	$ 23 351	$ -

21 Review of the EMP

The EMP will be reviewed at the following key project milestones:

- Completion of the pre-construction phase and any additional specialist studies;
- Completion of the construction phase;
- Handover to the Operations phase; and
- Every 5 years at minimum during Operations phase.

The EMP will be reviewed following the events where:

- Equipment or procedural changes result in a positive or negative change to the project environmental and social risks;
- Monitoring results indicate that a change to the mitigation and monitoring regime is required to manage the project impacts;
- Legislative changes in country require update to the EMP; and
- There is a change to the responsibility matrix for EMP implementation.

The review will follow standard QA/QC document management and review processes with the Approver being technically responsible for the content.

22 Non-technical summary

ENGLISH	TETUM
Introduction: The Government of Timor-Leste (GOTL) proposes to construct a new port facility in Tibar Bay, 10km west of Dili. The principal function of the port is to replace the congested Dili port and add capability to handle bigger vessels. . Timor Port SA has been established as a consortium of parties to deliver port project on behalf of the grantor, the Democratic Republic of Timor Leste. Timor Port SA comprises: 1. Bollore Africa Logistics 2. SDV Logistics East Timor Unipessoal Limitada 3. Societe de Participations Africaines The Project Management Unit (PMU) is managing the project, as this is a critical project for the country. Timor Port SA and PMU are implementing environmental safeguards, mitigation measures and other requirements.	Introdusaun: Governo Timor-Leste proposta atu konstrui fasilidade ponti kais foun iha Tibar baia, 10km oeste husi Dili. Funsaun prinsipiu husi ponti kais ida ne'e atu troka ponti kais iha Dili nebe'e mak nakonu ona no atu aumenta kapasidade ponti kais nian atu kaer ro'o nebe'e boot liu tan. Timor Port SA hanesan kompania nebe'e mak estabele husi konsorsiu mak atu halao projeitu ponti kais ne'e hodi projeitu nain nia naran, Governo Republika Democratiku Timor – Leste. Timor Port SA kompostu husi kompania hanesan: 1. Bollore Africa Logistics 2. SDV Logistics East Timor Unipessoal Limitada 3. Societe de Participations Africaines Unidade Gestao ba Projeitu (Project Management Unit-PMU) mak maneja ba projeitu ne'e, tamba projeitu nebe'e maka importante tebes ba nasaun ida ne'e. Timor Port SA no PMU sei implementa seguransa ba ambienti, medidas ba mitigasaun no rekerementu seluk tan.
Project description: The port project is comprised of: ▪ A two-berth quay wall approximately 630 m long; ▪ Demarcation of a 250 m wide shipping channel; ▪ Dredging of the turning basin and port quay area; ▪ Reclamation and soil improvement of the 27 ha container terminal; and ▪ Supporting infrastructure for operation of the port. ▪ Investment of USD 290 million during the construction phase and USD 490 million over the 30 years concession period	**Descripsaun Projeitu** : Projeitu ponti kais ida ne'e kompostu husi: ▪ Parede para Ro'o sadere 2 ho naruk mais o menus 630m ▪ Demarcasaun kanal navigasaun ho luan 250m ▪ Ke'e Rai ba fatin ro'o hadulas fatin no area ba ponti kais ▪ Reklamasaun no aumenta rai ba 27 hektares terminal ba konteiner; no ▪ Infrastrutura atu suporta operasaun husi ponti kais ▪ Investimento de USD 290 millioes para la construção ho USD 490 millioes para tinan 30 de concessão.

Legal framework: The implementation of the Project is governed by laws, regulations, and standards for environmental protection and management of GOTL including the Basic Law of Environment (April 2012) and the Decree Law 5/11 on environmental licensing. In addition to GOTL's requirements the project must comply with IFC Environmental and Social Standards. According to both Timorese law and the IFC's Guidelines, the Project is classified as Category A because the potential adverse environmental impacts are regionally significant and require comprehensive management and mitigation measures.	Kuadru Legal: Implementasaun Projetu sei bazeia tuir Lei, regulasaun no padraun ba protesaun ambiental no gestaun husi GoTL inklui Lei Basiku do Ambiental (Abril 2012) no Dekretu Lei 5/11 konaba licenciamentu ambiental. Alem husi rekerementu husi GoTL, projeitu ida ne'e mos tenke kumpri tuir Padraun Ambiental no Sosiais husi IFC nian. Tuir lei husi Timor no mos mata dalan IFC nian, projeitu ida ne'e klasifika ona hanesan kategoria A tamba potensaun atu estraga ambienti hanesan regionalmente signifikante. No persiza genstaun no medidas mitigasaun nebe'e mak komprehensivu.
Description of Environment: The environmental setting for the Project is from the existing beach area to the south of Tibar Bay, adjacent to where the current oil jetty is and along the headland near the Tibar Retreat. The turning basin is at the middle of the bay with the shipping channel starting where the bay naturally opens up to the sea.	**Deskripsaun husi Ambiental:** Cenario ambiental husi projeitu ida ne'e husi area tasi ibun agora iha to'o parte sul husi Tibar Baia, besik ho ponti kais ba mina no tuir tanjung nebe'e besik ho Tibar Retreat. Fatin Ro'o hadulas iha klaran husi baia ho kanal navigasaun komesa iha nebe'e baia nakloke ba tasi.
Consultation: Public consultation was undertaken by the Inter Ministerial PPP working group during a Community Meeting in June 2014, which presented the potential social and environmental impacts of the project. In August 2014, Cadastral Mapping was undertaken to determine who would be impacted by the development. In 2015, the PPP working group met with the Community Business Owners to provide information on timelines and status of the project. In October 2016, Advisian undertook consultation on behalf of TPSA to collect socio-economic data and inform community members about the project; including: • Local fishermen • Local Tibar Bay community • Fr. Roberto Maaghot Boholost (SJ) Jesuit School Cassait, Liquica • Local Ulmera community • Clinic doctors at Tibar Bay and Ulmera In December 2016, Advisian and TPSA undertook consultation with the following	**Konsultasaun**: Konsulatasaun Publiku halao ona husi Grupo servisu Inter Ministeriu PPP durante enkontru komunidade iha Junu 2014, nebe'e mak apresenta pontensaun impaktu sosiais nomos ambiental husi projeitu ida ne'e. Iha fulan Augusto 2014, halo ona Mapeamento cadastral atu determina se'e mak bele hetan impaktu husi dezenvolvimentu ida ne'e. Iha 2015, Grupu Servisu PPP hasoru malu Komunidade Negosiu Nain atu fornese informasaun kona ba orario no status husi projeitu nian. Iha fulan Outubro, Advisian halao konsultasaun hodi naran husi TPSA nian atu koleta dadus sosio-ekonomiku no informa membrus komunidade kona ba projeitu: inklui ba: • Peskadores Local • Komunidade iha Tibar • Fr. Roberto Maaghot Boholost (SJ) Jesuit School Cassait, Liquica • Komunidade iha Ulmera • Doutor iha klinika Tibar nomos Ulmera Iha Desembru 2016, Advisian nomos TPSA halao konsultasaun ho parte interesada tuir mai ne'e atu diskuti kona ba implementasaun husi projeitu no

stakeholders to discuss the project implementation and proposed environmental and social impact management approaches: • The PPPLU (PPP Launch Unit) • Port Customs Unit of GoTL • PMU Road Unit • National Procurement Unit • Water and Sanitation Department (DNSA) • EDTL (National Electricity Company) A community consultation meeting is planned on 23 February 2017 to share the results of the Environmental Impact Assessment and collect community and stakeholder input.	proposta oinsa atu halao gestao impaktu ambiental no sociais: • PPPLU (PPP Launch Unit) • Alfandega • PMU Road Unit • Commisao Nacional de Aprovisionamentu • Departementu Nasional Agua no Saniamentu (DNSA) • EDTL Enkontru konsultasaun ho komunidade planu sei halao iha 23 Febereiru 2017 atu fahe rezultadu husi Avaliasaun Impaktu Ambiental no atu hamutuk opiniaun husi komunidade no parte interesada sira.
Concerns and complaints: A grievance redress mechanism (GRM) will be established to help resolve issues associated with the Project. The GRM will receive concerns and facilitate resolution of affected people's complaints and grievances about the environmental and social performance of the Project. The GRM will provide a mechanism for affected persons to voice and resolve social and environmental concerns linked to the Project	**Preokupasaun no Keixa:** Mekanismu reparasaun ba Keixa (MRK) sei estabele atu ajuda resolve kestaun nebe'e iha relasaun ba projeitu. MRK sei simu preokupasaun no fasilita resulusaun husi keixa ema hirak nebe'e afeita kona ba desempenu husi ambiental no social husi projeitu ida ne'e. MRK sei oferese mekanismu ba ema nebe'e afeita atu hato'o no resolve problema sosial no ambienti nebe'e relasaun ho projeitu.
Environmental Management Plan (EMP): The environmental impacts from the Project during construction and operation will be guided by the EMP, and the construction contractor and operator will be required to apply appropriate mitigation measures to minimize environmental impacts to acceptable levels. Controls on construction and operational impacts such as dust and noise, heritage sites, Tibar Bay water quality impacts, health and safety concerns, fishing and livelihood, traffic interruption, employment opportunities and impacts to marine plants and animals will be monitored on a regular basis by the PMU. Training will be provided as necessary to ensure these impacts are mitigated to the greatest extent feasible.	**Planu Managementu Ambiental:** Impaktu ambiental husi projeitu durante konstruksaun nomos operasaun sei uza EMP hanesan mata dalan, no kontraktor ba konstruksaun no operador sei persiza atu aplika medidas mitigasaun nebe'e apropriadu atu minimiza impaktu ambiental to'o nivel nebe'e bele aseita. Kontrola ba impaktu konstruksaun no operasaun hanesan rai rahun no barulhu, fatin eransa, impaktu kualidade be'e iha Tibar baia, preokupasaun ba saude no seguransa, Peskas no subsistensia, interupsaun trafiku, oportunidade ba serbisu, impaktu ba planta no animal tasi nian persiza atu monitora be-beik husi PMU. Treinamentu sei oferese tuir nesesidade atu asegura katak impaktu hirak ne'e sei bele hanenus to'o masimu.
Conclusion and Recommendations: The construction of the project will have short term impacts on the water quality in bay in terms of sedimentation from dredging and reclamation. This may impact fishing and plants and animals	**Konklusaun no Rekomendasaun**: Konstruksaun husi projeitu ne'e sei iha impaktu iha tempu badak ba kualidade be'e iha baia iha termu husi sedimentasaun husi ke'e rai no reklamasaun. Ida ne'e bele iha impaktu ba peskas no planta no animal tasi iha tibar

in Tibar Bay. The impacts will be mitigated through the projects Biodiversity Action Plan, Dredge and Spoil Management Plan and Livelihood Restoration Plan. Construction of the Port will result in impacts on the local community from dust, noise and traffic which will be mitigated and monitored. Operation of the port will result in minor impacts on water quality in the bay, and noise, dust and traffic impacts during operation. Environmental and social impacts during the construction and operation phases of the project will be managed and monitored by TPSA and PMU with the required regulatory reporting as per the project's approved environmental license.	baia. Impaktu hirak ne'e sei hamenus tuir Planu Asaun Biodivesidade, Planu Gestaun Ke'e no'o Fakar Rai no Planu Restaurasaun Subsistensia. Konstruksaun husi ponti kais ne'e sei rezulta iha impaktu ba komunidade local husi rai rahun,barulhu no trafiku nebe'e sei hamenus no monitora. Operasaun husi ponti kais ne'e sei rezulta Iha impaktu minor ba kualidade be'e iha baia, no barulhu, rai rahun no trafiku durante operasaun. Impaktu Ambiental no social durante faze kontruksaun nomos operasaun husi projeitu ne'e sei maneza no monitora husi TPSA no PMU ho reportagen ba regulatory nebe'e persiza tuir lisensa ambiental nebe'e mak hetan aprova.

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Advisian
WorleyParsons Group

Appendix A Dredge Management Plan

Appendix B Port Marine Spill Contingency Plan

Appendix C Draft Biodiversity Action Plan